User's Guide

Foundation 2000RE
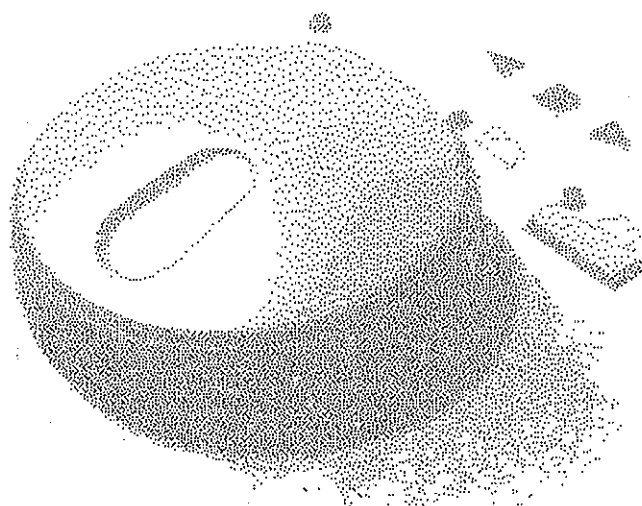
FOSTEX

Foundation 2000RE, Intelligent De-emphasis Process (IDP), Removable Project
Environment (RPE), Algorithmic Computing Engine (ACE), Sample Transfer Audio
Routing Bus (STAR bus), and Shared Memory Interface (SMI), and TimeWarp are
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If you have any suggestions or comments concerning this manual, please contact
Fostex Research and Development, Inc., 2 Buck Road, Suite 2, Hanover, New
Hampshire 03755-2715. Telephone 603-643-9811 or Fax 603-643-1776.

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FOSTEX

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INTRODUCTION

About Foundation 2000RE

FOUNDATION 2000RE is a random access digital audio recorder and editor which can be used as a stand-alone system or integrated into a multi-machine environment. The Foundation's unique hard disk recording medium, the Removable Project Environment (RPE), stores all audio, editing and project data on removable hard disk cartridges. A 540MB RPE provides about 90 minutes of storage. The RPE is designed to be inserted into any other Foundation quickly and easily. Background archiving and restoring is supported for WangDAT SCSI drives.

The Foundation 2000RE features 16 audio channels in an 8-track configuration, allowing simultaneous real-time crossfades on all tracks. A/D converters are 16-bit, 64x oversampling; D/A converters are 16-bit, 8x oversampling. Foundation 2000RE provides both +4dBu and -10dBV analog inputs and outputs. Its digital inputs and outputs support ADAT, SPDIF, AES and SDIF2 formats.

The Edit Controller features dedicated buttons for recording, editing, transport, and machine control. The weighted jog/shuttle knob provides smooth audio scrubbing. The touch-sensitive screen includes soft buttons for viewing waveforms and meters, setting preferences, and other functions. You can connect an external keyboard for text entry.

Extensive machine control and sync options enable the Foundation to operate in a multi-machine environment. You can sync to word clock, video sync, LTC and VITC. The Foundation chases timecode in both forward and reverse directions. MIDI, ADAT sync and RS-422 Sony 9-pin protocols are used for communicating with external transports or controllers, such as the Fostex RD-8 digital multitrack recorder.

Customer Support

Fostex maintains a worldwide Customer Support program dedicated to serving the needs of Foundation users. Customer Support is a good resource for questions about how to operate your Foundation. If minor repairs are necessary, Customer Support can walk you through the procedure. In addition, Customer Support keeps you informed of future software and hardware updates, and wants to hear your requests for future products or features.

Customer Support 8:30 a.m. to 11:00 p.m. EST, Monday—Friday
U.S. and Canada: 1-800-8FOSTEX (1-800-836-7839) International: 1-603-643-4748   FAX: 1-603-643-1776

Customer Support can respond best if you have the following information available when you call—

- hardware serial numbers (located below the AC input socket on the back of the Main Unit, and on the bottom of the Edit Controller)

- software version number (shown on the System:Info display)

- description of the external equipment operating with your Foundation

Safety instructions

Please observe standard safety precautions when operating and servicing the Foundation 2000RE—

- *Water and moisture:* To avoid possible electric shock and damage to the Foundation, prevent contact with water or other liquids.

- *Ventilation:* Provide proper ventilation to allow unrestricted air flow in through the front and out through the back of the Main Unit.

- *Heat:* Keep the Foundation away from heat sources such as radiators, heat registers, stoves, or amplifiers.

- *Power:* Always use a power cord that is approved by the appropriate National Safety Agency for the country of use. Connect the power cords only to AC outlets that have a dedicated ground lead. Do not pinch or step on power cords. Make sure power cords are plugged in completely.

- *Fuse:* For continued protection against fire and circuit damage, replace only with fuse of the same specified voltage and current ratings.

- *Other:* Obey all warnings on the Main Unit and in the User's Guide. Do not operate the Foundation with any of its outer panels removed.

Many components in this product have special safety-related characteristics. When installing components, use only authorized replacement parts. Using unauthorized parts may cause electric shock, fire or other hazards.

Always wear a properly-grounded, resistive, static-dissipating wrist strap when accessing internal electronic components for calibration or upgrading. Do not open the Main Unit while the Foundation is on.

Do not alter the design of circuits in the Foundation. Any design alterations or additions will void the manufacturer's warranty. Fostex Corporation is not responsible for any personal injury or property damage resulting from any design alterations.

Do not perform service operations beyond those described in the User's Guide. If the Foundation does not operate normally or if its performance changes, please call Customer Support right away.

Unpacking Foundation 2000RE

Standard Package Contents	
Main Unit	Processing unit.
Edit Controller	Remote controller with jog/shuttle knob, touch-sensitive screen, and dedicated transport and editing buttons.
Wrist rest	Comfort rest attaches to the front of the Edit Controller.
EC power supply	Provides power to Edit Controller.
2 power cables	One cable connects Main Unit to power source. One cable connects Edit Controller's power supply to power source.
EC cable	25' cable for connecting Edit Controller to Main Unit and power supply.
Optical cable	Cable for connecting ADAT or SPDIF digital audio to the Toslink optical connector.
Guide brackets	Screw mount brackets for attaching the Main Unit to a rack.
User's Guide	Operational manual for users.
Registration card	Official registration of ownership. Please return the card right away.

Please save the box and other packing materials in which your Foundation arrived. These materials are specially designed to protect the unit, and they can be reused if you need to transport your Foundation.

If you choose to discard the packing materials, we strongly encourage you to recycle them. We have used as much recyclable or reusable material as possible, without jeopardizing the protection of your Foundation during shipping, and have kept the amount and variety of materials to a minimum. The packing materials do not contain CFCs.

You can purchase the following optional equipment from Fostex or another manufacturer.

Optional Equipment	
RPE™	Removable Project Environment. A removable hard disk, available in 500MB or 1GB capacity.
25-pin to XLR cable	Breakout cables for +4dBu analog I/O.
Foot switch and cable	For remote control of recording and playback.

Registration and warranty

Included in your Foundation package is a registration card. Please fill it out and send it back to Customer Support as soon as possible. This ensures that you are notified of all software and hardware upgrades and new products as they become available. The Foundation includes a one year parts and labor warranty.

User's Guide

The Foundation 2000RE User's Guide contains information about using your Foundation. After you finish this introductory chapter, we recommend that you complete the tutorial in the next chapter, Getting Started. It provides a good overview of how to record and edit on the Foundation.

The remainder of the User's Guide provides more detailed information about the concepts covered in the tutorial, and describes other Foundation features as well. Major topics are listed in the table of contents in the front of the guide and at the beginning of each chapter.

Throughout the manual, the following icons indicate special information.

Icon	Description
Note	Additional information concerning the current topic.
Tip	Shortcuts or ways for experienced users to perform an operation. Please send your tips to Customer Support.
Caution	Be careful! Important operating information. Please read the information next to all caution signs.
Electrical Caution	Information about operating voltage and potential risks of electrical shock. Be alert to all electrical caution messages.

Main Unit and Edit Controller

The Foundation 2000RE includes two primary components: the Main Unit and the Edit Controller. The Main Unit contains the processing hardware, system software, recording media and I/O connectors. The Edit Controller is a remote controller for the Main Unit.

Installing the Main Unit

The Foundation 2000RE Main Unit can be placed on a flat surface or mounted in a 4U rack space using the guide brackets included with your unit. If the Main Unit is mounted, it must be supported by a shelf unit designed to support 35 pounds (16 kg).

Do not attempt to use the Main Unit on its side.

To assure adequate ventilation always leave at least 3 inches (8 centimeters) of air space in the rear and two inches (5 centimeters) at the front of the Main Unit. The ventilation system has been designed so that you do not need to leave rack space between the Main Unit and other equipment above or below. The normal operating temperature for the Foundation is 41°F to 85°F (5°C to 29°C).

Edit Controller

Connecting the Edit Controller

1   Plug one end of the Edit Controller cable into the bottom of the Edit Controller.

2   Plug the other end of the cable into the Edit Controller connector on the back of the Main Unit.

3   Connect the Edit Controller cable to the 8-pin miniDIN output from the power supply.

4   Connect the power cable from the power supply to the AC wall socket.

The wrist rest snaps onto the front edge of the Edit Controller. Once attached it will stay firmly in place, providing you with comfortable hand and wrist support.

Attaching the wrist rest

1   Line up the two pins on the wrist rest to the pin holes on the front edge of the Edit Controller.
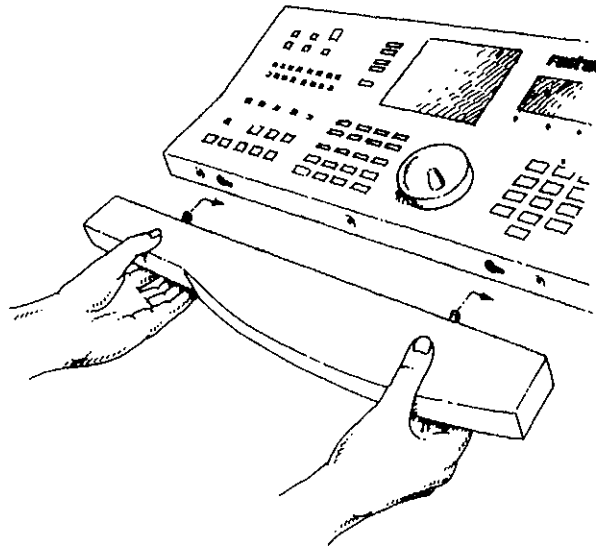
2   Insert the pins into the left side of the holes.

3   Slide the wrist rest to the right and snap it into place.

The wrist rest should line up with the form of the Edit Controller. If it doesn't, remove the wrist rest, adjust the pins and try again.

Connectors
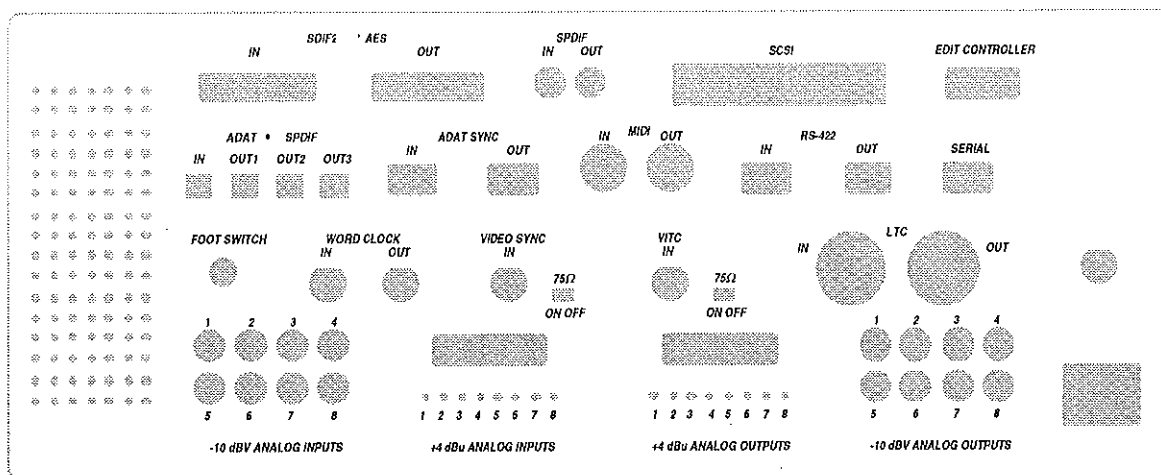
Audio I/O

The Foundation 2000RE has 8 analog inputs and 8 analog outputs (+4dBu balanced DB25, or -10dBV unbalanced RCA connectors). Input and output trim pots let you adjust headroom; each trim pot affects both the +4dBu and the -10dBV signals.

For digital audio, you can choose between the following formats—
- 8-channel: ADAT (optical)
  SDIF2 (DB25)
- 2-channel: SPDIF (RCA or optical)
  AES (DB25)

Currently, optical outputs 2 and 3 simply duplicate the signals available on optical output 1.

Synchronization and control

The Foundation can read LTC and VITC in all SMPTE timecode formats, and can generate LTC. The video sync port allows synchronization to a video signal. The word clock connectors allow exchange of clock signals during digital audio transfers.

MIDI in and out connectors provide communication with sequencers or other MIDI devices. ADAT sync and RS-422 ports allow the Foundation to control or to be controlled by external machines. A serial port is for future development.

The Foundation also has a 1/4" foot switch connector for punching in and out of recording. The SCSI connector lets you use external hard drives and archive devices.

Powering up

⚠️ *Always use a power cord that is approved by the appropriate national safety agency for the country of use.*

Turning on the power

1 **Before you connect the power plug, make sure that the black power button on the front of the Foundation Main Unit is turned off (press 0).**

2 **Connect an approved power cable to the AC input on the back of the Main Unit and to the AC wall socket.**

3 **To turn on the Foundation, press the power button on the front of the Main Unit.**

   While the system is powering up, the Edit Controller and the Main Unit conduct a series of diagnostic tests.

Handling an RPE

The Removable Project Environment™ (RPE) is a hard disk storage medium that stores audio, edit data, and project and reel information. When you finish a session, you can remove the RPE for safe storage. When you insert that RPE into the same or another Foundation, it automatically restores your previous working environment.

After powering up, wait for the Tracks display to appear on the Edit Controller screen. Before the RPE is inserted into the drive, the message "NO RPE" appears at the top of the display.

```
 *NO RPE*                                    --:--:--
 RPE:                                         [   0   ]
```

Inserting an RPE

1 **Grasp the RPE handle and slide the RPE into the receiver in the front of the Main Unit.**

2 **Firmly press the RPE handle to lock the RPE into the receiver.**

   The RPE handle should "click" into place, and remain in.

3 **Press the RPE button next to the receiver.**

   The RPE button blinks during loading and unloading. When the RPE is ready to use, the RPE button lights solid; the RPE name, along with the current project and reel names, appears at the top of the Edit Controller screen.

```
 A1: Music - Reel A1                         00:01:07
 RPE: Scenes 8-12                             [   0   ]
```

Removing an RPE

Do not remove the RPE when the RPE button is lit or blinking. Wait until the RPE button is off, indicating that the disk is safely parked.

1   **Press the RPE button and wait until it stops blinking.**

2   **Firmly press and release the RPE handle to unlock it.**

    The RPE handle should "pop" out.

3   **Grasp the handle and firmly pull the RPE from the receiver.**

For best results, please follow these suggestions when handling your RPE—

- Carry the RPE by its handle.
- Keep the RPE away from magnetic sources such as monitors and demagnetizers.
- Store the RPE flat on a sturdy, level surface. Don't store the RPE on its side.
- Operate and store the RPE within temperatures of 50–85°F (10–29°C) and humidity 20–80%.
- Keep liquids and hazardous vapors, such as cleaning solvents, away from the RPE.

For more information about the RPE, please refer to the Project Management chapter.

GETTING STARTED

Foundation tutorial

THIS CHAPTER is devoted to getting you up and running quickly. It introduces many of the tasks described more fully in later chapters.

The Foundation can be used in many different studio situations, such as dialog replacement and editing, recording music and sound effects, and transferring audio. This tutorial is only a starting point. Once you become familiar with your Foundation, you can develop working styles that fit your particular needs.

Connecting audio inputs and outputs

This tutorial assumes you are routing audio to and from the Foundation through a console.

Connecting inputs and outputs

1   **Connect your audio source, such as a CD player, microphone, or guitar, to the inputs on your console.**

2   **Connect up to 8 outputs from your console to the analog inputs on the back of the Foundation.**

    You can use either the +4dBu balanced inputs or the -10dBV unbalanced inputs.

3   **Connect the analog outputs from the Foundation to the tape return inputs on your console.**

4   **Connect your console to a monitoring device, such as headphones or speakers.**
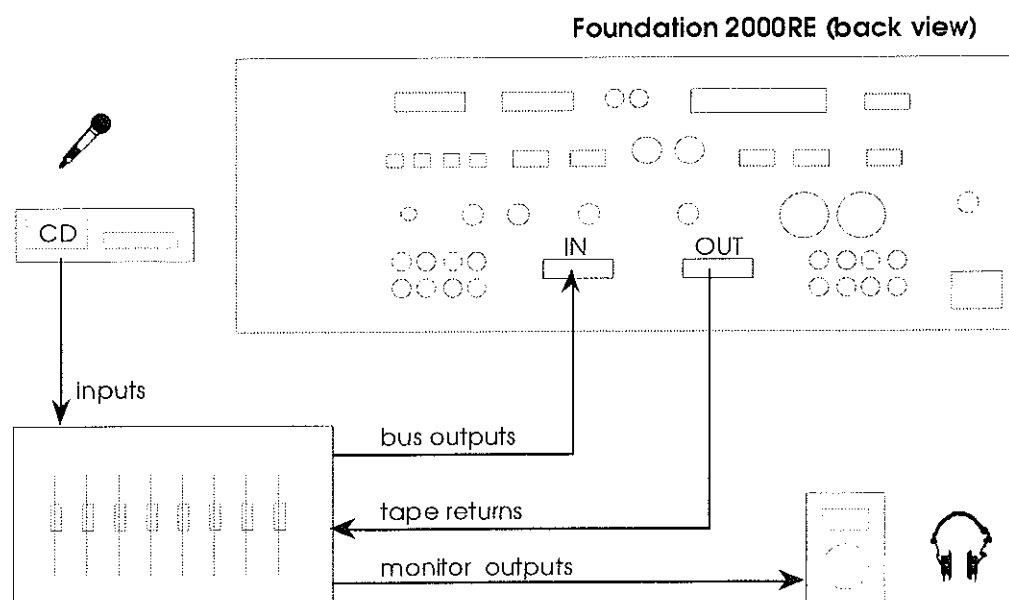
Foundation 2000RE (back view)

The I/O display includes a patch bay that lets you route physical inputs and outputs to and from tracks in the Foundation's recorder. This tutorial uses the default routings.

Checking the Patch Bay

■ **Touch the I/O button on the screen to open the Patch Bay display.**

I/O display
Screens for routing physical inputs and outputs to and from the tracks.

```
┌─────────────────────────────────────────────┐
│ A1:Project A - Reel 1              00:01:05  │
│ ▓▓▓                                          │
│   From              To            ┌─────────┐│
│                                   │    0    ││
│ ┌────────┐┌───┐┌──┐┌────────┐┌───┐└─────────┘│
│ │Analog in││1-8││->││Track in ││1-8│┌────────┐│
│ └────────┘└───┘└──┘└────────┘└───┘│ Tracks ││
│ ┌────────┐┌───┐┌──┐┌────────┐┌───┐└────────┘│
│ │Track out││1-8││->││Analog out││1-8│        │
│ └────────┘└───┘└──┘└────────┘└───┘┌────────┐│
│ ┌────────┐┌───┐┌──┐┌────────┐┌───┐│        ││
│ └────────┘└───┘└──┘└────────┘└───┘│  I/O   ││
│ ┌────────┐┌───┐┌──┐┌────────┐┌───┐│        ││
│ └────────┘└───┘└──┘└────────┘└───┘└────────┘│
└─────────────────────────────────────────────┘
```
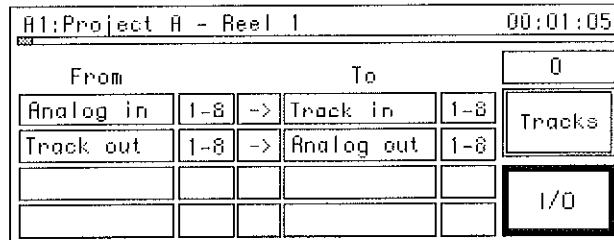
Each row in the patch bay can represent 1, 2, 4 or 8 audio paths. In the default settings, for example, the first row routes all 8 analog inputs to all 8 tracks; input 1 is routed to track 1, input 2 is routed to track 2, and so on. The second row routes all 8 tracks to the 8 analog outputs. Arrows indicate that the audio paths are connected.

Checking levels

When input monitoring is on, you can check input levels on the Meters display.

Input monitoring

Ready ■ □ □ □
    1 *2* *3* *4*

1 **On the Edit Controller, press Ready button 1.**

    Input Mon

2 **Press and light □ near the transport controls.**

3 **Send a signal to input 1, and monitor it through the tape returns on your console.**

Metering

Input monitoring
Listening to and metering audio going to the tracks.

1 **Touch the Meters button on the screen.**

```
┌─────────────────────────────────────────────┐
│ A1: Dialogue - Scene 12            00:01:00  │
│ ▓▓▓▓▓▓▓▓▓                                    │
│ ┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐  0      ┌─────────┐│
│ │ ││ ││ ││ ││ ││ ││ ││ │         │    0    ││
│ │ ││ ││ ││ ││ ││ ││ ││ │ -6      └─────────┘│
│ │ ││ ││ ││ ││ ││ ││ ││ │ -12     ┌────────┐│
│ │ ││ ││ ││ ││ ││ ││ ││ │         │ Tracks ││
│ ▓ ││ ││ ││ ││ ││ ││ ││ │ -18    └────────┘│
│ ▓ ││ ││ ││ ││ ││ ││ ││ │ -24     ┌────────┐│
│ ▓ ││ ││ ││ ││ ││ ││ ││ │ -30     │        ││
│ ▓ ││ ││ ││ ││ ││ ││ ││ │ -36     │  I/O   ││
│ ▓ ││ ││ ││ ││ ││ ││ ││ │ -42     │        ││
│ ▓ ││ ││ ││ ││ ││ ││ ││ │ -48    └────────┘│
│ ▓ ││ ││ ││ ││ ││ ││ ││ │ -54     ┌────────┐│
│ ▓ └─┘└─┘└─┘└─┘└─┘└─┘└─┘ -60      │ Meters ││
│ 1  2  3  4  5  6  7  8           └────────┘│
│                                   ┌────────┐│
│                                   │ Reels  ││
│                                   │Library ││
│                                   └────────┘│
└─────────────────────────────────────────────┘
```
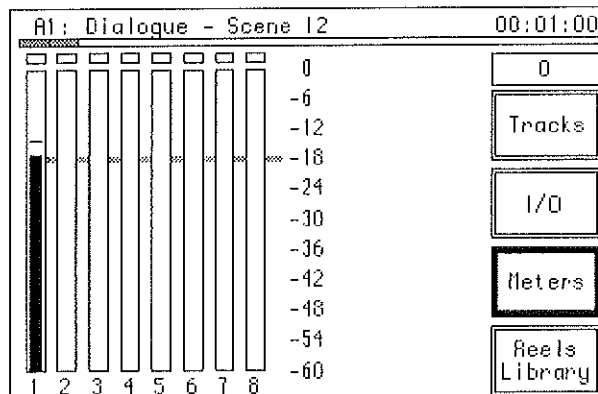
2 **Adjust the input level from your console.**

    Input Mon

3 **Press □ again to turn off input monitoring.**

Transport buttons and time displays

Take a moment to look at the time displays on the Edit Controller. The top display shows the current playback location. The bottom display usually shows the current locator point, but sometimes it shows other information such as the current preroll setting. Times shown in the bottom display can be edited using the numeric keypad on the Edit Controller.

Edit time display
The bottom time display, which can be edited.

current time ———

edit time ———
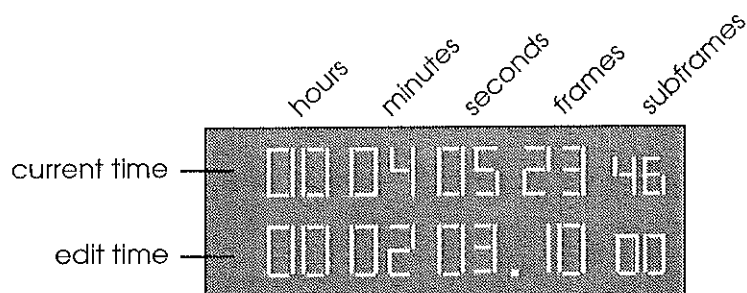
Transport buttons
Buttons that control recorder motions.

During recording and playback, the following transport buttons are used frequently. Familiarize yourself with the transport buttons by using them while watching the time displays on the Edit Controller.

Button	Function
Record ●	Press with *Play* to initiate recording. The *Record* button lights when recording.
Stop ■	Stops playback, recording or winding.
Play ▶	Initiates playback. Initiates recording when pressed with *Record*. If you are recording, *Play* interrupts recording, and continues playback. Initiates cueing when pressed with *Rewind* or *F Forward*.
Rewind ◄◄	High speed reverse—2x, 8x, locate to beginning of ready tracks; if no tracks are ready, locates to beginning of all recorded audio. Press with *Play* to initiate reverse cueing—1x, 2x, 8x, locate to beginning.
F Forward ►►	High speed forward—2x, 8x, locate to end of ready tracks; if no tracks are ready, locates to end of all recorded audio. Press with *Play* to initiate forward cueing—2x, 8x, locate to end.

Cueing
Listening to audio while in rewind or fast forward.

Recording events

Reel
A workspace where events are recorded and edited.

Recording takes place on ready tracks only. When recording begins, the Record, Play and selected Ready buttons light solid. To stop recording, press Play or Stop. Each recording creates a new event—a block of audio recorded on one or more tracks. Events can be moved, edited or deleted from the reel, or stored in the library for future use.

Recording on track 1

Record   *Play*

1   Hold | ● | and press | ▶ | to start recording.

Play

2   Press | ▶ | to interrupt recording and continue playback.

Stop

3   Press | ■ | to stop playback.

4   If you have not done so already, touch the Tracks button on the screen to look at the event you just recorded.

```
 Event:                              00:01:05
     00:00:00      00:00:10      00:0 ┌─────────┐
                                      │    0    │
                                      └─────────┘
  1 _____█████████_____   ┌─────────┐
                                      │ Tracks  │
  2 _____      └─────────┘
  3 _____      ┌─────────┐
                                      │  I/O    │
  4 _____      └─────────┘
  5 _____      ┌─────────┐
                                      │ Meters  │
  6 _____      └─────────┘
  7 _____      ┌─────────┐
                                      │ Reels   │
  8 _____      │ Library │
    ┌──────┐┌────┐┌──────┐┌──────┐   ┌─────────┐
    │ ← →  ││  ▲ ││Select││ Solo │   │ System  │
    │Select││    ││Event ││Event │   └─────────┘
    └──────┘└────┘└──────┘└──────┘
```
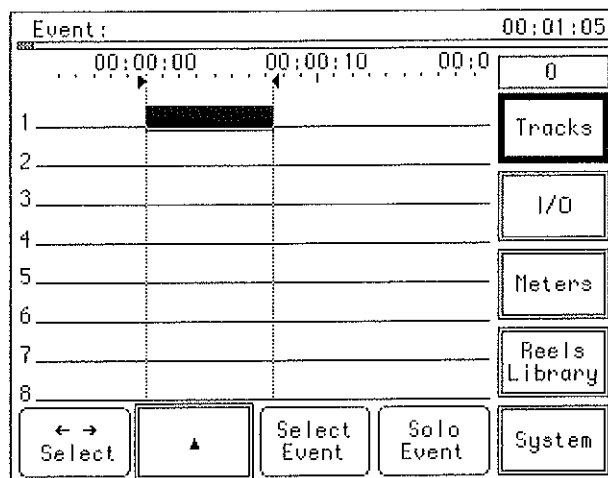
5   Rewind and play back the event.

Using the jog/shuttle knob

□ ·

○ Shuttle   ○ Data   ○ Jog

⌷
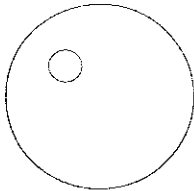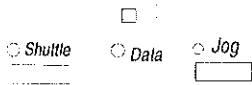
Another way to play back audio is to use the jog/shuttle knob on the Edit Controller. As you rotate the knob, the current time moves with it. The exact playback speed is shown above the Tracks button on the screen.

Jogging

○ Jog

1   Press ⌷ and turn the knob to play back slower than real time.

○ Jog

2   Press and hold ⌷ and turn the knob to play at a slower rate than regular jogging.

Troubleshooting

If you did not get the expected results when recording or playing back, try the following troubleshooting ideas and repeat the recording session.

QUESTION	ANSWER	
Does the Tracks display show recorded audio on track 1?	No	There is no audio recorded on the tracks. Did you ready the track before recording? Did you press both Play and Record?
	Yes	A track was readied but you may not have had your I/O cabled properly. Are cables from your audio source going to the correct inputs? Are the cables going to your monitoring device connected to the proper output?
Did the Meters display show a level on track 1?	No	No audio was recorded on the track, or the input level was too low, or the Input Mon button was not set correctly. Did you ready the track before recording? Did you press both Play and Record? Is the output of your console set to an appropriate level? Input monitor must be on for metering input when not recording. Input monitor must be off for metering playback.
	Yes	Make sure your monitoring system is connected properly and is set to appropriate levels.

If you're still having problems, please call Customer Support for assistance—

U.S. and Canada   1-800-8FOSTEX (1-800-836-7839)
International   1-603-643-4748

Recording more events

Recording other tracks

1   Press Ready button 1 to unready track 1.

2   Press Ready button 2 to ready track 2.
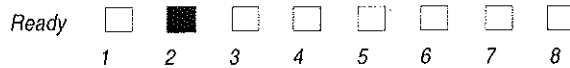
Ready   □ ■ □ □ □ □ □ □
        1   2   3   4   5   6   7   8

3   Use the transport buttons to locate to any point before the event on track 1.

Play

4   Press ▶ to begin playing back.

Record   *Play*

5   Hold ● and press ▶ when you want to start recording.

6   Unready track 2 when you want to stop recording on that track.

7   Ready track 3 to start recording on that track.

Ready   □ □ ■ □ □ □ □ □
        1   2   3   4   5   6   7   8
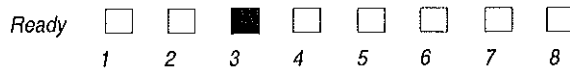
Stop

8   Press ■ to stop recording and playback.

The second event appears on track 2 and the third event appears on track 3.
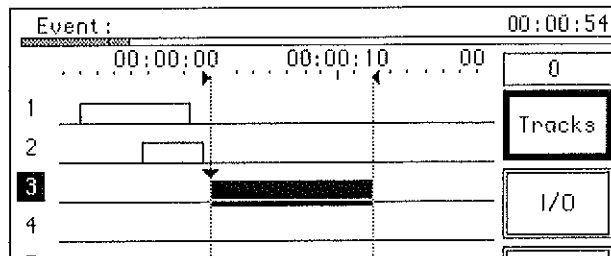
Selecting an event

If you want to audition or edit any event you've recorded, the event must be selected. Only one event is selected at a time; the selected event is highlighted on the Tracks display. You can select an event either by touching it on the screen or by pressing the arrow buttons next to the screen. The up/down arrow buttons select events on adjacent tracks. The left/right arrow buttons select adjacent events on the same track.

Selecting events

1   Touch the event on track 2 to select it.

2   Press the down arrow button to select the event on track 3.

Audition and solo

The Audition buttons let you play back the selected event in context with other events. If Solo Event is on when you audition, only the selected event plays.

Auditioning and soloing events

1 Press and light ☐ _Audition_ to turn on Audition mode.

2 Touch the event on track 1 to select it.

```
 Event:                               00:00:54
    ....00:00:00.....00:00:10....00  ┌────┐
                                     │  0 │
 1  ████████                         ├────┤
 2      ┌──┐                         │Tracks│
 3 ─────────────┌────┐─────────      ├────┤
                                     │ I/O│
                                     └────┘
```
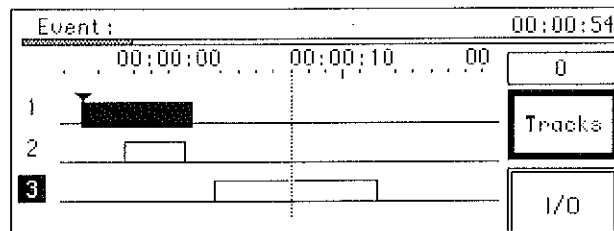
3 Press ☐ _In → Out_ to play back the selected event.

4 Press the down arrow button to select the event on track 2.

```
 Event:                               00:00:54
    ....00:00:00.....00:00:10....00  ┌────┐
                                     │  0 │
 1    ┌──┐                           ├────┤
 2   ████                            │Tracks│
 3 ─────────────┌────┐─────────      ├────┤
                                     │ I/O│
                                     └────┘
```
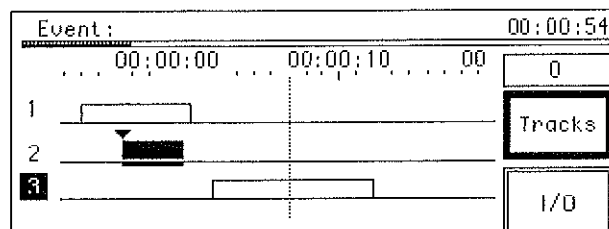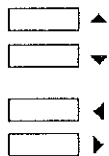
5 Touch the Solo Event button to solo the event on track 2.

```
 8 ──────────────────────     ║Library║
   ┌─────┐ ┌───┐ ┌──────┐ ┌──────┐ ║       ║
   │← →  │ │ ▲ │ │Select│ │Solo  │ ║System ║
   │Select│ │   │ │Event │ │Event │ ║       ║
   └─────┘ └───┘ └──────┘ └──────┘
```
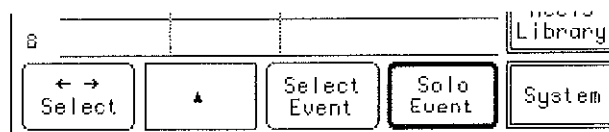
6 Press ☐ _In → Out_ to play back the selected event.

When Solo Event is on, only the selected event plays.

Locating using Seek

The Seek buttons let you locate the start and end points of events on readied tracks. If no tracks are ready, seeking applies to all tracks. You can seek forward or backward in time.
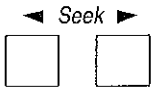
◄ Seek ►

Seeking

1 **Make sure that only track 3 is ready.**
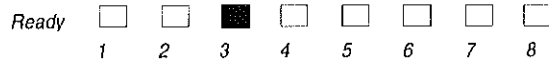
Ready ☐ ☐ ■ ☐ ☐ ☐ ☐ ☐
      1   2   3   4   5   6   7   8

2 **Press a Seek button to locate the start and end of the event on track 3.**

If track 3 contained more than one event, seek would find all events on the track.

3 **Ready track 2 as well.**
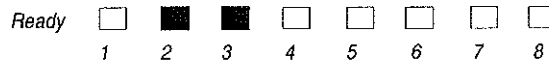
Ready ☐ ■ ■ ☐ ☐ ☐ ☐ ☐
      1   2   3   4   5   6   7   8

4 **Press a Seek button to locate the start and end of events on tracks 2 and 3.**

5 **Unready all tracks.**

Ready ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
      1   2   3   4   5   6   7   8
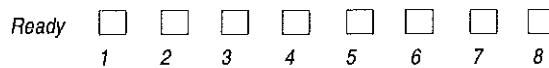
6 **Press a Seek button to locate the start and end of events on all tracks.**

Undo and Redo

The Foundation lets you record and edit non-destructively. If you record over something or make an editing mistake, you can use Undo to retrace your last six recording or editing steps. Redo lets you change your mind and restore the undone steps.
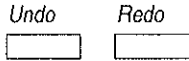
Undo   Redo

Each time you press the Undo button, you step back to the state before the previous record or edit action. Each time you press the Redo button, you step forward to recover the actions which were undone.

Recording over an event

To prepare a demonstration of Undo and Redo, record over the event recorded on track 2.

1   Ready track 2 and unready all other tracks.

Ready ☐ ■ ☐ ☐ ☐ ☐ ☐ ☐
       1   2   3   4   5   6   7   8
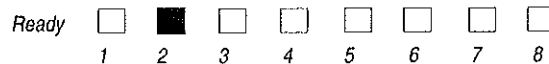
2   Rewind to a time before the start of the event on track 2.

Record   Play
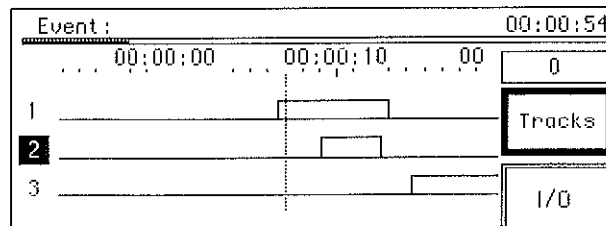
3   Hold ⬤ **and press** ▶ **to record over the event on track 2.**

Stop

4   Press ■ **to stop recording.**

The new event replaces the original event on track 2.
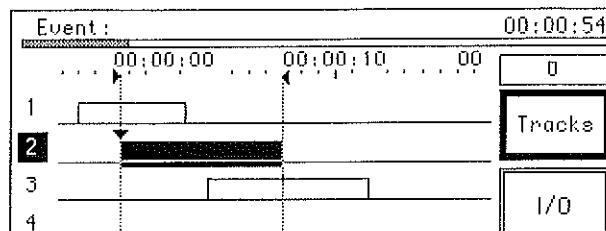
Using Undo and Redo

Let's assume that you liked the original event better than the new event on track 2.

Undo

1   Press [____] to undo the last recording and recover the original event.

```
Event:                              00:00:54
        00:00:00    00:00:10    00
1   ┌──┐
2   ███
3        ┌──────┐
4
                                    0
                                    Tracks
                                    I/O
```
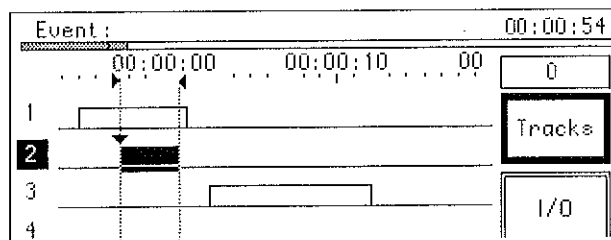
Undo

2   Press [____] again to undo the previous action (the recording on track 3).

```
Event:                              00:00:54
        00:00:00    00:00:10    00
1   ┌────┐
2   ███
3
4
                                    0
                                    Tracks
                                    I/O
```
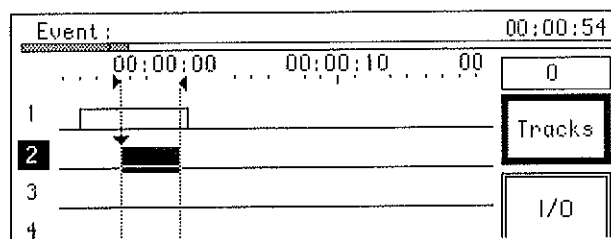
Redo

3   Press [____] to restore the event on track 3.

```
Event:                              00:00:54
        00:00:00    00:00:10    00
1   ┌───┐
2   ┌──┐
3       ████████
4
                                    0
                                    Tracks
                                    I/O
```
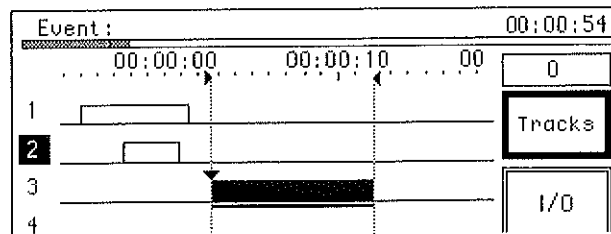
Redo

4   Press [____] again to restore the new event on track 2.

```
Event:                              00:00:54
        00:00:00    00:00:10    00
1   ┌───┐
2   ████████
3        ┌────┐
4
                                    0
                                    Tracks
                                    I/O
```
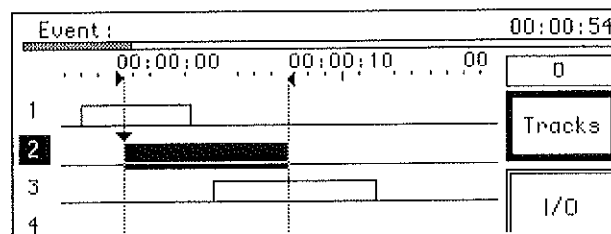
Auto record

Auto recording starts and stops recording automatically at preset times. Auto recording is useful when you want to record a specific segment of synchronized audio, or you want to punch in or out at specific places on a track. You might also want to repeat a take that you recorded manually.

Auto Rec
☐

In the previous section, after you recorded an event, the In point was set to the start of the event and the Out point was set to the end of the event. Auto recording uses the In and Out points to automatically punch in and out of recording.

Auto recording an event

This section demonstrates how to auto record an event on track 2. Find a different location than where you recorded previously.

1   **Ready track 2 and unready all other tracks.**

Ready   ☐ ■ ☐ ☐ ☐ ☐ ☐ ☐
        1 2 3 4 5 6 7 8

☐

2   **If you haven't already done so, press** _{Audition} **to turn off Audition mode.**

    Auto Rec

3   **Press and light ☐   to turn on Auto Record mode.**

4   **Locate to a blank area on track 2.**

5   **Press** ⌈*In*⌉ **to define the time when recording will begin.**

6   **Locate to the time at which you want to stop recording, and press** ⌈*Out*⌉
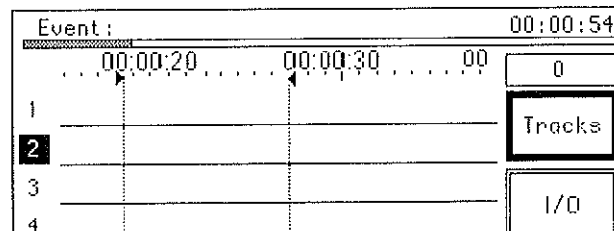
7   **Rewind to a time before the In point.**

   Record   *Play*

8   **Hold** ⌈●⌉ **and press** ⌈▶⌉ **to start playback.**

Recording begins automatically at In, and ends automatically at Out.
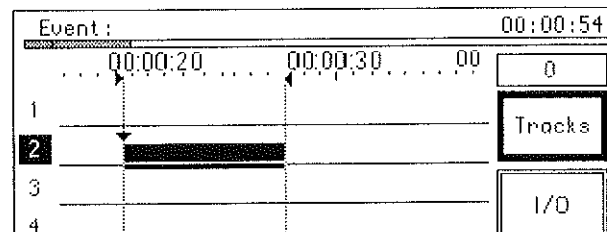
Now that you have established In and Out points, you can record other tracks in sync with track 2.

Recording another event

1   Unready track 2 and ready track 3. Leave the In and Out points unchanged.

```
Event:                              00:00:54
        00:00:20        00:00:30        00     ┌─────┐
                                               │  0  │
   1                                           └─────┘
                                               ┌─────┐
   2    ▼▬▬▬▬▬▬▬▬▬▬                             │Tracks│
   ■3                                           └─────┘
   4                                            ┌─────┐
                                                │ I/O │
                                                └─────┘
```

2   Rewind to a time before the In point.

Record   *Play*
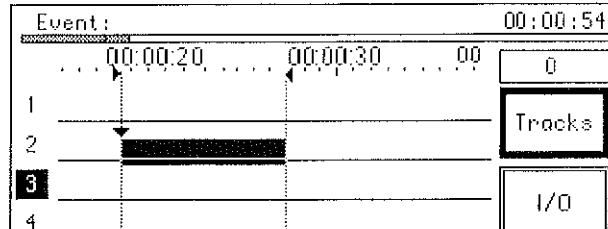
3   Hold ● and press ▶

When you reach the In point, recording begins automatically. When you reach the Out point, recording stops automatically.

Stop

4   Press ■ to stop recording.

```
Event:                              00:00:54
        00:00:20        00:00:30        00     ┌─────┐
                                               │  0  │
   1                                           └─────┘
                                               ┌─────┐
   2    ┌──────────┐                           │Tracks│
   ■3   ▼▬▬▬▬▬▬▬▬▬▬                             └─────┘
   4                                            ┌─────┐
                                                │ I/O │
                                                └─────┘
```
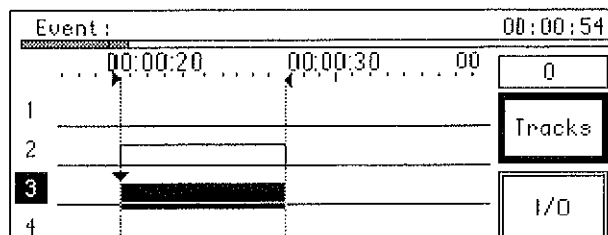
5   Repeat steps 1-4, readying and unreadying other tracks. You can also record over a previously recorded track.

Auto Rec

6   When you finish, press □ to turn off auto recording.

☞ *This example demonstrated just one way to record multiple versions of synchronized audio. You can also use the stacking feature to record multiple takes in the same location on one track. See "Stacking" in the Recording chapter for more details.*

Naming events

You can assign a name to any event. The name of the selected event appears in the status bar at the top of the display.

Naming an event

1 **Select the event you want to name, either by touching it or by using the arrow buttons.**

2 *Data*
   Press [_____] to open the keyboard display.

```
┌─────────────────────────────────────────────────┐
│ Enter        ┌──────────────────────────┐  ┌───┐ │
│ Event Name   │ ^                        │  │Clr│ │
│              └──────────────────────────┘  └───┘ │
│                                                   │
│  1   2   3   4   5   6   7   8   9   0            │
│                                                   │
│  Q   W   E   R   T   Y   U   I   O   P            │
│                                                   │
│  Alt  A   S   D   F   G   H   J   K   L           │
│                                                   │
│  Caps  Z   X   C   V   B   N   M   -              │
│                                                   │
│  Cancel  ←   →   Space   Delete    OK             │
└─────────────────────────────────────────────────┘
```

3 **Touch the screen buttons to enter characters.**

```
Enter        ┌──────────────────────────┐
Event Name   │ Eric I                   │
             │        ^                 │
             └──────────────────────────┘
```

The cursor (∧) indicates where the next character will appear. If you've connected an external keyboard to the Edit Controller, you can use it to type characters.

4 **Touch OK to confirm your choice.**

5 **The name of the selected event appears at the top of the display in the status line.**

```
┌─────────────────────────────────────────────┐
│ Event: Eric I                      00:00:54  │
└─────────────────────────────────────────────┘
```

You can use the Auto Naming feature to name events automatically. See "Auto Naming" in the Recording chapter for details.

Storing events in the library

Library
A separate storage area for events, accessible from any reel.

Events can reside in a reel and/or in the library. If you don't name an event before saving it in the library, a name will be assigned to it automatically.

Storing an event

1   On the Tracks display, select the event you want to store in the library.

2   Touch the popup (▲) button at the bottom of the Tracks display, and select "Add to Library" from the menu.

```
Event: Eric 1                          00:01:05
       00:00:00      00:00:10      00:0 ┌─────────┐
                                        │    0    │
                                        └─────────┘
  1                                     ┌─────────┐
  2                                     │ Tracks  │
                                        └─────────┘
  3     ┌──────────┐                    ┌─────────┐
  4     │   Time   │                    │   I/O   │
        │   Flex   │                    └─────────┘
  5     ├──────────┤                    ┌─────────┐
        │  Add to  │                    │ Meters  │
  6     │ Library  │                    └─────────┘
  7     ├──────────┤                    ┌─────────┐
        │  Group   │                    │ Reels   │
  8     │  Event   │                    │ Library │
        └──────────┘                    └─────────┘
  ┌──────┐┌────┐┌──────┐┌──────┐┌─────────┐
  │ ← →  ││  ▲ ││Select││ Solo ││ System  │
  │ Zoom ││    ││Event ││Event ││         │
  └──────┘└────┘└──────┘└──────┘└─────────┘
```
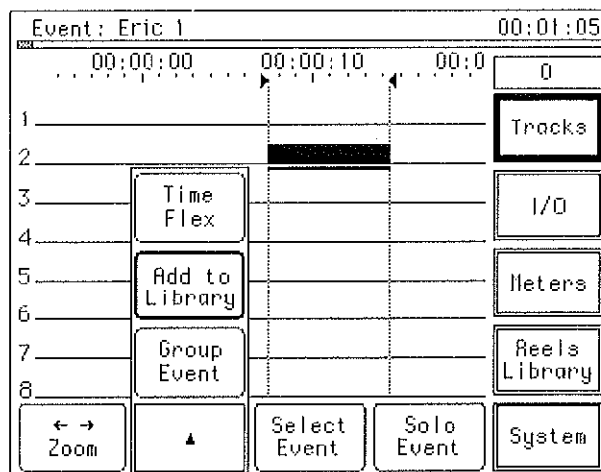
Viewing the library

1   Touch the Reels/Library button, and select Library from the popup menu.

2   Select an event from the list by touching it or by using the arrow buttons.

```
Event: Eric 1                          00:00:54
┌──────────────────┬──────────────┬─────────┐
│      Name        │  Duration    │    0    │
├──────────────────┼──────────────┼─────────┤
│ cat23            │00:00:06:16.68│┌───────┐ │
│ dog1             │00:00:06:13.42││Tracks │ │
│ dog2             │00:00:03:11.56│└───────┘ │
│ Eric 1           │00:00:03:11.56│┌───────┐ │
│ Sep 14-03:33:07 PM│00:00:01:09.50││  I/O  │ │
│ street noise trucks│00:00:04:11.31│└───────┘ │
│ Susan 3          │00:00:06:16.68│┌───────┐ │
│                  │              ││Meters │ │
│                  │              │└───────┘ │
│                  │              │┌───────┐ │
│                  │              ││ Reels │ │
│                  │              ││Library│ │
│                  │              │└───────┘ │
│┌────┐┌──────┐┌─────┐┌────────┐┌─────────┐│
││Find││Delete││Copy ││Audition││ System  ││
││    ││      ││to Clip││       ││         ││
│└────┘└──────┘└─────┘└────────┘└─────────┘│
└──────────────────────────────────────────┘
```
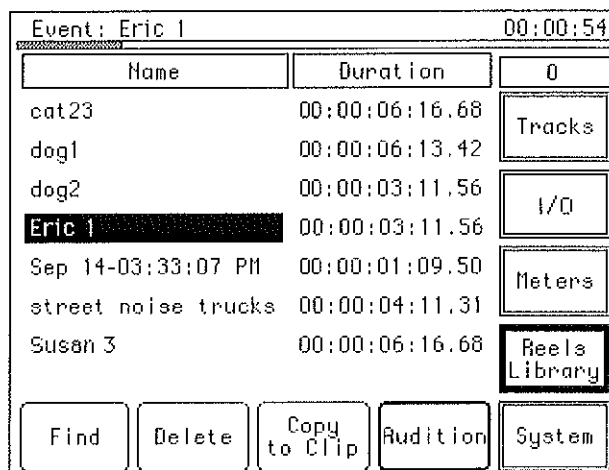
3   Touch Audition (at the bottom of the Library display) to play the event.

See "Library" in the Recording chapter for more information about the library.

Displaying waveforms

So far, all events have been appeared as blocks of audio on the Tracks display. Audio can also be displayed as waveforms.

You can use the arrow buttons next to the screen to move around the Tracks display. The button at the bottom left of the Tracks display lets you choose from four arrow button modes (Select, Zoom, Scroll, Jump).

Zooming

You can change the vertical resolution of the Tracks display to show 1, 2, 4 or 8 tracks. You can change the horizontal resolution to display more or less time on the screen.

1 **Touch the Tracks button to return to the Tracks display.**

2 **Touch the arrow mode button repeatedly until "Zoom" appears.**
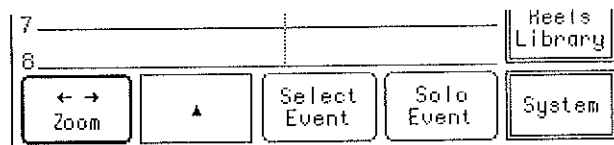
3 **Press the down arrow button to display fewer tracks.**
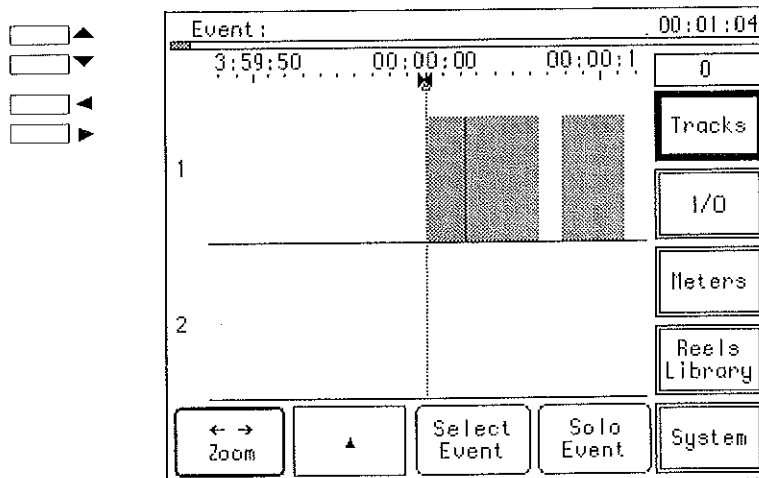
4 **Press the up arrow button to display more tracks.**

5 **Press the left or right arrow button to display more or less time on the screen.**

Displaying waveforms

1 Touch the Tracks button and select Output Waves from the popup menu.
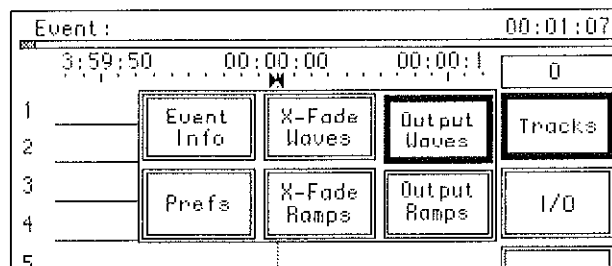
2 Press the arrow buttons (in Zoom mode) to display the waveforms at different resolutions.
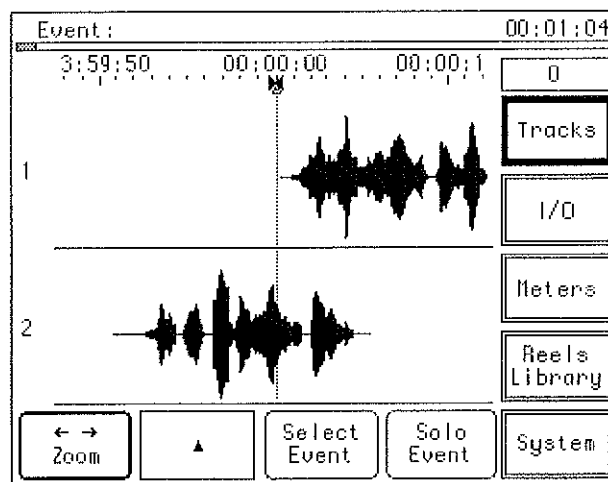
3 Touch an event to select it, and use the Audition buttons to audition it.

4 Turn the jog/shuttle knob to play back the events.

5 When you finish looking at waveforms, touch the Tracks button and select Output Ramps from the popup menu.
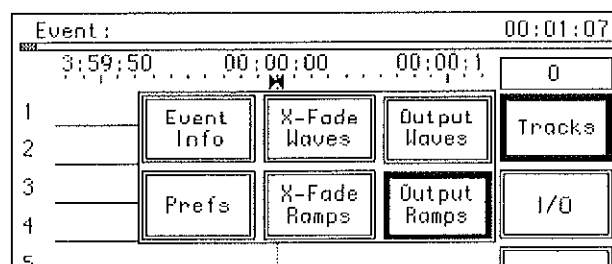
See "Tracks display" in the Recording chapter for more information about displaying events on the tracks.

Locating

There are several ways to locate to a time in the reel. You have already used the transport buttons (Stop, Play, Rewind, Fast Forward), the jog/shuttle knob and the Seek buttons. You can also use the GoTo and Locate buttons. GoTo locates to any time stored in another button, such as Start or In. Locate always locates to the time shown in the bottom time display.

Using GoTo

1   Press `Go To` and then `In` to locate to the In point.

2   Press `Go To` and then `Out` to locate to the Out point.

3   Select an event, and press `Go To` and then `Start` to locate to its Start point.

4   Press `Go To` and then `End` to locate to the selected event's End point.

Storing a locator

Locator
A time shown in the bottom time display and stored in a numbered keypad button.

This example shows how to store the current time in a numbered keypad button. You can store up to 10 locators in buttons 0–9. Later, you can recall those times and locate to them.

1   **Use the jog/shuttle knob to find a time you want to store.**

2   **Press `Hold` to copy the current time into the bottom time display.**

3   **Press `Store` and then `1` to store the time as locator 1.**

4   **Repeat steps 1–3, but store a different time in `2` **

Using a locator

Now that you have stored some locators, you can use them to locate quickly.

1   **Press `Recall` and then `1` to display locator 1.**

2   **Press `Locate` to locate to the time in the bottom display.**

3   **Press `Go To` and then `2` to go to locator 2 without changing the bottom time display.**

Event envelopes

Every event has an "envelope" which acts as a window on the original recorded audio, called the "underlying audio." The event envelope is defined by a set of parameters: Start, Fade To, Fade From, End and Sync. You can edit the envelope to change the event's playback characteristics without altering the underlying audio.
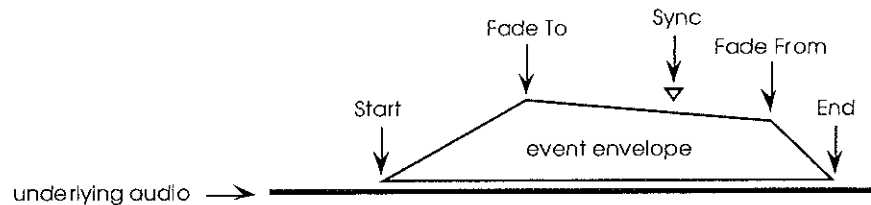
The event buttons on the Edit Controller correspond to the envelope parameters. In addition, the Gain button lets you adjust the overall level of the event and its Fade To and Fade From levels.
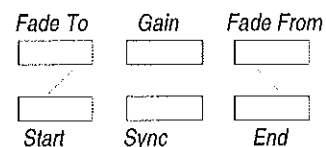
Button	Function
Start	The beginning of the selected event.
End	The end of the selected event.
Fade To	The time at which the fade in ends.
Fade From	The time at which the fade out begins.
Sync	A reference point that lets you create an accurate, synchronized relationship between the event and any time in the reel. The Sync point does *not* have to be between Start and End.
Gain	The overall volume of the event.
Fade To Gain	The volume at the Fade To point.
Fade From Gain	The volume at the Fade From point.

Displaying event information

1   Select an event on the Tracks display.

2   Touch the Tracks button and select Event Info from the popup menu.

Trim and Align

Trim, Align and the event envelope buttons only work when an event is selected. Trim lets you adjust the shape of the selected event, by moving individual envelope parameters such as Start or Fade To. Align lets you move the entire event in time on the track, without changing the shape of its envelope.

● Trim   Fade To   Gain   Fade From

○ Align   Start   Sync   End
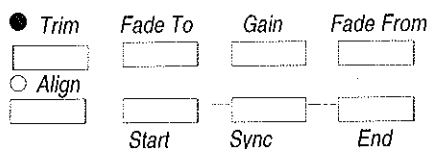
Trimming an event

Suppose you want to trim the beginning of an event you already recorded. In other words, you want to move the event's Start time, without changing the event's position relative to other events.

1 **Select an event to edit.**

    ● Trim
2 **Press [ ] to select Trim mode.**

    When Trim mode is on, the LED above the button lights.

3 **Use the jog/shuttle knob to locate the desired Start point within the event.**

4 **Press Start to trim the Start point to the current time.**
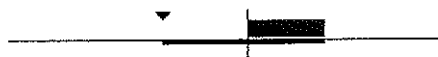
5 **Use the Audition or transport buttons to play back the event.**

    The underlying audio is still available, but only the event envelope plays back.

6 **Locate to an earlier point within the event and press Start**

    You can trim the Start time to any location within the boundaries of the underlying audio.

7 **Repeat steps 3-5 using End, Fade To, or Fade From instead of Start.**

    Notice how the envelope changes as you trim the times, without changing the event's position relative to other events in the reel.

Aligning an event

Align lets you move the entire event, changing its position relative to other events in the reel. This example demonstrates how to align an event's Start point to a different time in the reel. Remember, you can press Undo if you don't like the result.

1   **Select an event to move.**

2   **Press** [• *Align*] **to select Align mode.**

3   **Use the jog/shuttle knob to locate the desired Start time on the track.**
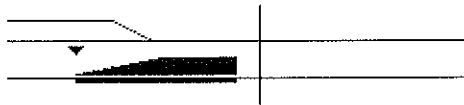
4   **Press** [____] *Start*

The entire event moves, aligning the Start point with the current time. The shape of the event envelope remains unchanged.
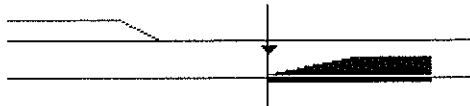
5   **Play back the tracks and listen to the event in its new location.**

6   **Repeat steps 3-5 to move the event to different locations, using Start, Fade To, Fade From or End.**

Notice how the selected event parameter aligns to the current time.

Adjusting the fades

Each event envelope includes a fade in and fade out ramp, which can be adjusted using Trim. One event can fade out while another event fades in (on the same or a different track). You may need to zoom in to see the fade ramps.

Adjusting a crossfade

This section demonstrates how to adjust the fade out ramp of an event on one track and the fade in ramp of an event on an adjacent track.

1   **Select an event.**

2   **Press** [• *Trim*] **to turn on Trim mode.**

3   Use the jog/shuttle knob to find a new Fade From time within the selected event.

Fade From

4   Press [............] to set the Fade From point to the current time.
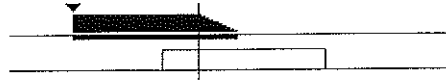
5   Select an adjacent event.
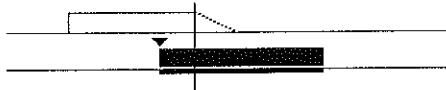
6   Use the jog/shuttle knob to find a new Fade In time within the selected event.
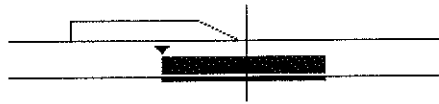
Fade To

7   Press [............] to set the Fade To point to the current time.

Splitting events

Splitting lets you separate one event into two.

Splitting an event

1   Select the event you want to split.

2   Locate to the desired split point.

3   Press the [Split] button on the Edit Controller.
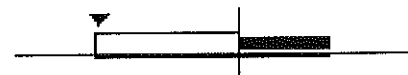
The selected event is separated into two events at the current time. The second event is selected automatically. Both halves of the event retain the original event's name, sync point and underlying audio, until you change them.

Cut, copy and paste

The Cut, Copy, Paste and Ripple buttons are editing tools. Like Trim and Align, when an event is selected, Cut, Copy, Paste and Ripple edit the selected event.

Cutting an event

Cut removes audio from the track, and stores it in a temporary memory area called the Clipboard. The Clipboard remains intact until you copy or cut something else, or you turn off the Foundation.

1   **Select the event you want to cut.**

2   **Press** [Cut] **to remove the event from the track and store it in the Clipboard.**

Pasting an event

Audio in the Clipboard can be placed at any location on any track. Paste copies the Clipboard contents onto the readied track, beginning at the In point. After pasting, the out point is set automatically.

1   **Ready the track on which you want to paste the Clipboard event.**

2   **Play or locate to the desired paste point and press** [In]

3   **Press** [Paste]

The Start point of the Clipboard event is pasted at the In point. The Clipboard event replaces any other audio at that location on the track.

4   **Locate to a point before the last event and press** [In]

5   **Press** [Ripple] **and then** [Paste]

The Clipboard event is inserted into the track, beginning at the In point. Subsequent events "slide" out to make room for the Clipboard event.

Editing a region

So far, you've edited only selected events. When no events are selected, you can define and edit a region on the tracks, regardless of event boundaries. A region is the area between the In and Out points on readied tracks. A region can include silence as well as audio.
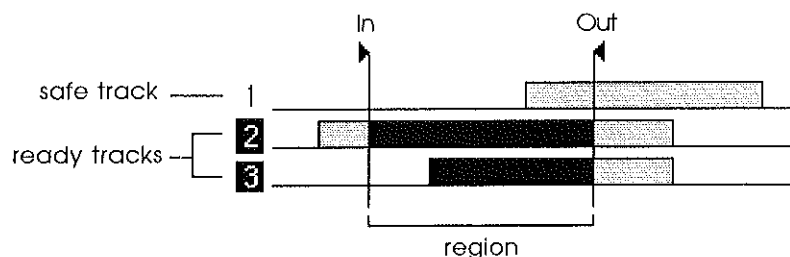
region

For example, if no events are selected and you ready track 4, pressing Cut removes only the audio between the In and Out points on track 4.

Cutting a region

1 Touch a blank area of the Tracks display to deselect all events.

When no events are selected, the project and reel names appear at the top of the screen.

2 Press the desired Ready button(s) to indicate the track(s) you want to edit.

Readied track numbers are highlighted on the Tracks display.

3 Locate to the beginning of the region you want to cut and press $\boxed{\text{In}}$

4 Locate to the end of the region you want to cut and press $\boxed{\text{Out}}$

The region is highlighted on the Tracks display.
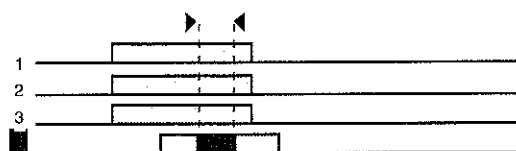
5 Press $\boxed{\text{Cut}}$ **to remove the region and store it on the Clipboard.**

Ripple cutting

Cutting leaves a region of silence on the edited track(s). You can use the Ripple feature to automatically close the gap created by cutting.

1 Press the desired Ready buttons and set In and Out points to define another region to cut.
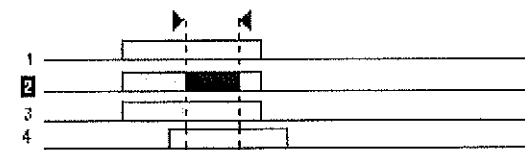
2 Press $\boxed{\text{Ripple}}$ **and then** $\boxed{\text{Cut}}$ **to remove the region.**

All subsequent audio on the readied tracks "slides in" to close the gap.
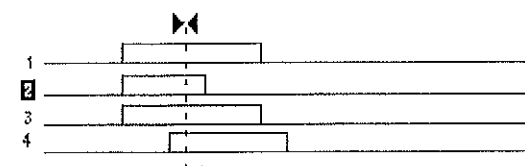
Pasting a region

You can paste the Clipboard audio on any track, without moving the In point. Or you can move the In point to paste the audio at a different time.

1 **Unready the track(s) from which you cut, and ready a different track.**

2 **Without moving the In point, press** `Paste`

The Clipboard audio is pasted in sync at the In point on another track.
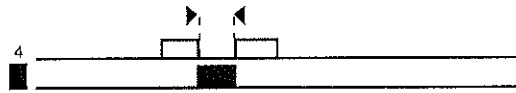
3 **Play or locate to a later time and press** `In`

4 **Press** `Paste` **again.**

The Clipboard audio is pasted at the new In point, replacing any audio at that location.

5 **Press** `Ripple` **and then** `Paste`

The Clipboard audio is inserted into the track, beginning at the In point. Subsequent events "slide" out to make room for the Clipboard audio.

Filling a region

You can also fill a region with the contents of the Clipboard. If the region is longer than the Clipboard, the audio automatically loops to the end of the region. If the region is shorter than the Clipboard, the audio is automatically trimmed to fit the region.

1 **Set new In and Out points and ready the desired track(s) to define the region you want to fill.**

2 **Press** `Fill` **to fill the region.**

If no events are selected, you can split audio on any readied tracks.

1   Ready the track(s) containing the audio you want to split.

2   Play or locate to the desired split point.
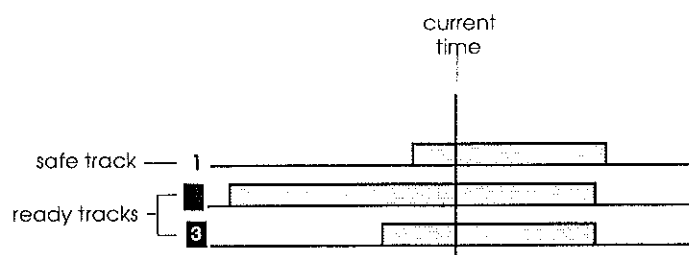
3   Press `Split`

When splitting a region, a vertical line indicates the split point. Events on readied tracks are split at that point. Events on unreadied tracks are not affected.
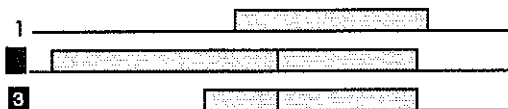
What's next

This completes your introduction to recording and editing on the Foundation. Please refer to the following chapters for more detailed information about each feature, as well as descriptions of features not covered here.

Chapter	Contents
General Controls	Use buttons, time displays, the jog/shuttle knob, the touch-sensitive screen, external keyboards.
Project Management	Organize your work, save preferences in a default reel, archive and restore, set a password, format the RPE.
Recording	Route audio and display meters, record and play back, display waveforms, locate, set markers, set preroll and postroll for auto recording loops, undo and redo recordings, name events, copy events to and from the library.
Editing	Trim, align, cut, copy, paste, ripple, or split events and regions, insert leader, display and edit crossfades, undo and redo edits.
Synchronization	Set sync references, use RS-422 and MIDI machine control, chase incoming timecode, transfer digital audio.

GENERAL CONTROLS

Buttons and time displays

Buttons

Buttons
Push buttons
are hard buttons.
Touch buttons
are on the touch-
sensitive display.

There are two types of buttons referred to in the User's Guide: "push" buttons and "touch" buttons. Push buttons are the hard buttons on the Edit Controller and the Main Unit. Touch buttons appear on the Edit Controller's touch-sensitive screen. They are activated by a gentle pressure with your finger, and they emit a "chirp" when successfully activated.

Time displays

The Edit Controller includes two time displays that show time either as SMPTE timecode or as feet/frames. Feet/frames is divided into three subfields: feet, frames, subframes (100 subframes per frame). SMPTE time is divided into five subfields: hours, minutes, seconds, frames, subframes (100 subframes per frame).

Time displays
Top display shows
current time.
Bottom display
shows edit time.
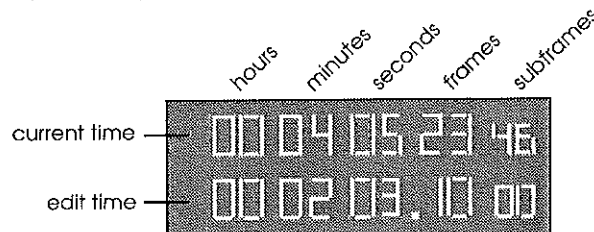
The top display always shows the "current time," which corresponds to the vertical "now" line in the Tracks display. When you press Play, playback begins at the current time.

The bottom display usually shows the current locator point. When you press Locate, the transport locates to the time shown in the bottom display. The bottom display is also called the "edit time" because you can use the numeric keypad to edit it. The bottom display sometimes shows other types of numeric information, such as the offset, preroll or postroll.

Selecting a time display format

1   Touch the Reels button and select Prefs from the popup menu.

2   Select the Display field and press the Data button to display a popup menu.

3   If you want to display SMPTE timecode, select "SMPTE TC."

    If you want to display feet/frames, select "35mm Feet/Frames" or "16mm Feet/Frames."

    The 35mm format assumes 16 frames per foot. The 16mm format assumes 40 frames per foot.

4   Press the Data button again to close the field.

Times displayed on the Edit Controller depend on both the Display field and the TC Source field. When the TC Source field is set to 25fps, the Foundation assumes the film rate is 25 frames per second. When the TC Source field is set to any other value, the Foundation assumes the film rate is 24 frames per second.

The Edit Controller screen

The Edit Controller screen provides access to displays for recording and editing. It is a touch-sensitive screen, which means operations are activated by touching buttons or fields on the screen with your finger. A slight pressure is all you need. The areas sensitive to touch are buttons, lists and fields.
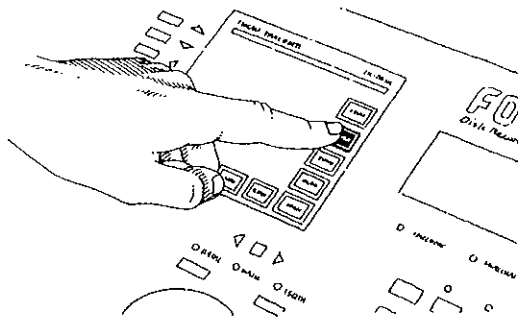
If the screen gets dirty, wipe it with a soft dry cloth. Do not use abrasive cleaners of any kind, including spray cleaners. If liquid enters the screen enclosure, please contact Customer Support for assistance.

Status bar

The status bar at the top of the screen shows the name of the currently mounted project and reel followed by a user-defined name or the default name. The other end of the status bar shows the amount of recording time available—how many minutes you can record before running out of disk space. The more tracks you ready, the less time you have available.

name of the current   disk time
project and reel   available

```
A1:  Project A - Reel A1                              00:49:23
```

disk space used   disk space available for
                             recording and editing
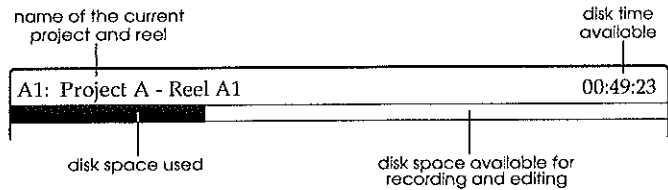
Status bar
Project, reel or event information shown at the top of the screen.

The horizontal gauge in the status bar shows the relative amount of disk space currently used. The used disk space grows as you record or edit.

When an event is selected on the Tracks display, the name of the event replaces the project and reel name in the status bar.

name of the
selected event

```
Event:  Eric 01                                      00:49:23
```
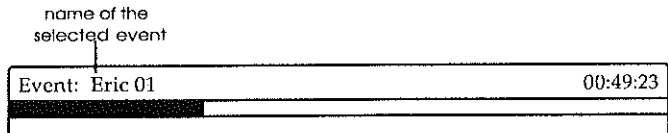
Navigation

navigation button

action button

unavailable button

There are five major displays that can be accessed at any time by touching the buttons on the right side of the screen: Tracks, I/O, Meters, Reels/Library, System. Within each of these displays there is a set of subdisplays and commands, which are accessed by touching the buttons at the bottom of the screen.

There are two basic types of screen buttons: navigation buttons and action buttons. Navigation buttons have square corners. They let you move from one display to another, without altering audio you've recorded or parameters you've set. When a navigation button is selected, its outline is bold.

Action buttons have rounded corners. They activate commands or provide you with a set of options from which to choose.

Sometimes a button is temporarily not available. When a button is not available, it appears dimmed and does not respond to touching.
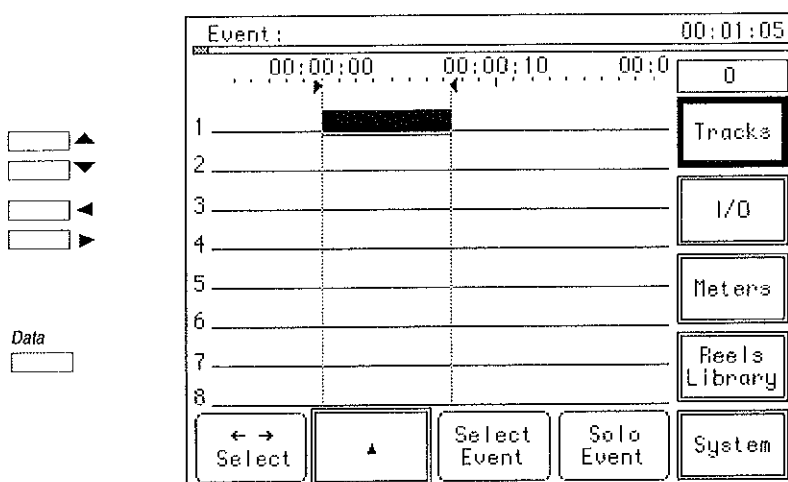
If you touch an action button that is destructive to audio, a message will ask you to confirm the action before proceeding.

Entering information

Some displays, such as Reels:Prefs, contain fields that ask for information or present you with options. You can use the arrow buttons next to the screen to move from one field to the next, or you can touch a field to select it. Pressing the Data button opens the selected field so that you can choose an item or enter text or numbers. If the field has only two choices, such as on and off, pressing Data toggles between them.

Selecting from a list

List fields contain two or more items that you can select.

List field
A screen display field that pops up multiple selections.

1 **Touch the desired field, or use the arrow buttons to select it.**

TC source: [LTC] [29.97 Drop]

2 **Press** [Data] **to open the field.**

TC source: [LTC / VITC] [29.97 Drop]

3 **Press the arrow buttons or turn the jog/shuttle knob until the desired option is selected. Or touch the desired option in the list.**

4 **Press** [Data] **to confirm your choice.**

Entering numeric values

Numeric fields can contain time or other numeric values.

Numeric field
A screen display field for making numeric or time entries.

1 **Touch the desired field, or use the arrow buttons to select it.**

Speed: [+0.0 %]

2 **Press** [Data] **to open the field.**

Speed: [+0.0 %]

3 **Press the arrow buttons or turn the jog/shuttle knob to increment or decrement the number.**

OR

If you are entering a time, use the numeric keypad buttons.

TC output offset: [00.00.00.00.00]

4 **Press** [Data] **to confirm your entry.**

Entering text

When you select and open a text field, the keyboard display appears. By touching buttons on the screen, you can "type" an entry.

Text field
A screen display field for entering textual information using the keyboard display.

1 Touch the desired field, or use the arrow buttons to select it.

Projects

• A **Untitled**

Data

2 Press ☐ to open the keyboard display.

```
Enter
Project Name    Untitled_           Clr
                        ^

 1   2   3   4   5   6   7   8   9   0

 Q   W   E   R   T   Y   U   I   O   P

Alt  A   S   D   F   G   H   J   K   L

 Caps   Z   X   C   V   B   N   M   -

 Cancel  ←   →   Space   Delete   OK
```

3 Touch the Clr button at the top right of the screen to clear the field.

4 Touch the screen buttons to enter characters.

The cursor (∧) indicates where the next character will appear.

5 Touch OK when you finish.

Button	Function
Caps	Toggles between uppercase and lowercase characters.
Delete	Deletes the character to the left of the cursor.
Space	Places a space in the entry.
-->	Moves cursor to the right without deleting characters.
<--	Moves cursor to the left without deleting characters.
Alt	Toggles between two sets of characters.
Clr	Deletes all characters from the field.
Cancel	Closes the keyboard display without changing the field.
OK	Closes the keyboard display and updates the field.

External keyboards

You can also use an IBM AT compatible keyboard to enter information into fields on the displays. Connect the keyboard to the 5-pin port on the Edit Controller. Three keyboard models have been tested, and work well with the Foundation: KeyTronic E03600Q (US), Northgate Omni Key/102 (US) and Cherry Euro-Keyboard RS3000 (Europe). Other keyboards may also work, but have not been tested yet.

Setting the keyboard type

1 **Touch the System button and select Info from the popup menu.**

```
 A1: Untitled - Untitled                    00:01:00
 ░░░░░░░░
                                           ┌──────────┐
                                           │    0     │
 Keyboard:   ██UK██                        ├──────────┤
                                           │  Tracks  │
                                           └──────────┘
 Time:       ┌──┬──┬──┬──┐
             │01│36│41│PM│                 ┌──────────┐
             └──┴──┴──┴──┘                 │          │
 Date:       ┌───┬──┬────┐                 │   I/O    │
             │Jun│30│1995│                 └──────────┘
             └───┴──┴────┘
                                           ┌──────────┐
                                           │  Meters  │
 Software:   4.0d26                        └──────────┘

                                           ┌──────────┐
                                           │  Reels   │
                                           │ Library  │
                                           └──────────┘

                                           ┌──────────┐
                                           │  System  │
                                           └──────────┘
```

2 **Select the Keyboard field.**

3 **Press [*Data*] to toggle between US and UK.**

If you've connected a European keyboard, set the field to UK. Otherwise, set the field to US. Keyboard button equivalents are:

Keyboard Display	External Keyboard
OK	Enter
Cancel	Escape
Clear	Del (del/forward)
Delete	Backspace

If you're looking at a display other than the keyboard display, the Enter button on the external keyboard acts as the Data button on the Edit Controller.

Time and date

The System:Info display also lets you set the current time and date. It lists version numbers of the current software and the RTCA ROM (the chip that contains the software necessary for booting the system).

> **Setting the time and date**
>
> 1   If necessary, touch the System button and select Info from the popup menu.
>
> 2   Select the time or date field you want to change.
>
> 3   Press [___*Data*___] to open the field.
>
> 4   Press the arrow buttons or turn the jog/shuttle knob to increment or decrement the time or date.
>
> 5   Press [___*Data*___] to close the field.

Transport controls

The transport buttons on the Edit Controller are similar to those found on a conventional tape recorder, but provide some additional features.

Button	Function
Record ●	Press with *Play* to initiate recording. The *Record* button lights when recording and blinks when ready for recording.
Stop ■	Stops playback, recording or winding.
Play ▶	Initiates playback. Initiates recording when pressed with *Record*. If you're recording, *Play* interrupts recording and continues playback. Initiates cueing when pressed with *Rewind* or *FForward*.

Rewind
◀◀
	High speed reverse.
	    1 press rewinds at 2x play speed
	    2 presses rewinds at 8x play speed
	    3 presses locates to start of first event on readied tracks
	
	Press *Rewind* with *Play* to initiate reverse cueing.
	    1 press cues backward at play speed
	    2 presses cues backward at 2x play speed
	    3 presses cues backward at 8x play speed
	    4 presses locates to start of first event on readied tracks

F Forward
▶▶
	High speed forward.
	    1 press winds at 2x play speed
	    2 presses winds at 8x play speed
	    3 presses locates to end of last event on readied tracks
	
	Press *FForward* with *Play* to initiate forward cueing.
	    1 press cues forward at 2x play speed
	    2 presses cues forward at 8x play speed
	    3 presses locates to end of last event on readied tracks

Jog/shuttle knob

The jog/shuttle knob allows you to control the direction and speed of playback independent of the transport buttons. It has two jog modes, one shuttle mode, and a data mode.

◁ ◻ ▷

○ *Shuttle*   ○ *Data*   ○ *Jog*
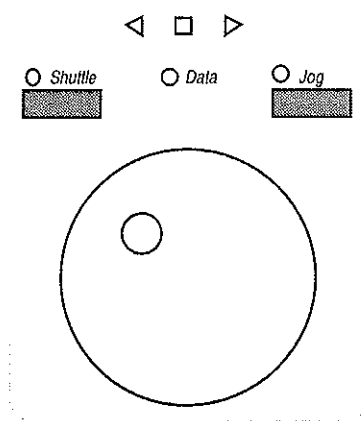
Item	Function
Jog/shuttle knob	Turn counterclockwise to play in reverse.
	Turn clockwise to play forward.
	Play mode depends on whether the Shuttle or Jog LED is lit.
Shuttle button and LED	Press the Shuttle button to initiate shuttle mode. The LED lights when shuttle mode is active.
	Plays faster the farther the knob is turned in either direction (1/32 to 32 times play speed).
Jog button and LED	Press the Jog button to initiate jog mode. The LED lights when jog mode is active.
	Scrubs audio at real time or slower (to 1/32 of play speed) when knob is turned in either direction.
	For better scrubbing resolution, press and hold the Jog button while turning the knob.
◁ indicator	Lights during reverse motion.
◻ indicator	Lights when the transport is stopped.
▷ indicator	Lights during forward motion.
Data LED	Lights when the jog/shuttle knob is in Data mode (an arrow button is being held down or the Data button has been pressed).
	When the Data LED is on, you can use the jog/shuttle knob to scroll through options in a field, or to select events on the Tracks display.

Speed display

As you rotate the jog/shuttle knob, the play speed is displayed above the Tracks button on the touch screen. Play speed is determined by the transport buttons or the jog/shuttle knob. Available speeds are: 1/32, 1/16, 1/8, 1/4, 1/2, 3/4, 1, 1.5, 2, 4, 8, 16 and 32 times play speed.
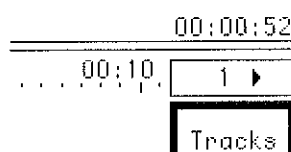
An arrow indicates whether you are playing forward or backward. A double arrow indicates fast winding speed.
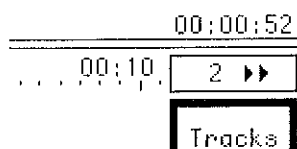
A single dot (•) indicates that you are playing at exactly the speed shown. If no dot appears, then you are playing between the speed shown and the next faster speed.

Status messages

Status messages indicate the state of the machine or errors which may have occurred during operation. Status messages appear on the System:Status display. when a new status message is posted to the display, a check mark appears in the System button to alert you.
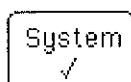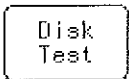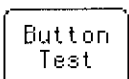
Displaying status messages

1   **When a new status message is posted, a check mark appears in the System button.**

2   **Touch the System button and select Status from the popup menu.**

A list of status messages appears on the screen.

Data

3   **Select a message and press** ☐ **to display more detailed information.**

Diagnostics

The System:Test display includes two tests that can help you diagnose problems with the RPE or Edit Controller. You do not have to be a service representative to run these tests.

Diagnostics	Description
Disk Test	Tests the playback and record capacity of a disk. WARNING: This test erases your disk.
Button Test	Tests all touch screen and Edit Controller buttons as well as all LEDs.

Running the Button Test

The Button Test lets you test the Edit Controller buttons, LEDs and touch screen.

1   Touch the System button and select Test from the popup menu.

```
┌─────────────────────────────────────────────┐
│ A1: Project A - Reel 1          00:00:59     │
│ ▓▓▓▓▓▓▓                       ┌──────────┐   │
│                              │    0     │   │
│                              └──────────┘   │
│                              ┌──────────┐   │
│                              │ Tracks   │   │
│                              └──────────┘   │
│                              ┌──────────┐   │
│                              │  I/O     │   │
│                              └──────────┘   │
│                              ┌──────────┐   │
│                              │ Meters   │   │
│                              └──────────┘   │
│                              ┌──────────┐   │
│                              │ Reels    │   │
│                              │ Library  │   │
│              ┌──────┐┌──────┐└──────────┘   │
│              │ Disk ││Button│┌──────────┐   │
│              │ Test ││ Test ││ System   │   │
│              └──────┘└──────┘└──────────┘   │
└─────────────────────────────────────────────┘
```
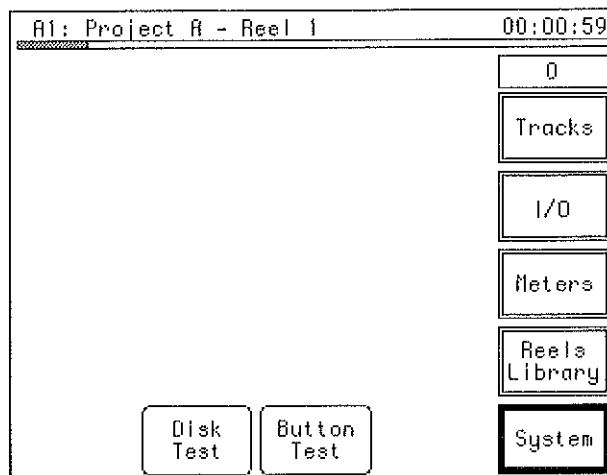
2   Touch Button Test.

All illuminated buttons and LEDs on the Edit Controller should light.

All buttons should "chirp" when you press them.

The touch-sensitive display has 120 buttons arranged in a 10x12 grid. Each screen button should light and "chirp" when you touch it.

If any button or LED does not respond, please call Customer Support.

3   Touch OK at the bottom of the display to stop the test.

The Disk Test erases your RPE. Before proceeding, make sure you have archived all the projects and reels you want to keep.

Running the Disk Test

The Disk Test erases your disk, and then calculates its playback and record capacity.

1   Touch the **System** button and select **Test** from the popup menu.

2   Touch **Disk Test** to display the following message:

This test tells you the average number of tracks that your disk can play or record. The test erases your disk. It takes 1 to 2 hours.

3   Touch **OK** to display the following warning:

WARNING: This ERASES your disk and can take a couple of hours. Press CANCEL to abort.

4   Touch **OK** to continue, or **Cancel** to abort.

PROJECT MANAGEMENT

Selecting projects and reels

RPE
Hard disk or magneto-optical storage medium containing projects A-G.

Project
A job or session containing reels 1-6.

Reel
A version of your work containing recorded audio and editing data.

PROJECTS AND REELS let you organize your work on the Foundation. A project may contain a particular job or session. A reel is a version of your work contained within a project. A reel contains recorded audio as well as editing information that determines how the audio is processed, assembled and played back.

Seven projects, A-G, are available on each RPE. Each project can contain up to six reels, 1-6, in addition to the default reel. The following example shows an RPE with two projects; project A has three reels and project B has five reels of audio.
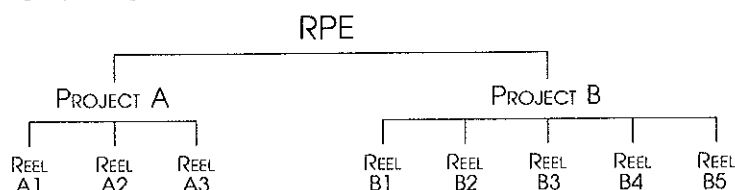
The number of projects and reels you can use depends on how much storage space you have available on your RPE, and how much audio is recorded on each reel. When you first receive your Foundation, reel A1 is mounted automatically.

The Index

The Reels:Index display lists all projects on your RPE, and all reels in the selected project. You can look at the reels in any project at any time, even while recording in another reel. The currently mounted project and reel have a dot (•) next to them.

Viewing the index

Index
A list of projects and reels on the current RPE.

1   **Touch the Reels/Library button and select Index from the popup menu.**

2   **Touch a project name to view the list of reels in that project.**

Mounting a reel

Mount

Select a reel as the current location for recording.

When you mount a reel, it becomes the current location for recording. You can view the index of all projects and reels, but only one reel at a time can be mounted.

1   Select the desired project on the Reels:Index display.

2   Touch the name of the reel you want to mount.

3   Touch the Mount button at the bottom of the display.

The Mount button indicates which reel you are mounting. The names of the mounted project and reel appear above the status bar at the top of the screen.

```
┌─────────────────────────────────────────────────┐
│ A3: Project A - Reel 3              00:00:59      │
│ ▓▓▓▓▓▓                                           │
│ RPE: Untitled                        ┌────────┐  │
│                                      │   0    │  │
│ Projects          Reels              └────────┘  │
│                                     ┌─────────┐  │
│ • A │Project A│    ▵ DEFAULT REEL   │ Tracks  │  │
│                                     └─────────┘  │
│   B  Project B     1 Reel A1                     │
│                                     ┌─────────┐  │
│   C  Project C     2 Reel A2        │  I/O    │  │
│                                     └─────────┘  │
│   D              • 3 █Reel A3█                   │
│                                     ┌─────────┐  │
│   E                4                │ Meters  │  │
│                                     └─────────┘  │
│   F                5                ┌─────────┐  │
│                                     │ Reels   │  │
│   G                6                │ Library │  │
│                                     └─────────┘  │
│      ┌──────┐ ┌──────┐ ┌────────┐ ┌─────────┐   │
│      │Mount │ │Erase │ │ Copy   │ │ System  │   │
│      │ A3   │ │ A3   │ │A1 To A3│ │         │   │
│      └──────┘ └──────┘ └────────┘ └─────────┘   │
└─────────────────────────────────────────────────┘
```
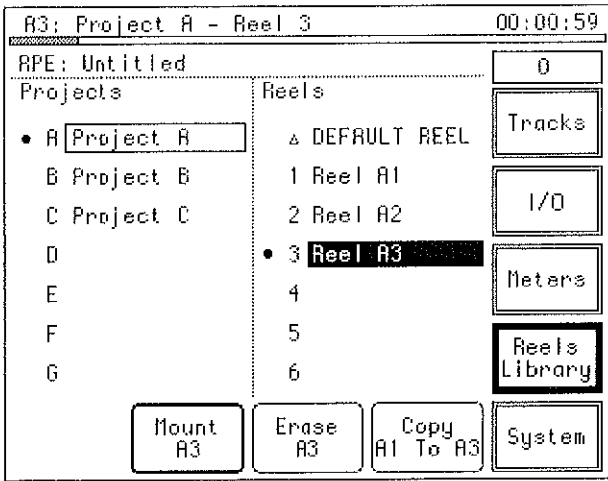
The dot (•) always indicates what is *mounted*, and the box indicates what is being displayed in the index. In the example below, Reel A3 is mounted while the reels in Project C are displayed. Notice that the name of the mounted reel still appears in the status bar at the top of the screen.

```
┌─────────────────────────────────────────────────┐
│ A3: Project A - Reel 3              00:00:52      │
│ ▓▓▓▓▓▓▓▓▓▓                                       │
│ RPE: Music/Effects                   ┌────────┐  │
│                                      │   0    │  │
│ Projects          Reels              └────────┘  │
│                                     ┌─────────┐  │
│ • A  Project A     ▵ DEFAULT REEL   │ Tracks  │  │
│                                     └─────────┘  │
│   B  Project B     1 Reel C1                     │
│                                     ┌─────────┐  │
│   C │Project C│    2 Reel C2        │  I/O    │  │
│                                     └─────────┘  │
└─────────────────────────────────────────────────┘
```
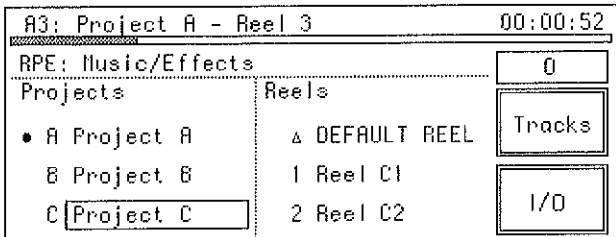
Naming projects and reels

Projects are named alphabetically A–G. Reels are numbered 1-6. For example, the second reel in Project A is "A2." You can change each name to something that describes the project or reel more completely.

Naming a project or reel

You can change a project or reel name at any time; you do not have to mount it first.

1   Touch the Reels/Library button and select Index from the popup menu.

2   Select the project or reel you want to name.

        Data
3   Press [   ] to open the keyboard display.

4   Enter the project or reel name by touching buttons on the display, or by typing on an external keyboard connected to the Edit Controller.

```
┌─────────────────────────────────────────────────┐
│ Enter      ┌─────────────────────┐     ┌────┐    │
│ Project Name│ EFX SCENE 12        │     │Clr │    │
│            └─────────────────────┘     └────┘    │
│  ┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐        │
│  │ 1││ 2││ 3││ 4││ 5││ 6││ 7││ 8││ 9││ 0│        │
│  └──┘└──┘└──┘└──┘└──┘└──┘└──┘└──┘└──┘└──┘        │
└─────────────────────────────────────────────────┘
```

5   Touch OK to confirm the name entered.

```
┌───────────────────────────────────────────────┐
│ A1: EFX SCENE 12 - Reel 1           00:00:52   │
│ ─────────────────────────────────────────────  │
│ RPE: Music/Effects                    ┌──────┐ │
│                                       │   0  │ │
│ Projects              Reels           └──────┘ │
│                                      ┌────────┐│
│ • A ▓EFX SCENE 12▓    A DEFAULT REEL │ Tracks ││
│                                      └────────┘│
└───────────────────────────────────────────────┘
```

See the "General Controls" chapter for more information about the keyboard display and entering text.
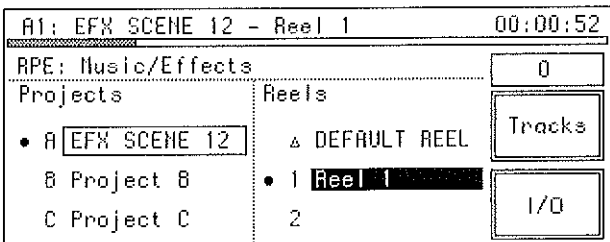
Copying projects and reels

You can copy the contents of one reel to another or one project to another using the Copy command on the Reels:Index display. The destination reel references the source reel's audio on the disk. Because the audio itself is not duplicated, a copy of a reel does not use additional space on the disk.

Copying a reel

Copy

Duplicate a project or reel.

1   **Touch the Reels/Library button and select Index from the popup menu.**

2   **Mount the reel you want to copy. This is the source reel.**

```
 A1: EFX SCENE 12 - Reel 1              00:00:52

 RPE: Music/Effects                        0

 Projects           Reels
                                        ┌─────────┐
 • A│EFX SCENE 12│    ▵ DEFAULT REEL    │ Tracks  │
                                        └─────────┘
   B Project B     • 1 Reel 1           ┌─────────┐
                                        │   I/O   │
   C Project C       2                  └─────────┘
```

3   **Select the desired destination reel.**

The destination reel can be an empty reel or one containing audio (although the audio will be erased). Notice that the Copy button on the screen indicates the source and destination reel names.

```
 A1: EFX SCENE 12 - Reel 1              00:00:52

 RPE: Music/Effects                        0

 Projects           Reels
                                        ┌─────────┐
 • A│EFX SCENE 12│    ▵ DEFAULT REEL    │ Tracks  │
                                        └─────────┘
   B Project B     • 1 Reel 1           ┌─────────┐
                                        │   I/O   │
   C Project C       2                  └─────────┘
```
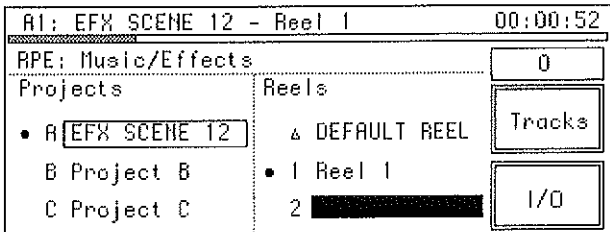
┌──────────┐
│ Copy   │
│ A1 to A2 │
└──────────┘

4   **Touch the Copy button on the Reels:Index display.**

If you copy to a reel containing audio, a message asks you to confirm the copy.

OK to replace reel "A2" with reel "A1"?

Copying a project

When you copy one project to another, all reels in the project are copied.
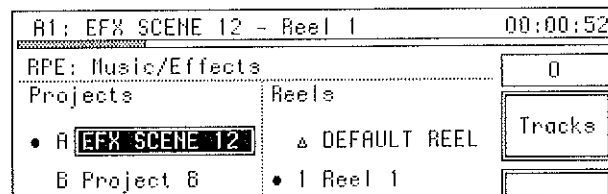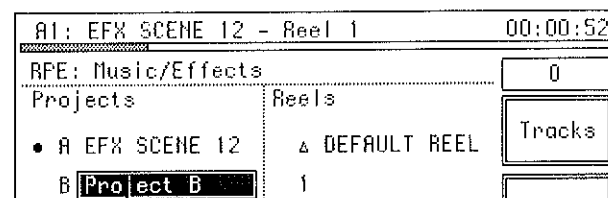
1 **Touch the Reels/Library button and select Index from the popup menu.**

2 **Mount the project you want to copy. This is the source project.**

```
 A1: EFX SCENE 12 - Reel 1              00:00:52
 RPE: Music/Effects                           0
 Projects              Reels
                                            Tracks
 • A EFX SCENE 12      △ DEFAULT REEL
   B Project B         • 1 Reel 1            ...
```

3 **Select the desired destination project.**

```
 A1: EFX SCENE 12 - Reel 1              00:00:52
 RPE: Music/Effects                           0
 Projects              Reels
                                            Tracks
 • A EFX SCENE 12      △ DEFAULT REEL
   B Project B         1                     ...
```

4 **Touch the Copy button on the Reels:Index display.**

> Copy
> A to B

If the destination project contains audio, a message asks you to confirm the copy.

OK to replace project "B" with project "A"?

Erasing a project or reel

When you erase a reel, all audio and other data stored on that reel is permanently removed. When you erase a project, all audio and other data stored on *all* reels in the project is permanently removed. However, if you copy a reel or project before erasing it, the audio and other data remains intact in the copy.

⚠ *BEFORE you erase a project or reel, be sure to archive it or copy it to another location. Erased audio cannot be recovered.*

Erasing a reel

1 **Touch the Reels/Library button and select Index from the popup menu.**

2 **Select the reel you want to erase.**

Notice that the Erase button indicates the name of the reel to be erased.

> Erase
> A1

3 **Touch the Erase button to display this message:**

Do you really want to erase reel "A1"?

4 **Touch OK if you want to erase the entire reel, or touch Cancel if you DON'T want to erase the reel.**

Erasing a project

1   Touch the Reels/Library button and select Index from the popup menu.

2   Select the project you want to erase.

Notice that the Erase button indicates the name of the project to be erased.

Erase
A

3   Touch the Erase button to display this message:

Do you really want to erase project "A"?

4   Touch OK if you want to erase all the reels in the project, or touch Cancel if you DON'T want to erase the project.

Reel preferences

Preference settings

Each reel has a set of preferences, such as sample rate and timecode format. You can set preferences for an individual reel, or you can set default preferences that apply to all new reels. Preferences are set on the Reels:Prefs display.

Setting	Definition	Options
VTR TC type	Type of VTR timecode read over the RS-422 port when controlling a video deck	VTR LTC VTR VITC
TC Source	Port for incoming timecode	LTC, VITC, ADAT TC
	Timecode format	30 Non-Drop, 30 Drop, 29.97 Non-Drop, 29.97 Drop, 25 fps, 24 fps
Reference	Incoming synchronization reference	Internal, Word Clock, Timecode, Video, AES pairs, SPDIFo, SPDIFe, ADAT optical
Int. Sample Rate	Foundation's internal sample rate used for recording and playback	32, 44.056, 44.1, 44.144, 47.952, 48 and 48.048 kHz
Speed	Varispeed adjustment for recording and playback	–1.0% to +1.0% (32kHz) –12.5% to +12.5% (44.1kHz & pull up/down) –12.5% to +6.0% (48kHz & pull up/down)
TC Output Offset	Difference between Foundation's internal timecode and its timecode output	00:00:00:00—23:59:59:29
Offset	Difference between incoming timecode and Foundation's internal timecode	00:00:00:00—23:59:59:29 Set using the Offset button.
MTC Out	MIDI timecode output	On, Off
Display	Time display format	SMPTE TC, 35mm or 16mm Feet/Frames
Remote	Type of external device that can control Foundation	MIDI, RS-422 or ADAT

Default reels

In some situations, many aspects of the production process are identical from job to job. You can repeatedly set the same parameters each time you begin a new reel, or you can define a "default reel" and set the parameters just once. In addition to setting parameters, you can also record and edit audio in the default reel.

At the top of the reels list on the Reels:Index display is an entry called "Δ DEFAULT REEL." The default reel is like a template; once the default reel is defined in a project, each new reel in that project is defined the same way. Changing the default reel does *not* change the preferences for reels that have already been mounted. Regardless of the preferences set in the default reel, you can also change the preferences of any individual reel without affecting other reels.

Setting default reel preferences

1   Touch the Reels/Library button and select Index from the popup menu.

2   Select the desired project, and mount its default reel.

Default reel
Contains
preferences for
all new reels.

```
┌──────────────────────────────────────────────┐
│ A1: EFX SCENE 12 - Reel 1          00:00:52   │
│ ▓▓▓▓▓▓▓▓▓▓▓                                    │
│ RPE: Music/Effects                   ┌──────┐ │
│                                      │   0  │ │
│ Projects            Reels   ┌─────────────┐   │
│                             │      Tracks │   │
│ • A EFX SCENE 12    Δ ███████████████     │   │
│                             └─────────────┘   │
└──────────────────────────────────────────────┘
```

3   Touch the Reels/Library button and select Prefs from the popup menu.

4   Enter the desired values.

5   Record any audio you want in the default reel.

6   If you want to turn on auto naming or take stacking, touch the Tracks button and select Prefs from the popup menu.

7   Touch the Reels/Library button and select Index from the popup menu.

8   Mount a new reel.

Every new reel you mount in that project contains the new default settings and any audio you recorded in the default reel.

Each project contains its own default reel. To make the current reel the default in all projects, copy the current reel to the default reel in each of the other projects.

Erasing the default reel restores all its settings to the default values set at the factory. However, the settings for reels already opened remain intact, even if you erase the default reel.
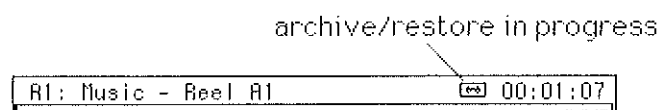
If you change the sample rate of a reel that contains audio, pitch shifting occurs. The start time of the earliest event will remain the same, but all subsequent event times will be expanded or compressed. Please see the "Synchronization" chapter for more information about sample rates.

Archiving and restoring

Archiving is the process of copying a project, reel, or RPE to an external storage medium, such as WangDAT 4mm tape. Restoring is the process of retrieving an archived project, reel, or RPE to the current RPE.

Archiving and restoring are background processes. Therefore, you can continue editing and recording while the Foundation is archiving or restoring. During archive and restore processes, a tape icon appears in the status bar.

archive/restore in progress

```
┌─────────────────────────────────────────────┐
│ R1:  Music - Reel R1            [tape] 00:01:07 │
├─────────────────────────────────────────────┤
│                                             │
└─────────────────────────────────────────────┘
```

When the archive or restore process is done, the tape icon disappears and a message on the System:Status display indicates that the process is finished.

Archive devices

Archive devices are connected to the Foundation's SCSI port. You can chain several devices from the SCSI port, as long as the chain has exactly one SCSI terminator installed on the last device in the chain. Some SCSI devices are terminated internally; others require an external terminator.

The Foundation's RPE has a SCSI ID of 0. All other SCSI devices must have IDs other than 0. Before connecting any SCSI device, please refer to its manual to make sure it is properly terminated and its SCSI ID is correct.

The total cable length for SCSI devices external to the Foundation should not exceed 3 meters (10 feet).

Connecting an archive device

1   Make sure the power switches on the Foundation and the archive device are off.

2   Connect the archive device to the SCSI port on the Main Unit.

3   Power up the archive device before powering up the Foundation.

Turning on an archive device after powering up Foundation can cause SCSI errors. To prevent these errors, turn off Foundation before connecting the archive device to the SCSI port, and power up the archive device before powering up Foundation.
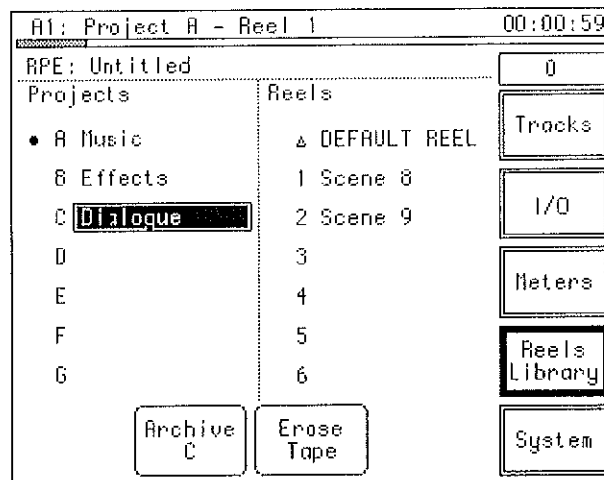
Archiving

Archiving lets you store projects, reels, or an entire RPE to an archive device. The project or reel that you choose does not have to be mounted, just selected. Archiving is done from the Reels:Archive display.

| Archiving a reel, project or RPE |

Archive

Save a copy of a reel, project or RPE to an archive device attached to the SCSI port.

1 **Insert a tape into the archive device.**

2 **Touch the Reels/Library button and select Archive from the popup menu.**

```
┌─────────────────────────────────────────────────────┐
│ A1: Project A - Reel 1                    00:00:59    │
│ ┌─────────────────────────────────┐  ┌──────────┐   │
│ │ RPE: Untitled                   │  │    0     │   │
│ │ Projects          Reels         │  ├──────────┤   │
│ │                                 │  │ ┌──────┐ │   │
│ │ • A Music         ▲ DEFAULT REEL│  │ │Tracks│ │   │
│ │                                 │  │ └──────┘ │   │
│ │   B Effects       1 Scene 8     │  │ ┌──────┐ │   │
│ │                                 │  │ │ I/O  │ │   │
│ │   C Dialogue      2 Scene 9     │  │ └──────┘ │   │
│ │                                 │  │          │   │
│ │   D               3             │  │ ┌──────┐ │   │
│ │   E               4             │  │ │Meters│ │   │
│ │                                 │  │ └──────┘ │   │
│ │   F               5             │  │ ┌──────┐ │   │
│ │                                 │  │ │Reels │ │   │
│ │   G               6             │  │ │Library│ │   │
│ │      ┌────────┐ ┌────────┐      │  │ └──────┘ │   │
│ │      │Archive │ │ Erase  │      │  │ ┌──────┐ │   │
│ │      │   C    │ │ Tape   │      │  │ │System│ │   │
│ │      └────────┘ └────────┘      │  │ └──────┘ │   │
│ └─────────────────────────────────┘  └──────────┘   │
└─────────────────────────────────────────────────────┘
```

3 **Select the project or reel that you want to archive. If you want to archive the entire RPE, select the RPE name near the top of the screen.**

4 **Touch the Archive button at the bottom of the screen to display this message:**

Do you really want to archive "[name]"?

5 **Touch OK.**

The Foundation begins to copy the selected project, reel or RPE to the tape.

Archiving can take several minutes to complete. The tape icon in the status bar appears during the archive. When the archive process is complete, the tape icon disappears and a message on the System:Status display indicates that tape operations are done.
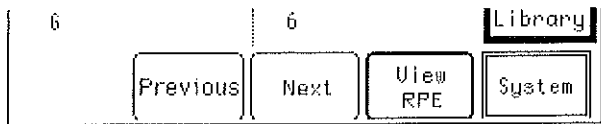
Restoring

Restoring lets you copy individual projects or reels, or an entire RPE from your archive device to the current RPE.
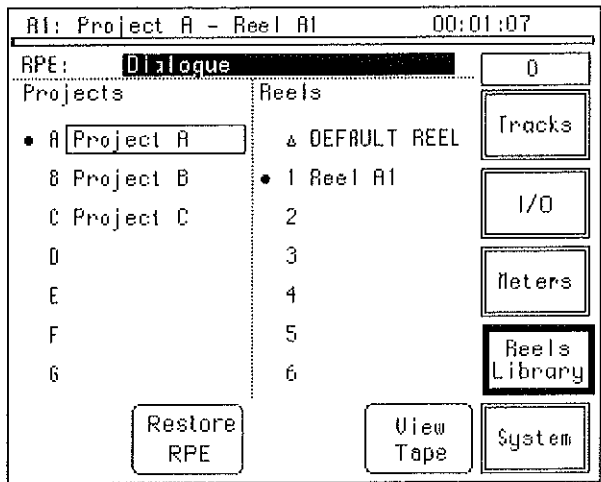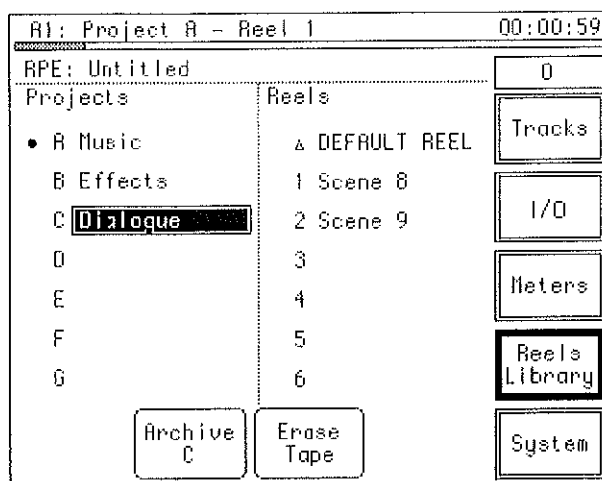
Restoring a reel, project or RPE

Restore

Copy a reel, project or RPE to the current RPE.

1   **Insert the desired archive tape into the archive device.**

2   **Touch the Reels/Library button and select Restore from the popup menu.**

After the directory is loaded, the first item on the tape appears on the screen.

3   **Use the Previous or Next buttons to view other items on the tape.**

4   **Select the source project, reel or RPE that you want to restore.**

5   **Touch the View RPE button to display the RPE index.**

```
 6              6              │Library│
         ┌────────┬────────┐ ┌─────┬──────┐
         │Previous│  Next  │ │View │System│
         │        │        │ │RPE  │      │
         └────────┴────────┘ └─────┴──────┘
```

6   **If the source is a reel, select an empty reel on the RPE. If the source is a project, select an empty project. If the source is an entire RPE, select the RPE name near the top of the screen.**

If you want to look at the source list again before restoring, touch the View Tape button. When you're ready to restore, touch the View RPE button again.

```
┌──────────────────────────────────────────────┐
│ A1: Project A - Reel A1        00:01:07        │
│ ══════════════════════════════════════════════ │
│ RPE:   █Dialogue█              │    0    │     │
│ Projects        Reels         ┌─────────┐     │
│ • A│Project A│  ▲ DEFAULT REEL │ Tracks  │     │
│   B Project B  • 1 Reel A1     └─────────┘     │
│   C Project C    2            ┌─────────┐      │
│   D              3            │  I/O    │      │
│   E              4            └─────────┘      │
│   F              5            ┌─────────┐      │
│   G              6            │ Meters  │      │
│                              └─────────┘      │
│              ┌────────┐      ┌─────────┐      │
│              │Restore │      │ Reels   │      │
│              │ RPE    │      │ Library │      │
│              └────────┘ ┌────┴────┐┌──────┐   │
│                         │ View   ││System│   │
│                         │ Tape   ││      │   │
│                         └────────┘└──────┘   │
└──────────────────────────────────────────────┘
```

7   **Touch the Restore button.**

A message asks you to press OK to begin restoring. If the destination is not empty, the message asks you to confirm your selection.

8   **Touch OK to begin restoring.**

The Foundation begins to copy the source from the tape to the RPE.

Restoring can take several minutes to complete. The tape icon in the status bar appears during the restore. When the restore process is complete, the tape icon disappears and a message on the System:Status display indicates that tape operations are done.

Erasing an archive tape

Erasing an archive tape removes all information from the tape. This operation cannot be undone.

Erasing a tape

1   Insert the tape you want to erase into the archive device.

2   Touch the Reels/Library button and select Archive from the popup menu.

```
 A1: Project A - Reel 1              00:00:59
 RPE: Untitled                          0
 Projects        Reels
                                     ┌────────┐
  • A Music       A DEFAULT REEL     │ Tracks │
                                     └────────┘
    B Effects     1 Scene 8
                                     ┌────────┐
    C Dialogue    2 Scene 9          │  I/O   │
                                     └────────┘
    D             3
                                     ┌────────┐
    E             4                  │ Meters │
                                     └────────┘
    F             5
                                     ┌────────┐
    G             6                  │ Reels  │
                                     │Library │
          ┌─────────┐ ┌───────┐      └────────┘
          │ Archive │ │ Erase │      ┌────────┐
          │    C    │ │ Tape  │      │ System │
          └─────────┘ └───────┘      └────────┘
```

3   Touch the Erase Tape button to display this message:

Are you sure you want to erase the archive tape? All information on the tape will be lost.

4   Touch OK to erase the tape.

Removable Project Environment™

The Removable Project Environment™ (RPE) is the hard disk used for recording and editing audio. A 540MB RPE provides about 90 mono minutes of recording time at 44.1 kHz, allocated as needed to eight tracks. In order to record, you must have either inserted an RPE in the front of the Foundation or connected an external hard disk to the SCSI port on the back of the Foundation.

You can chain an external hard disk and an archive device from the SCSI port, as long as the chain has exactly one SCSI terminator installed on the last device in the chain. Some SCSI devices are terminated internally; others require an external terminator. The Foundation's RPE has a SCSI ID of 0. All other devices in the chain must have a SCSI ID other than 0. Before connecting any SCSI device, please refer to its manual to make sure it is properly terminated and its SCSI ID is correct.

The total cable length for SCSI devices external to the Foundation should not exceed 3 meters (10 feet).

Handling an RPE

For best results, please follow these suggestions when handling your RPE—

- Remove the RPE only when the RPE button is off, indicating that the disk is safely parked.
- Carry the RPE by its handle.
- Keep the RPE away from magnetic sources such as monitors and demagnetizers.
- Store the RPE flat on a sturdy, level surface. Don't store the RPE on its side.
- Operate and store the RPE within temperatures of 50–85°F (10–29°C) and humidity 20–80%.
- Keep liquids and hazardous vapors, such as cleaning solvents, away from the RPE.

Inserting and removing an RPE

When you finish a session, you can remove the RPE for safe storage. When you insert that RPE into the same or another Foundation, it automatically restores your previous working environment.

Inserting an RPE

1 **Grasp the RPE handle and slide the RPE into the receiver in the front of the Main Unit.**

2 **Firmly press the RPE handle to lock the RPE into the receiver.**

The RPE handle should "click" into place, and remain in.

3 **Press the RPE button next to the receiver.**

The RPE button blinks during loading and unloading. When the RPE is ready to use, the RPE button lights solid; the RPE name, along with the current project and reel names, appears at the top of the Edit Controller screen.

```
 A1: Music - Reel A1                        00:01:07
 RPE: Scenes 8-12                          [   0   ]
```

Removing an RPE

Do not remove the RPE when the RPE button is lit or blinking. Wait until the RPE button is off, indicating that the disk is safely parked.

1 **Press the RPE button and wait until it stops blinking.**

2 **Firmly press and release the RPE handle to unlock it.**

The RPE handle should "pop" out.

3 **Grasp the handle and firmly pull the RPE from the receiver.**

Erasing and formatting an RPE

Format
Permanently
remove all data
from the disk.

You can reuse an RPE by erasing or formatting it. Erasing an RPE quickly removes all of the data on the disk, including all recorded material. Formatting an RPE accomplishes the same thing, except that it also fixes data errors that may be occurring on the disk. Erasing takes only a few seconds; formatting a 540MB disk can take fifteen minutes.

If you experience problems with the disk while recording or playing back, or while erasing or doing other operations, it is best to archive the disk contents and then reformat it. If you buy a hard disk not supplied by Fostex, you need to format the disk before it can be used.

Erasing or reformatting an RPE permanently removes all audio from the disk. Before you erase an RPE, make sure that the disk is archived. Erasing and reformatting cannot be undone.

| Erasing an RPE |

1   Make sure the RPE is the one you want to erase.

2   Touch the System button and select RPE from the popup menu.

```
A1: Project A - Reel A1              00:01:07

RPE name:    Final Mix 10/15/93

Security:    Off                      Tracks

                                      Mixer

                                      Meters

                                      Reels
                                      Library

Set      Password   Quick    Format   System
Password   HELP     Erase     RPE
```
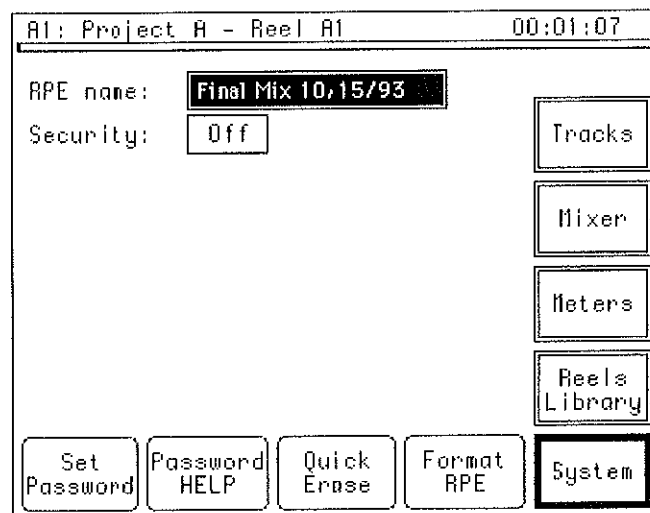
3   Touch the Quick Erase button to display this message:

Do you really want to erase the RPE "[name]"?

4   Touch the OK button to erase the RPE.

| Formatting an RPE |

1   Make sure the RPE is the one you want to format.

2   Touch the System button and select RPE from the popup menu.

3   Touch the Format RPE button to display this message:

Do you really want to reformat the RPE "[name]"?

4   Touch the OK button to begin formatting the RPE.

The Disk Test on the System:Test display erases any disk used as an RPE, and calculates its playback and record capacity. The test takes about two hours.

For more information about the Disk Test, please refer to "Diagnostics" in the General Controls chapter.

Security

You can secure your RPE against unauthorized use by requiring a password for operation. When security is turned on, the password is required before loading the RPE. If you do not enter the correct password, you cannot access the RPE.

The System:RPE display lets you enter a password, change the current password, or toggle security off and on.

Security
Requiring a password for disk access.

Password
Code required for disk access, or for changing the security status of a disk.

Setting a password for the first time

1   Touch the System button and select RPE from the popup menu.

2   Touch the Set Password button.

The keyboard display appears with the following message:

Enter New
Password: ∧ [   ]

3   Enter a password up to 25 characters long.

The password appears in the field as you enter it. Once you confirm the password, you'll have to remember it in order to change it. When security is turned on, you'll have to enter the password to load the RPE.

4   Touch OK when you're sure of your password.

Turning security off and on

It may not be necessary to secure your RPE at all times. When security is off, no password is required to use the RPE or to open projects and reels. However, you must know the password in order to turn security off and on.

1   Touch the System button and select RPE from the popup menu.

2   Select the Security field.

Data
3   Press [   ]

The keyboard display prompts you to enter your password:

Enter Current
Password: ∧ [   ]

4   Enter your password and touch OK.

A message confirms that the security status has been changed.

5   Touch OK.

Opening a secure RPE

1   **Insert the RPE, and press the RPE button on the Main Unit.**

A dialog appears on the display:

> This RPE is password protected. Press the Data button and enter
> password.
>
> ┌─────────────────────────────┐
> │ • • • •   │
> └─────────────────────────────┘

Data

2   **Press the ▢ button.**

3   **Enter your password.**

If you entered the correct password, the RPE is mounted.

If you forget your password, press the Password HELP button on the System:RPE display and follow the instructions.

Changing or removing your password

1   **Touch the System button and select RPE from the popup menu.**

2   **Touch the Set Password button.**

The keyboard display appears with the following message:

> Enter Current   ┌─────────────────────────┐
> Password: │ ∧   │
>   └─────────────────────────┘

3   **Enter your current password and touch OK.**

If you entered the correct password, the following message appears:

> Enter New   ┌─────────────────────────┐
> Password: │ ∧   │
>   └─────────────────────────┘

4   **Enter your new password. If you want to delete the password, touch the Clr button and leave the password field empty.**

Once you delete the password, the RPE has no security protection.

5   **When you know your new password, touch OK.**

A message confirms that your password has been changed.

6   **Touch OK.**

To delete the password altogether, touch the Clr button, and leave the "new password" field empty. Once your password is deleted, your RPE has no security protection.

RECORDING

Recording

Audio routing

The Foundation 2000RE provides both balanced (+4dBu) and unbalanced (-10dBV) analog inputs. For 8-channel digital I/O, you can choose between ADAT, SDIF2 and AES formats. For 2-channel digital I/O, you can use either SPDIF or AES formats. Analog and digital I/O connectors are located on the rear of the Main Unit.

digital inputs & outputs

ADAT or SPDIF   SDIF2 or AES   SPDIF   **Foundation 2000RE (back)**

analog inputs & outputs
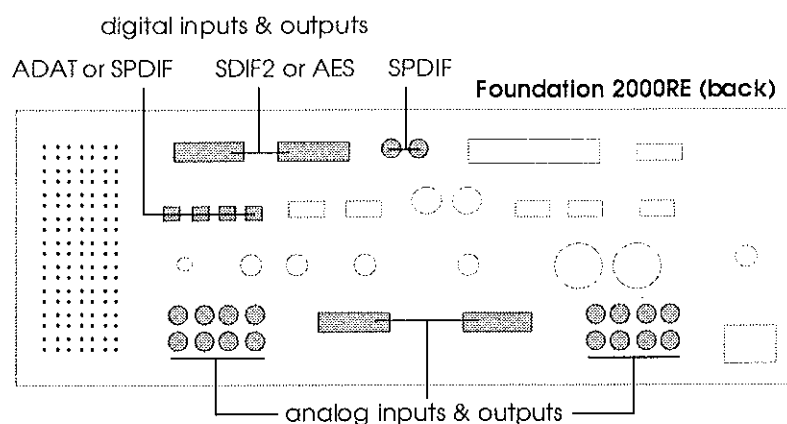
Inputs/Outputs	Connectors
+4dBu analog	DB-25
-10dBV analog	RCA
ADAT	Toslink optical
SDIF2	DB-25
SPDIF	Toslink optical or RCA
AES	DB-25

Patch bay

The I/O display includes a patch bay that lets you route physical inputs and outputs to and from tracks in the Foundation's recorder. If you're using digital inputs and outputs, the patch bay also lets you specify the digital format and set the appropriate sync reference.

Physical Inputs
analog in
ADAT in
SPDIF(e) in
SPDIF(o) in
AES in
SDIF in

Recorder
track in (1-8)   track out (1-8)

Physical Outputs
analog out
ADAT out
SPDIF(e) out
SPDIF(o) out
AES out
SDIF out
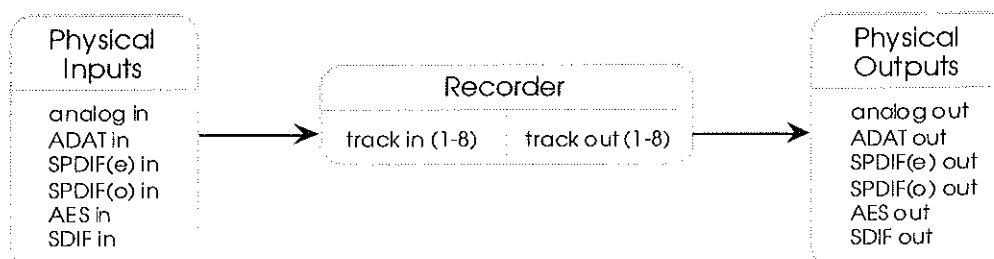
SPDIFe represents the RCA electrical connectors. SPDIFo represents the Toslink optical connectors.

Viewing the patch bay

■ **Touch the I/O button and select Patch Bay from the popup menu.**

```
 A1:Project A - Reel 1              00:01:05
 ▓▓
    From               To              0
 Analog in  1-8  ->  Track in   1-8
                                        Tracks
 Track out  1-8  ->  Analog out  1-8

                                         I/O

                                        Meters

                                        Reels
                                        Library

                                        System
 Reference         Internal
```

The Patch Bay display lists sources (From) and destinations (To) in the Foundation's audio paths. You can select a source and then specify a destination, or you can select a destination and then specify a source.

Each row on the Patch Bay display can represent 1, 2, 4 or 8 audio paths, depending on your selections. For example, you can use a single Patch Bay row to route all 8 analog inputs to all 8 tracks, or you can route a pair of tracks to a pair of outputs.

Analog in 1-8 → Track in 1-8	routes input 1 to track 1, input 2 to track 2, and so on for all 8 inputs
Analog in 1-4 → Track in 5-8	routes input 1 to track 5, input 2 to track 6, input 3 to track 7, input 4 to track 8
Analog in 1,2 → Track in 7,8	routes input 1 to track 7, and input 2 to track 8
Analog in 1 → Track in 6	routes input 1 to track 6

If the number of inputs is less than the number of tracks, the inputs are "distributed" to the tracks. For example, you can use a single Patch Bay row to route a pair of analog inputs to all 8 tracks. The first input is routed to odd tracks; the second input is routed to even tracks. This is particularly useful when you're using 2-channel digital inputs.

Analog in 3,4 → Track in 1-8	routes input 3 to tracks 1, 3, 5, 7, and input 4 to tracks 2, 4, 6, 8
Analog in 5 → Track in 1-8	routes input 5 to all 8 tracks

Creating patches

To create any patch, you need to set four fields on the Patch Bay display. The "From" fields indicate the source type and size. A source can be either a physical input or a track output. The "To" fields indicate the destination type and size. A destination can be either a track input or a physical output.

Routing inputs

1   Touch the I/O button and select Patch Bay from the popup menu.

2   Touch the "From" field you want to change, or touch an empty "From" field to create a new patch.

3   Press the [*Data*] button, and turn the jog/shuttle knob until the desired type of input appears.

Available input types are Analog, ADAT, SDIF2, AES, SPDIF(optical or electrical).

4   Press [*Data*] again to close the field.

5   Press the right arrow button to select the next field.

6   Press [*Data*] and turn the jog/shuttle knob until the desired inputs appear. You can select 1, 2, 4 or 8 inputs, depending on the input type you selected.

If the input type is an 8-channel format, available inputs are
[1-8] [1-4] [5-8] [1,2] [3,4] [5,6] [7,8] [1] [2] [3] [4] [5] [6] [7] [8].

If the input type is a 2-channel format, available inputs are [L,R] [L] [R].

7   Press [*Data*] again to close the field.

8   Touch the "To" field in the same row, and select "Track in."

9   Press the right arrow button to select the next field.

10 Press [*Data*] and turn the jog/shuttle knob until the desired track numbers appear.

You can select 1, 2, 4 or 8 track inputs, provided that the number of tracks is equal to or more than the number of inputs you selected.

11 Press [*Data*] again to close the field.

When all four fields are set, an arrow indicates that the inputs are connected to the tracks.

When you're using digital inputs or outputs, the format must be compatible with the sync reference displayed in the Reference field.

• SDIF2 audio cannot be used with ADAT optical, AES or SPDIF sync references.
• ADAT audio cannot be used with AES or SPDIF sync references.
• AES audio cannot be used with ADAT or SPDIF sync references.
• SPDIF audio cannot be used with ADAT or AES sync references.

If you create a patch that is incompatible with the sync reference, the Reference field is automatically updated. Conversely, if you set the Reference to a format that is incompatible with any patches, those patches are automatically disconnected.

For example, if the reference is AES and you select an SPDIF input, the Reference field automatically changes to SPDIF. If you change the reference to AES, the SPDIF inputs are automatically disconnected and any AES inputs are reconnected.

From			To			
A1:Project A - Reel 1					00:01:05	0
AES in	1,2	->	Track in	1,2		Tracks
AES in	3	->	Track in	3		
SPDIFo in	L	X	Track in	4		I/O
SPDIFo in	R	X	Track in	5		
Track out	1-8	->	Analog out	1-8		Meters
						Reels Library
Reference			AES 1,2			System

Routing outputs

1   **Touch the I/O button and select Patch Bay from the popup menu.**

2   **Touch the "From" field you want to change, or touch an empty "From" field to create a new patch.**

3   *Data*
    Press the [   ] button, and turn the jog/shuttle knob until "Track out" appears.

4   *Data*
    Press [   ] again to close the field.

5   **Press the right arrow button to select the next field.**

6   *Data*
    Press [   ] and turn the jog/shuttle knob until the desired track numbers appear. You can select 1, 2, 4 or 8 track outputs.

7   *Data*
    Press [   ] again to close the field.

8   **Touch the "To" field in the same row, and select the desired type of output.**

    Available output types are Analog, ADAT, SDIF2, AES, SPDIF(optical or electrical).

9   **Press the right arrow button to select the next field.**

10 *Data*
    Press [   ] and turn the jog/shuttle knob until the desired outputs appear.

    You can select 1, 2, 4 or 8 outputs, provided that the number of outputs is equal to the number of tracks you selected.

11 *Data*
    Press [   ] again to close the field.

Changing patches

When all four fields in a Patch Bay row are set to a valid signal path, an arrow indicates the connection is active. If the source and destination cannot be connected, an "X" appears in the arrow field.

ADAT in 7	→	Track in 4	source is connected to destination
ADAT in 7		Track in 4	source is not connected to destination
ADAT in 7	X	Track in 4	source cannot be connected to destination

There are several reasons why a connection may not be valid—

- The source size is larger than the destination size. For example, the source is "Analog in 1-8" and the destination is "Track in 1,2." You cannot route 8 inputs to 2 tracks.

- The source is a digital format that is incompatible with the selected sync reference. For example, the source is "AES in" and the sync reference is "SPDIF(o)."

- Existing patches are using all available internal audio paths. If this situation occurs, turn off an existing connection and then create the patch you want.

Connecting and disconnecting patches

When a source is connected to a destination, an arrow indicates that the connection is active. You can toggle the arrow on and off to connect and disconnect the patch.

1 **Touch the I/O button and select Patch Bay from the popup menu.**

2 **Select the arrow field in the desired Patch Bay row.**

Data
3 **Press ⌷ to toggle the patch on or off.**

Deleting patches

You can also disconnect a patch by removing its source and/or destination.

1 **Touch the I/O button and select Patch Bay from the popup menu.**

2 **Select the "From" or "To" field you want to delete.**

Data
3 **Press ⌷ and turn the jog/shuttle knob until "None" appears.**

Checking levels

Readying tracks

Readying a track puts it into input mode. A track must be readied before you can record on it. Use the Ready buttons on the Edit Controller to indicate the track(s) on which you want to record. The number of tracks available for recording depends on how much disk space you have available.

Ready Button	Function
off	Track is safe. Cannot record on the track.
lit	Track is ready and recording is taking place.
blinking	Track is ready but not recording.
fast blinking	Error condition. A problem with recording. For example, you may have run out of disk space. Open the System:Status display to read the error messages.

Readying a track

■ **Press the desired Ready button(s) on the Edit Controller.**

The buttons blink, indicating that the tracks are ready for recording. Whenever a track is ready, the corresponding track number is highlighted on both the Tracks display and the Meters display.
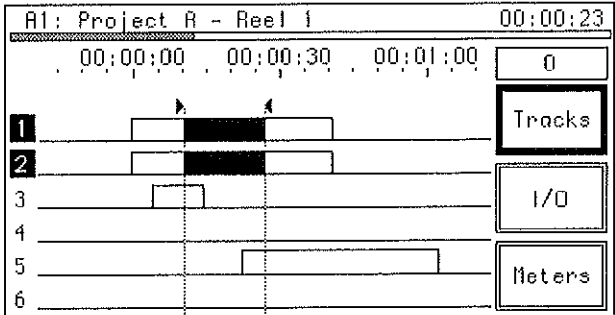
The track numbers on the screen are not touch sensitive. Use the Ready buttons to light track numbers.

Input monitoring

Input monitoring lets you check input levels before recording. When input monitoring is on, input to readied tracks can be measured on the Meters display along with audio playing from the safe tracks. During recording, input switching occurs automatically; safe tracks play back while ready tracks monitor input.

Input Monitor
Listen to the track's input rather than its playback.

Monitoring inputs

Input Mon
1   **Press and light [ ]   to turn on input monitoring.**

2   **Ready a track and listen to its input.**

Meters for the readied tracks show the level of the signal routed to the track.

Input Mon
3   **Press [ ]   again to turn off input monitoring.**

When input monitoring is off, you can listen to and meter audio playing back from the tracks.

Metering

Use the Meters display to visually check audio levels on the tracks. The meters indicate peak-hold and clip.

Displaying meters

■   **Touch the Meters button and select Main from the popup menu.**

The Meters display shows audio levels for tracks 1-8. Clipping occurs at 0dB and is indicated by a light at the top of the meter.
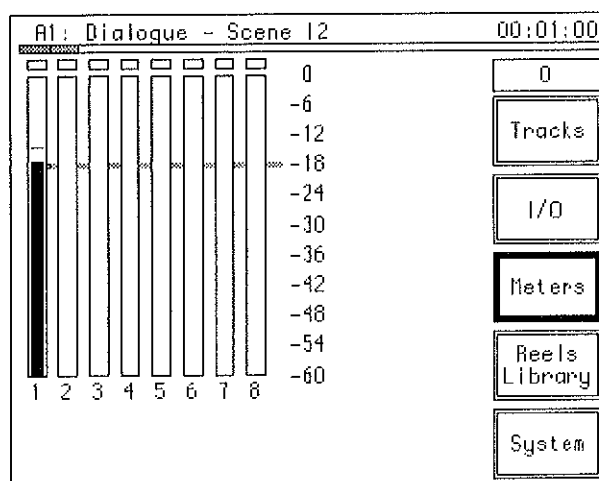
Although you'll often want to view the Tracks display while recording and editing, it is not necessary. For example, you may want to watch levels on the Meters display while recording.

The metering reference level indicates the nominal operating level. It appears as a horizontal line behind the meters. The default reference level of the Foundation is -18dB. On the Meters:Prefs display, you can set the reference level to anything between 0 and -24dB in 2dB steps.

Changing the reference level

1   Touch the Meters button and select Prefs from the popup menu.

Reference Level
Operating level indicator on the Meters display.

```
┌─────────────────────────────────────────────┐
│ A1: Project A - Reel 1              00:00:46 │
│ ▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨                            │
│                                    ┌───────┐ │
│                                    │   0   │ │
│                                    ├───────┤ │
│  Reference Level:  ▊-18 dB▊        │ Tracks│ │
│                                    ├───────┤ │
│                                    │       │ │
│                                    │  I/O  │ │
│                                    ├───────┤ │
│                                    │       │ │
│                                    │ Meters│ │
│                                    └───────┘ │
└─────────────────────────────────────────────┘
```
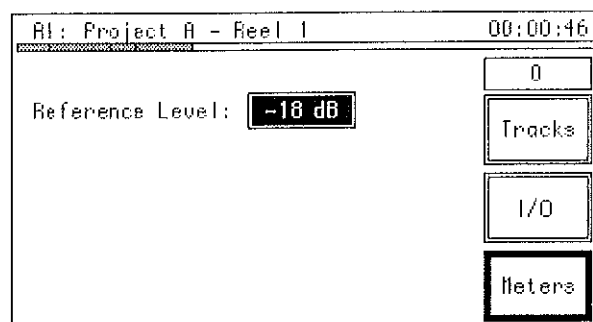
Data
2   Press [____] and turn the jog/shuttle knob until the desired reference level appears.

Data
3   Press [____] again to close the field.

Basic recording

There are two basic types of recording: manual and auto. For manual recording, you start and stop recording by pressing buttons or a foot switch. During auto recording, recording starts and stops automatically at preset times.

Recording creates events—blocks of audio on the tracks or in the library. Events are similar to pieces of tape, except events can be moved or edited without destroying the original recorded audio. Recording on a track results in an event with a sync relationship to the reel. If you punch over an event on the track, the first event is muted at the punch-in point, although the underlying audio is still available and can be "uncovered" by editing the event.

The amount of time available for recording decreases each time you record. The shaded area in the disk "gauge" shows how much disk space is used by the mounted reel; the shaded area grows as you record.

```
┌─────────────────────────────────────────────┐
│ A1: Dialogue - Scene 12             00:00:28 │
│ ▨▨▨▨▨▨▨                                       │
└─────────────────────────────────────────────┘
```
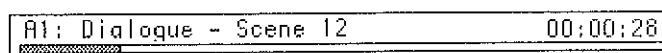
The amount of time available for recording appears at the top right of the screen; available recording time depends on how many tracks are readied. For example, recording a stereo event uses twice as much disk space as recording a mono event of the same duration.

Please see the "Editing" chapter for more information about events.

Manual recording

There are several ways to manually start and stop recording. You can use the transport buttons, Ready buttons or a foot switch.

Manual Recording
Start and stop recording using the transport or Ready buttons or a foot switch.

| Manual recording with transport buttons |

1 **Press a Ready button to ready one or more tracks.**

   Record   *Play*

2 **Hold** ⬤ **and press** ▶ **to start recording.**

   Play

3 **Press** ▶ **to interrupt recording and continue playback.**

   Your recording appears as an event on the Tracks display.

   Play   *Record*

4 **If you want to start recording again, hold** ▶ **and press** ⬤

   Stop

5 **Press** ■ **to stop both recording and playback.**

   When you stop recording, an event is created. An In point is set at the beginning of the recording and an Out point is set at the end of the recording. Each time you record, the In and Out points are reset again automatically.

```
Event :                              00:00:54
        00:00:00      00:00:10    00      0
1  _____▼▬▬▬▬▬_____   Tracks
2  _____
3  _____   I/O
```
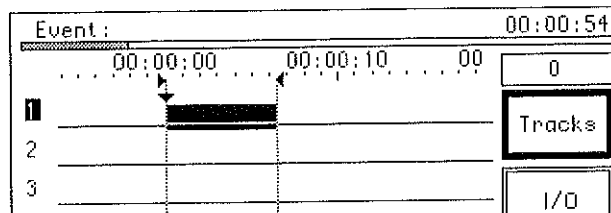
| Manual recording with Ready buttons |

1 **Unready all tracks.**

   Record   *Play*

2 **Hold** ⬤ **and press** ▶

   Since no tracks are readied, the transport is moving but recording has not begun.

3 **Press a Ready button to start recording.**

   The Ready button lights and recording begins.

4 **Press the same Ready button to stop recording.**

   The lighted Ready button turns off and recording stops.

   Stop

5 **Press** ■ **to stop playback.**

Manual recording with a foot switch

A 1/4" connector on the rear of the Main Unit lets you use a foot switch to punch in and out of recording.

FOOT SWITCH

1　**Plug the foot switch into the connector on the rear of the Main Unit.**

2　**Press a Ready button to ready one or more tracks.**

Play

3　**Press** ▶

4　**Press the foot switch once to start recording.**

5　**Press the foot switch again to stop recording.**

6　**Repeat steps 4 and 5 as desired.**

An event is created each time you stop recording.

Stop

7　**Press** ■ **to stop playback.**

Any of the manual recording techniques described above are useful when recording discrete blocks of audio, such as dialog or a collection of sound effects. By readying different tracks you can easily pingpong dialog between tracks while recording.

Auto recording and playback

Auto record is a user-definable, automated recording mode that is useful for punch-in and multitrack recording as well as looping. You can record multiple synchronized takes, or you can precisely punch in and out to replace audio on a track. You can also lock to timecode and record while synchronized to picture.

Simple auto record

When auto record is on, the In and Out points are used for recording. You can set In and Out points on the fly or by locating to specific times.

Auto Record
Use the In and Out points to automatically start and stop recording.

Auto recording

1　**Locate to the time you want to start recording, and press** | *In* |

2　**Locate to the time you want to stop recording, and press** | *Out* |

3　**Make sure the** □ *Audition* **button is off.**

Auto Rec

4   Press ☐   to turn on auto record mode.

5   Locate to any point before the In time.

When using auto record, playback must begin before the In time.

Record   *Play*

6   Hold ⬤   and press ▶

Recording begins automatically when the In point is reached. Recording stops automatically when the Out point is reached.

Stop

7   Press ■ to stop playback.

You can set a preroll to automatically locate to a point before the In time. See "Preroll, postroll, delay" later in this chapter.

Auto functions and looping

Looping is the process of using the In and Out points to set up a continuous record and/or playback cycle. You can use the Auto Record, Auto Return and Auto Play buttons in any combination to accomplish the desired type of looping.

Buttons On	Result
Auto Play ☐	Playback begins automatically after every locate.
Auto Rtn ☐	When the Out point is reached during playback or recording, the transport locates to the In point.
Auto Rec ☐	When the In point is reached, recording begins. When the Out point is reached, recording ends.
Auto Rtn *Auto Play* ☐ ☐	Playback loop only. After reaching Out, the transport locates to In and plays.
Auto Rec *Auto Rtn* ☐ ☐	Recording begins at In and stops at Out, after which the transport locates to In and stops.
Auto Rec *Auto Rtn* *Auto Play* ☐ ☐ ☐	Recording begins at In and stops at Out, after which the transport locates to In and plays. After recording, the system continues in a playback loop only.

If you have set a non-zero postroll, playback continues to the Out time plus postroll. If you have set a non-zero preroll, the transport locates to the locate time minus preroll.

Stacking

Stack
Multiple takes
recorded at the
same location.

Take stacking is a method of recording in which multiple recordings, or takes, are "stacked" on top of each other, without erasing any audio and without using a separate track for each take. Only one take plays at a time, but any of the takes recorded at a single location can be selected and played. Once you decide which take in the stack you want to keep, you can erase the others. Take stacking is particularly useful in ADR sessions.

```
┌──┐        ┌──────────────────────────────┐
│ 1│────────│ they all share the same envelope │──────────
└──┘        ┌──────────────────────────────┐
            ┆ they share the same envelope   ┆
            └──────────────────────────────┘
            ┌──────────────────────────────┐
            ┆ they do share the same envelope ┆
            └──────────────────────────────┘
```
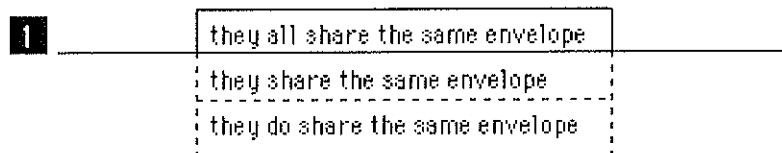
Since a stack is an event, it has an envelope that you can edit. However, a stack's envelope is a window onto *all* the takes in the stack. Therefore, when you edit the stack envelope, you're editing the envelope for *all* its takes.

Please see the "Editing" chapter for more information about event envelopes.

Recording a stack

The simplest stack to create is one where all the takes are the same length. The easiest way to create such a stack is to use the auto record function.

1 **Touch the Tracks button and select Prefs from the popup menu.**

2 **Select "Take Stacking" and turn it on.**

Auto Rec
3 **Press** ☐ **to turn on auto recording.**

4 **Set In and Out points to define where you want to record.**

5 **Ready the desired track(s).**

6 **Record the first take.**

7 **Continue to record takes in the same location.**

Once you record two or more takes in the same location, a stack is created. Each take in a stack is numbered. The status bar shows the name of the stack and the number of the selected take. The underlying audio bar of a stack is dotted instead of solid.

indicates a stack
take number

```
┌──────────────────────────────────────────────┐
│  Stack:  #2                        00:00:58    │
│ ▓▓▓▓▓▓▓                                         │
│   0:10      00:00:20     00:00:30   ┌────────┐ │
│ ┌┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┐ │   0    │ │
│ 1                                   └────────┘ │
│ ───────────────────────────────────┌────────┐ │
│ 2 ────────▓▓▓▓▓▓▓▓▓▓───────────────│ Tracks │ │
│ 3                                   └────────┘ │
└──────────────────────────────────────────────┘
```

underlying audio
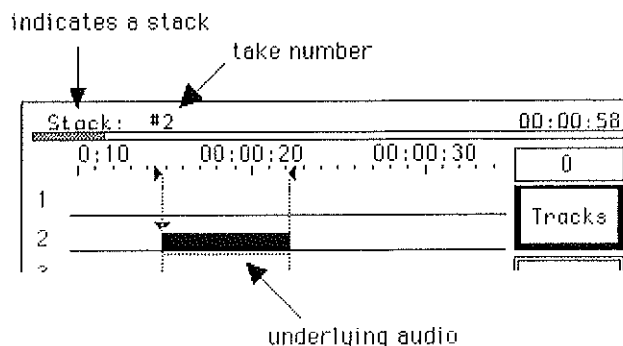
You can also record a stack using manual recording rather than auto recording. To be included in the stack, each take must overlap the event in time, and must be recorded on the same tracks. Otherwise, it becomes the first take in a new stack. When take stacking is on, you can add a take to an existing stack or create a stack from an existing event.

Converting an event to a stack

1   On the Tracks:Prefs display, make sure Take Stacking is on.

2   Select an existing event. It can be a single event or a stack.

3   Record an event that overlaps the selected event.

The new recording becomes the last take in that stack.

Naming a stack

1   Touch a stacked event to select it.

2   Touch the Tracks button and select Event Info from the popup menu.

In addition to the standard event information, the Event Info display shows how many takes are in the selected stack. For example, "Take 3/4" indicates that you have currently selected take 3 in a stack of 4 takes.

3   Select the Name field, and press [Data] to open the keyboard display.

4   Enter the desired name, and touch OK.

Each take in a stack is numbered automatically, so you do not need to include a number in the event name. You cannot name individual takes in a stack.

Selecting a take in the stack

1   Touch a stacked event to select it.

    Data
2   Press [_____] to display the name of the current take.

```
┌─────────────────────────────────────────────┐
│ Stack: Eric #2              00:00:58         │
│ ▀▀▀▀▀▀▀                                      │
│   0:10      00:00:20    00:00:30  ┌──────┐   │
│   ┊ ' ' 'ᵥ ' ' ' '┊' ' ' ' ' ' '  │   0  │   │
│ 1 ┊        ┊       ┊               └──────┘   │
│   ┊        ┊       ┊             ┌────────┐   │
│ 2 ┊     ▼▄▄▄▄▄▄▄▄▄┊              │ Tracks │   │
│ 3 ┊     ▀▀▀▀▀▀▀▀▀▀┊              └────────┘   │
│   ┌─────────────────────────┐    ┌──────┐    │
│ 4 │        Eric #2          │    │ I/O  │    │
│   └─────────────────────────┘    └──────┘    │
│ ┌─                               ┌───────┐   │
└─────────────────────────────────────────────┘
```
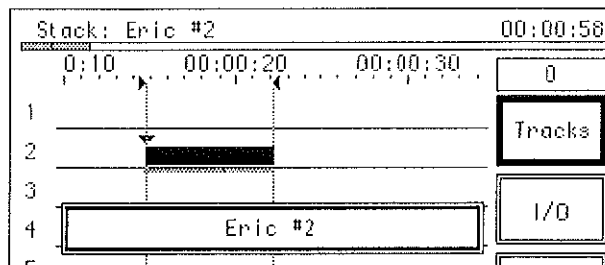
3   **Press the arrow buttons or turn the jog/shuttle knob to choose the take you want.**

    Data
4   Press [_____] to close the name display.

5   Play back the event as you would any other event.

6   You can repeat steps 2–5 until you find the best take.

7   When you're ready to select one take and discard the rest, touch the System button and select Disk Space from the popup menu.

The next step discards all but one take. You cannot undo that operation.

8   Touch the Keep Take button.

    After confirming your choice, the other takes in the stack are discarded. The word "stack" in the status bar changes to "event." On the Tracks display, the underlying audio line changes from dotted to solid to indicate that the event is not a stack.

indicates regular event
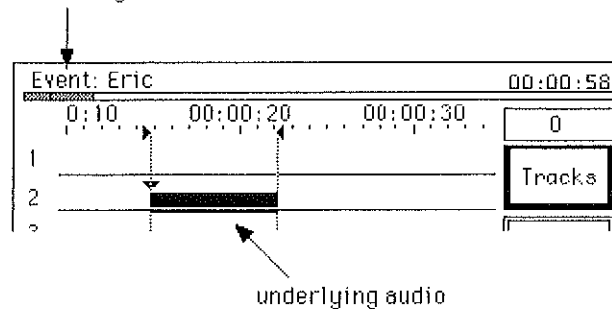
```
        │
        ▼
┌─────────────────────────────────────────────┐
│ Event: Eric                 00:00:58         │
│ ▀▀▀▀▀▀▀                                      │
│   0:10      00:00:20    00:00:30  ┌──────┐   │
│   ┊ ' ' 'ᵥ ' ' ' '┊' ' ' ' ' ' '  │   0  │   │
│ 1 ────────────────────────────    └──────┘   │
│   ┊     ┊         ┊             ┌────────┐    │
│ 2 ──────▼▄▄▄▄▄▄▄▄▄─────────────  │ Tracks │   │
│ ┌      ┊    ▲     ┊              └───────┘    │
└──────────────╲──────────────────────────────┘
             underlying audio
```

Undo and redo

Undo and redo provide a way to retrace your actions, letting you record and edit non-destructively. For example, after recording an event, undo lets you remove the event, and redo lets you restore it.

There are six levels of undo and redo, which means that you can undo the six most recent actions, or step forward through the six actions you undid. Undo and redo give you the flexibility to change your mind, or to toggle between two recordings. The result of an undo or redo is visible on the Tracks display.

Using Undo and Redo

Undo

1 Press ☐ **up to six times.**

Each time you press the Undo button, you step back in time to the previous action.

Redo

2 Press ☐ **up to six times.**

You can step forward through all the actions you just undid.

When you undo one or more actions and then begin recording or editing again, any action that you undid is no longer retrievable. The example below shows three recordings (events A, B, C). Pressing Undo removes the last recording (event C), leaving event B as the last recording. Recording again (without pressing Redo) creates event D and makes event C unretrievable. The new sequence of recordings that is available to undo is A—B—D.

```
    record        record        record
  ──────▶ A ──────▶ B ──────▶ C
                            undo │
                    B ◀───────┘

                    │ record
                    └──────▶ D    After you begin recording at B
                                  again, recording C is not
                                  available through undo.
```
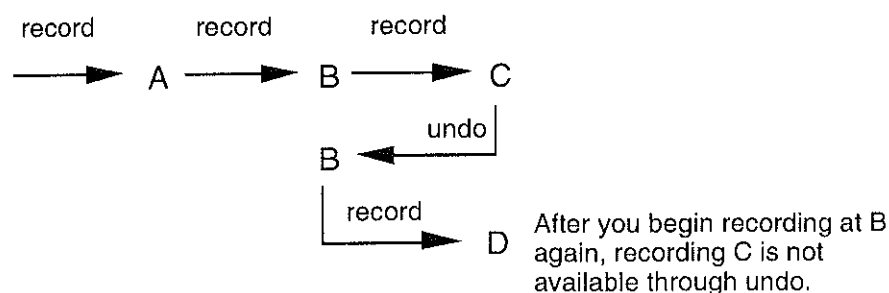
Audition and solo

The Audition buttons let you play back any selected event. If no events are selected, the same Audition buttons play back the region defined by the In and Out points.

When the illuminated Audition button is off, you can use Auto Record, Auto Return or Auto Play. When the Audition button is on, you can use the audition functions.

Auditioning an event

When an event is selected, the Audition buttons play back that event. You can solo the event to hear it in isolation. If it is not soloed, you hear the event in context with audio from other tracks.

Button	Function
Audition	Toggles auditioning on and off.
—> In	Plays for two seconds, ending at the event Start point.
In —> Out	Plays the selected event from Start to End.
Out —>	Plays for two seconds, starting at the event End point.

Auditioning an event

1   **On the Tracks display, touch the event you want to audition.**
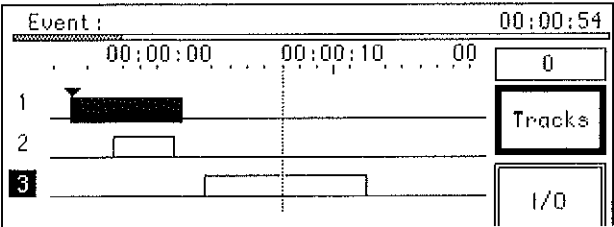
2   **Press and light** ☐ Audition **to turn on Audition mode.**

3   **Press** ☐ In → Out **to play back the selected event.**

4   **To audition an event without hearing the other tracks, touch Solo Event on the Tracks display and then repeat step 3.**
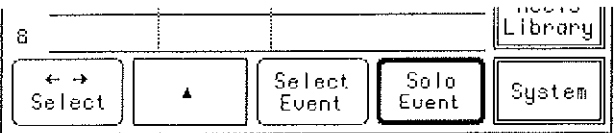
5   **When you finish auditioning, press** ☐ Audition **again to turn off Audition mode.**

Auditioning a region

When no events are selected, the Audition buttons play back the region defined by the In and Out points. If you press any Solo buttons (above the Ready buttons), only the soloed tracks play.

Button	Function
Audition	Toggles auditioning on and off.
–> In	Plays for two seconds, ending at the In point.
In –> Out	Plays from In to Out.
Out –>	Plays for two seconds, starting at the Out point.

Auditioning a region

1 Locate to the beginning of the region you want to audition.

2 Press $\boxed{In}$

3 Locate to the end of the region you want to audition.

4 Press $\boxed{Out}$

5 Touch a blank area on the Tracks display to make sure no events are selected.

6 Press and light $\square$ Audition to turn on Audition mode.

7 Press $\square$ In –► Out to audition the region.

8 If you want to hear only some of the tracks, press the desired Solo button(s) and repeat step 7.

9 When you finish auditioning, press $\square$ Audition again to turn off Audition mode.

If Chase is on, the Foundation waits for the appropriate timecode before auditioning.

Preroll, postroll, delay

Preroll, postroll and delay affect Auto Return, Auto Play and Locate functions. You can set a non-zero preroll, postroll or delay to incorporate pauses into Auto Return and Auto Play loops. For example, setting a non-zero preroll lets you locate to a time slightly earlier than the displayed locator. If the Foundation is controlling a video deck, preroll assures that the deck has enough time to come up to speed and lock to the sync reference before recording begins.

Preroll, postroll and delay are secondary functions on the numeric keypad. A secondary function is accessed by first pressing the Store or Recall button, and then pressing the secondary function.

Hold	Mark	Clipboards	Offset
			Preroll
7	8	9	+
			Postroll
4	5	6	–
			Delay
1	2	3	Clear
Store	0	•	Recall
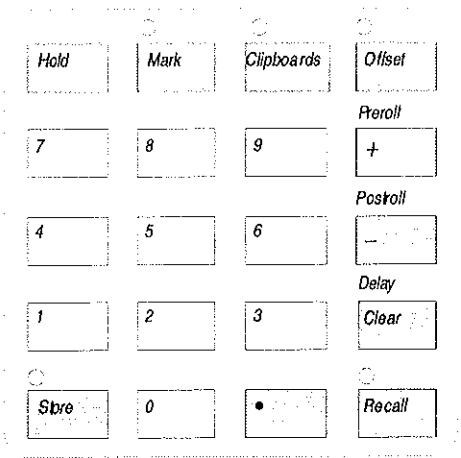
Button	Function
Preroll	Amount of time automatically subtracted from a locator point. When you press the Locate button or when Foundation locates automatically, the transport goes to locate time (shown in the bottom display) *minus* preroll.
Postroll	Amount of time automatically added to Out time when Auto Return is on. Playback continues to Out time *plus* postroll before locating.
Delay	Amount of pause before playback begins when Auto Play is on.

GoTo does not use the preroll when locating. If you press GoTo and then Locate, the transport ignores the preroll and locates to the time shown in the bottom display.

Setting a preroll

1   **Press** Clear **to zero the bottom time display.**

2   **Use the numeric keypad to enter the desired preroll amount.**

3   **Press** Store **and then** *Preroll* + **to set the preroll.**

Setting a postroll

1 Press $\boxed{Clear}$ to zero the bottom time display.

2 Use the numeric keypad to enter the desired postroll amount.

3 Press $\overset{\bigcirc}{\boxed{Store}}$ and then $\overset{Postroll}{\boxed{-}}$ to set the postroll.

Setting a delay

1 Press $\boxed{Clear}$ to zero the bottom time display.

2 Use the numeric keypad to enter the desired amount of delay.

3 Press $\overset{\bigcirc}{\boxed{Store}}$ and then $\overset{Delay}{\boxed{Clear}}$ to set the delay.

Displaying a preroll, postroll or delay

1 Press $\overset{\bigcirc}{\boxed{Recall}}$

2 Press $\overset{Preroll}{\boxed{+}}$ $\overset{Postroll}{\boxed{-}}$ or $\overset{Delay}{\boxed{Clear}}$ depending on the parameter you want to see.

The recalled value appears in the bottom time display.

3 If desired, you can edit the parameter and store it again.

Removing a preroll, postroll or delay

You can clear a preroll, postroll or delay and set it to zero.

1 Press $\boxed{Clear}$ to zero the bottom time display.

2 Press $\overset{\bigcirc}{\boxed{Store}}$

3 Press $\overset{Preroll}{\boxed{+}}$ $\overset{Postroll}{\boxed{-}}$ or $\overset{Delay}{\boxed{Clear}}$

The value of the selected parameter is set to zero.

Event information

You can assign a name and comment to any event. Whenever an event is selected, its name appears in the status bar at the top of the display. A complete list of event information appears on the Event Info page of the Tracks display.

Event names

It is not necessary to name events, but you may want to give your events descriptive names, especially if you plan to save them in the library. Each name can have up to 25 characters.

Naming an event

1 Select the desired event on the Tracks display.

2 Press *Data* [____] to open the keyboard display.

```
Enter
Event Name      [_____]    [Clr]

  [1] [2] [3] [4] [5] [6] [7] [8] [9] [0]

  [Q] [W] [E] [R] [T] [Y] [U] [I] [O] [P]

  [Alt] [A] [S] [D] [F] [G] [H] [J] [K] [L]

  [Caps] [Z] [X] [C] [V] [B] [N] [M] [-]

  [Cancel] [←] [→]  [Space]  [Delete]  [OK]
```

3 Touch the screen buttons to enter characters. If an external keyboard is attached to the Edit Controller, you can use it to type characters.

```
Enter
Event Name    [Eric 1   ]
```

The cursor (∧) indicates where the next character will appear.

4 Touch OK to confirm your choice.

5 The name of the selected event appears at the top of the screen.

```
[Event: Eric 1                    00:00:54]
```

Displaying event information

The Event Info display lists information about the currently selected event. Only the name and comment can be edited.

1   **On the Tracks display, touch an event to select it.**

2   **Touch the Tracks button and select Event Info from the popup menu.**

```
 Event: dog bark 1                    00:01:00
 Name:          dog bark 1                      0
 Comment:
 Start:         00.00.02.22.90              Tracks
 Duration:      00.00.08.11.22
 End:           00.00.11.04.12              I/0
 Fade In:       00.00.02.23.05
 Fade Out:      00.00.11.03.97              Meters
 Sync:          00.00.02.22.90   Mono
 Sample Rate:   44.100 kHz                  Reels
                                            Library
```

Use the event editing buttons on the Edit Controller to change the event envelope times. See the "Editing" chapter for more information.

Auto naming

When auto naming is on, each new recording is automatically assigned a name and number. You can specify the name from which a new event name is derived; the name you specify is saved with the reel.

Using auto naming

Auto naming
Automatically assigning a name to each new recording.

1   **Touch the Tracks button and select Prefs from the popup menu.**

2   **Select the Auto Naming field, and press [Data] to turn on auto naming.**

3   **Select the Next Name field.**

4   **Press [Data] to open the keyboard display, and enter the name you want to assign to each new recording.**

```
 Auto Naming:      On
 Next Name:        dog 1
```

When you enter a name, such as "dog," the name is incremented automatically. The first recording is "dog 1," the next "dog 2," and so on to "dog 9999." If you assign a name that ends with a number, such as "Joan 5," the first recording is "Joan 5," the next "Joan 6," and so on; incrementing begins at the number you chose.

Auto naming stays on until you turn it off, even if you mount another reel.

Locating

Locators are times to which the transport moves when requested. Pressing the Locate button always locates to the time shown in the Edit Controller's bottom time display (minus the preroll). Ten additional locators can be stored in the numbered keypad buttons. You can recall any locator and edit it in the bottom time display.

You can also locate by using the GoTo button, the Seek buttons or the Jump function.
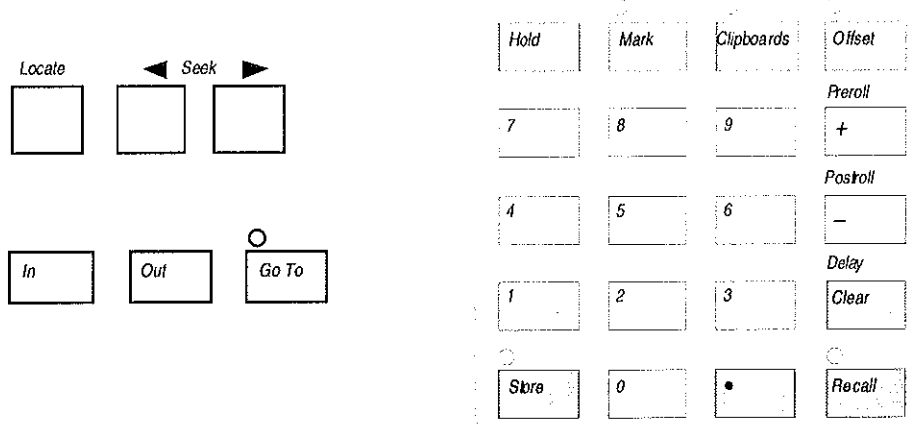
Button	Function
Locate	Locates to the time shown in the bottom display (minus preroll).
◄ Seek	Locates to the previous marker or event start or end point.
Seek ►	Locates to the next marker or event start or end point.
GoTo	Locates to the time stored in the button you press next (keypad 0-9, In, Out, Locate, Start, Fade To, Fade From, End, Sync). Preroll is ignored.
Hold	Copies the current time into the bottom time display.
Keypad 0-9	Lets you modify the bottom time display, and store, recall, and go to locators.
Store	Copies the time in the bottom display to the next button you press (keypad 0-9, Preroll, Postroll, Delay, In, Out, Start, Fade To, Fade From, End, Sync).
•	Selects next subfield when editing the bottom time display.
Recall	Displays the time stored in the button you press next (keypad 0-9, Preroll, Postroll, Delay, In, Out, Locate, Start, Fade To, Fade From, End, Sync).
Clear	Sets bottom time display to zero. If pressed after Store or Recall, stores or recalls delay time.
−	Decrements selected time subfield by one unit. If pressed after Store or Recall, stores or recalls postroll.
+	Increments selected time subfield by one unit. If pressed after Store or Recall, stores or recalls preroll.
Mark	Adds a marker at the current time in the reel.

Locate and Hold

The Locate button moves the transport to the time shown in the bottom time display (minus preroll). The Hold button copies the current time into the bottom time display. You can press Hold while in any transport mode (record, stop, play, fast forward, rewind).

Using the Locate button

Locate

■ **Press** ⬚

The transport locates to the displayed time, minus the preroll. Immediately after locating, the two time displays are identical.

See "Preroll, postroll, delay" earlier in this chapter for more information about preroll.

Using the Hold button

■ **Press** | *Hold* | **on the keypad.**

The current time is copied to the bottom time display. You can locate to this time by pressing the Locate button, but unlike a numbered locator point, the Hold time is not permanently stored anywhere.

You can store up to ten locators in the numbered keypad buttons. Once a locator is stored, you can recall it to the bottom time display and then locate to that time.

Locators
User-defined times that can be stored to and recalled from numbered keypad buttons.

Storing a locator

1 **Press** | *Store* | **on the keypad.**

The LED above the Store button blinks.

2 **Press a numbered keypad button.**

The time in the bottom display is stored as a locator in the numbered button.

Recalling a locator

1 **Press** | *Recall* | **on the keypad.**

The LED above the Recall button lights.

2 **Press a numbered keypad button.**

The locator stored in the numbered button is shown in the bottom time display.

Editing a time

The bottom time display usually shows the current locator, expressed either as SMPTE timecode (hours, minutes, seconds, frames, subframes) or Feet/Frames (feet, frames, subframes). Each frame has 100 subframes. You can edit part or all of the time shown in the bottom display.
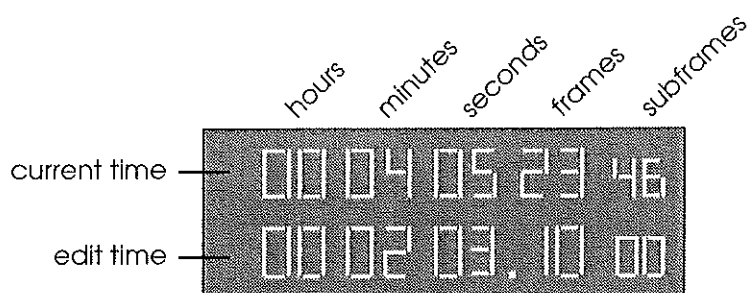
Pressing the "•" button on the keypad lets you select an individual subfield for editing. The subfield selected for editing is to the left of the lighted dot (•) in the bottom time display. Use the "+" and "–" buttons on the keypad to increment and decrement the subfield.

Editing a subfield

1   Press [•] to select subfield editing mode.

2   If desired, press [•] repeatedly until the subfield you want to edit is selected.

3   Press numbered keypad buttons to enter the time value.

4   Press [+] to increase the subfield time.

5   Press [–] to decrease the subfield time.

Editing the entire time display

Pressing the Clear button zeros the bottom time display and lets you edit the entire time rather than just part of it.

1   Press [Clear] on the keypad to set the entire time to zero.

2   Press numbered keypad buttons to enter a time value.

Values enter from the right continuously. For example, press 136001400 to enter a time of 1 hour, 36 minutes, 14 frames.

GoTo

You can use the GoTo button to locate specific points in the reel. You can GoTo In, Out, Locate or any locator stored in a numbered keypad button. If an event is selected, you can GoTo its Start, Fade To, Fade From, End or Sync point.

Locating using GoTo

1 Press [Go To] ○

The LED above the GoTo button blinks.

2 Press [In] **or** [Out] **or a numbered keypad button.**

The transport locates to the time stored in the button you pressed.

3 Press [Go To] ○ **and then** [ ] *Locate*

The transport locates to the time shown in the bottom time display, ignoring the preroll.

Seek

You can use the Seek buttons to locate markers and event start and end points. Seeking is often faster than jogging when you need to find the precise start or end of an event.

If no tracks are readied, Seek searches through all tracks for audio boundaries. If any Ready buttons are on, Seek searches only on the readied tracks.

audio boundaries

track
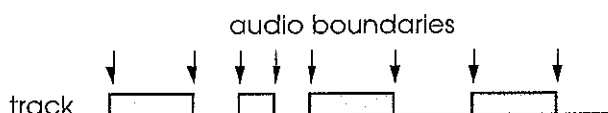
Seeking

■ **Press** [ ] *Seek ▶* **to locate to the next marker or audio boundary.**

■ **Press** [ ] *◀ Seek* **to locate to the previous marker or audio boundary.**

Setting markers

Markers are pointers in time that you can place in the reel. You locate to markers using the Seek buttons. Unlike locators, markers are saved with the reel; each reel can have up to 500 markers. You can set a marker while in any transport mode (record, stop, play, fast forward, rewind).

○ ○ ○

| Hold | | Mark | | Clipboards | Offset |

Markers
Place holders that can be located by seeking.

Placing markers

1 **Press** | Mark | **to place a marker at the current time.**

2 **Locate to another point, and press** | Mark | **to place another marker.**

```
 A2:  Project  -  Reel            00:00:59
   ,00,00     00,00,10     00,00,20   ┌──────┐
      A         A            A        │   0  │
 1 ────▲─────▲───────▲──────────      ├──────┤
                                      │Tracks│
 2 ─────────────────────────────      │      │
                                      ├──────┤
 3 ──────────────────────────────     │ I/O  │
           \  |  /
            \ | /
           markers
```
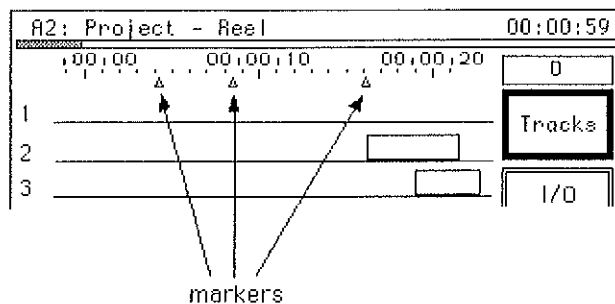
Removing a marker

1 **Press the Seek buttons until you locate the marker you want to delete.**

Seek locates to all markers, regardless of the track ready buttons.

2 **Press** | Mark | **to remove the marker.**

If you define a timecode offset after placing a marker, the amount of the offset is added to the marker time. For example, if you define a 1 hour offset, a marker that was at 3 minutes will appear at 1 hour and 3 minutes.

Jump mode

Jumping provides another way to quickly locate to a place on a track. In jump mode, you can locate to a point simply by touching it on the Tracks display. Jump mode also lets you use the left and right arrow buttons to locate audio transition points, such as drum kicks, beats or door slams.

Jump
Touch the Tracks display or press the arrow buttons to locate.

<hr>
Jumping
<hr>

The button at the bottom left of the Tracks display lets you choose from four arrow button modes (Select, Zoom, Scroll, Jump).

1   Touch the arrow mode button repeatedly until "Jump" appears.
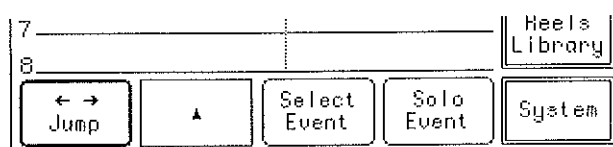
2   Touch a point on the Tracks display to jump to it.

OR

Press an arrow button to jump to an audio transition point.

Arrow button	Jump Function
☐◂	Locates to previous audio transition point.
☐▸	Locates to next audio transition point.

A dot (•) indicates the track for jumping. Press the up or down arrow button to select a different track.

Zoom and scroll modes are described in "Tracks display" later in this chapter. Select mode is described in the Editing chapter.

Tracks display

Recording creates events, which initially appear as rectangular blocks on the Tracks display. Each event has an "envelope," which is like a window on the underlying audio (the original audio you recorded). You can change the shape of any event envelope by creating fade in and fade out ramps. There are many other ways to edit events, without destroying the underlying audio.

There are two different ways to display audio on the tracks: Output view and Crossfade view. In either view, you can display either event envelopes or waveforms.

Zooming lets you change the resolution of the Tracks display. Scrolling lets you display groups of tracks when fewer than eight tracks are visible.

Selecting a track view

The Tracks display has a popup menu that lets you choose from four different views of the tracks.

```
 A1: PROJECT - reel 1                    00:01:07
   3:59:50     00:00:00      00:00:1      0
 1           Event   X-Fade   Output
 2           Info    Waves    Waves     Tracks
 3           Prefs   X-Fade   Output
 4                   Ramps    Ramps      I/O
```
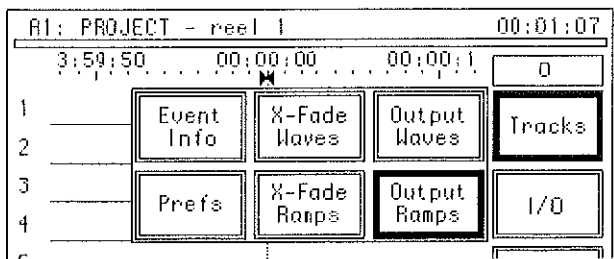
Popup button	View
Output Ramps	8-track configuration. Each track is a sum of 2 channels. All events appear with ramps.
Output Waves	8-track configuration. Each track is a sum of 2 channels. All events appear as waveforms. The selected event shows ramps.
X-Fade Ramps	16-channel configuration. Each tracks shows 2 channels. All events appear with ramps.
X-Fade Waves	16-channel configuration. Each tracks shows 2 channels. All events appear as waveforms. The selected event shows ramps.

Output views

The Output views provide an "overview" of audio on the tracks. Output views display up to 8 tracks, depending on the vertical zoom level; each track is shown as the sum of 2 channels. Depending on the horizontal zoom level, overlapping events may be indicated by a vertical line.
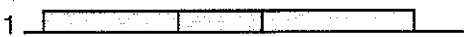
Crossfade views

The X-fade views display overlapping events on separate channels. X-fade views display up to 16 channels, depending on the vertical zoom level; each track is shown as a pair of channels (A and B on the Tracks display).

The first recording on a track is recorded on channel A. If you punch in over an event on channel A, the new event appears on channel B. Punching in again on the same track places the third event on channel A:
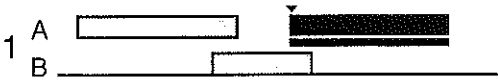
In crossfade view you can select an event on channel A or channel B. You can also cut and paste between the channels, or adjust the fade ramps individually.

Waveforms

If you want to see waveforms, select Output Waves or Crossfade Waves view. All events appear as full height waveforms. Only the selected event shows an event envelope. You can adjust the zoom level to see more detail in the waveforms.

Ramps view:

Waves view:
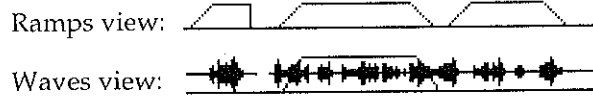
Zoom and scroll

The button at the bottom left of the Tracks display lets you choose from four arrow button modes (Select, Zoom, Scroll, Jump). When Zoom mode is on, pressing the arrow buttons changes the resolution of the Tracks display. Horizontal zooming changes the amount of time displayed on the tracks. Vertical zooming changes the number of tracks or channels displayed (1, 2, 4, 8 or 16).

Zoom
Change the horizontal and vertical resolution of the Tracks display.

Arrow button	Zoom Function
☐▲	Displays more tracks.
☐▼	Displays fewer tracks.
☐◄	Displays more time, with less resolution.
☐►	Displays less time, with greater resolution.

Zooming

1   **At the bottom of the Tracks display, touch the arrow mode button repeatedly until "Zoom" appears.**
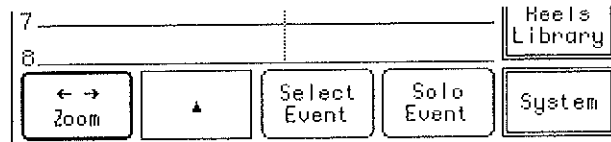
2   **Press the up or down arrow button to see more or fewer tracks. Press the right or left arrow button to see more or less time on the Tracks display.**
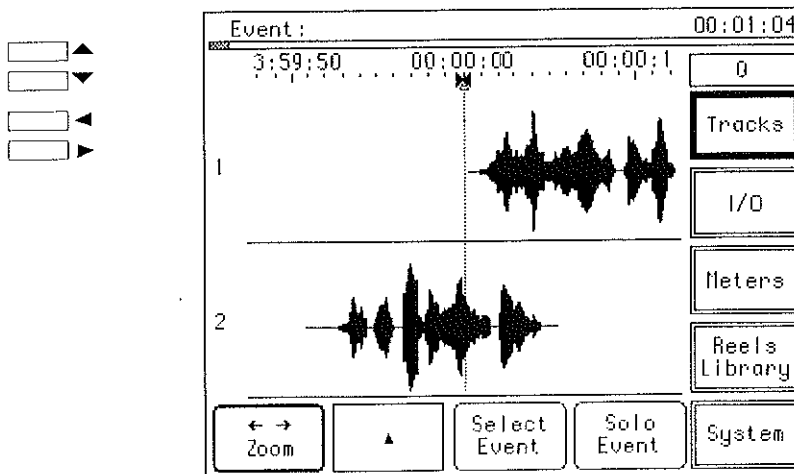
Scroll mode lets you page through the reel on the Tracks display. If the Tracks display is not showing all tracks, scroll mode also lets you select which set of tracks you see.

Scroll
Page through the reel by screen, and display different sets of tracks.

Arrow button	Scroll Function
[____]▲	If zoomed in, displays previous set of tracks.
[____]▼	If zoomed in, displays next set of tracks.
[____]◂	Pages backward one screen.
[____]▸	Pages forward one screen.

Scrolling

1 **At the bottom of the Tracks display, touch the arrow mode button repeatedly until "Scroll" appears.**
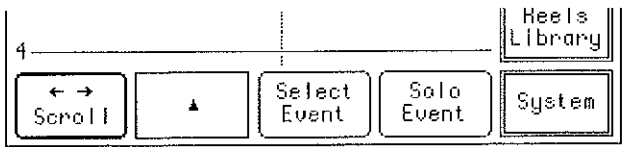
2 **Press the down or up arrow button to see the next or previous set of tracks. Press the right or left arrow button to page forward or backward in time.**
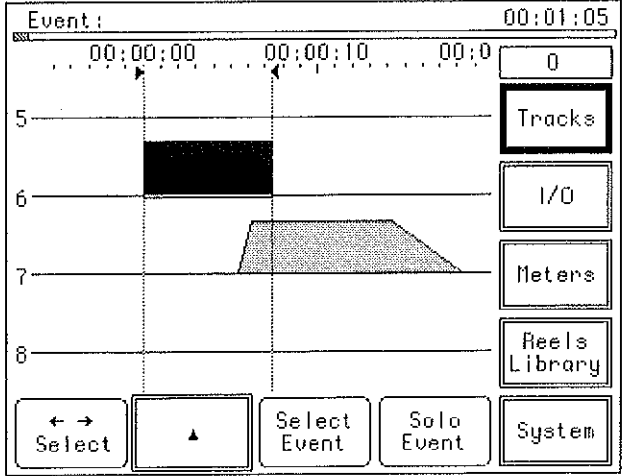
Library

The library is a separate storage area for events created in any reel. Each RPE contains one library. When an RPE is archived or restored, the library is also archived and restored. You can add, delete, copy, rename and audition events in the library.

The library can be used in several ways. You may want to save only a few selected events in the library, or you may want to save all your events. One of primary reasons for using the library is to save events someplace other than the reel. The advantage of the library is that it is a "global" storage area, accessible from any reel. You can retrieve an event from the library and place it into any reel at any time.

The library directory

The library directory is a list of the events saved in the library. You can view and search this list by name. Two columns of information can be displayed. The name is always in the left column and an additional column of information is displayed on the right.

Displaying library information

1 Touch the Reels/Library button and select Library from the popup menu.

2 If the library contains more than 8 events, press the up and down arrow buttons to scroll through the list of events.

3 If you want to display other types of event information, select the column heading on the right side of the screen.

Data
4 Press [____] and select the type of information you want displayed:

You can display durations, comments, start times, fade in times, sync times, fade out times, end times or sample rates.

```
Event: Eric 1                    00:00:54
┌──────────────┬──────────────┬──────────┐
│    Name      │ Duration     │    0     │
├──────────────┼──────────────┼──────────┤
│ Susan 1      │ Comment      │          │
│ Susan 2      │ Start Time   │  Tracks  │
│ Susan 3      │ Fade In      │          │
│ Susan 4      │ Sync Time    │   I/O    │
│ Eric 1       │ Fade Out     │          │
│ Bob 1        │ End Time     │  Meters  │
│ street noise trucks │ Sample Rate │      │
│              │              │  Reels   │
│              │              │ Library  │
│ Find  Delete  Copy  Audition │  System  │
│               to Clip        │          │
└──────────────┴──────────────┴──────────┘
```
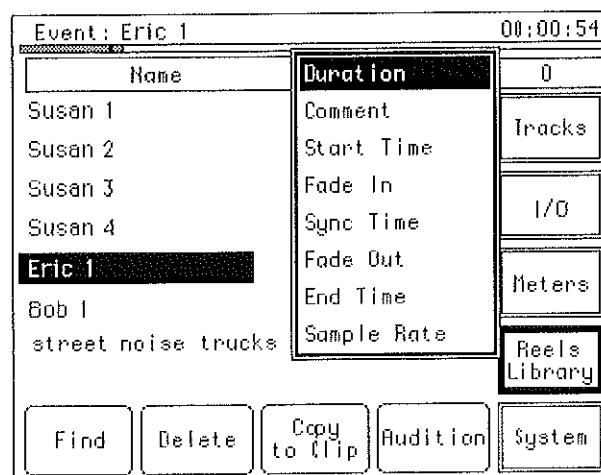
Data
5 Press [____] to confirm your selection.

Events in the library

Events can reside in a reel and/or in the library. If you don't name an event before saving it in the library, a name is assigned to it automatically. The name indicates when the event was saved in the library.

Storing events

1 On the Tracks display, select the event you want to store in the library.

2 Touch the popup button (▲) on the Tracks display to show a menu of commands.
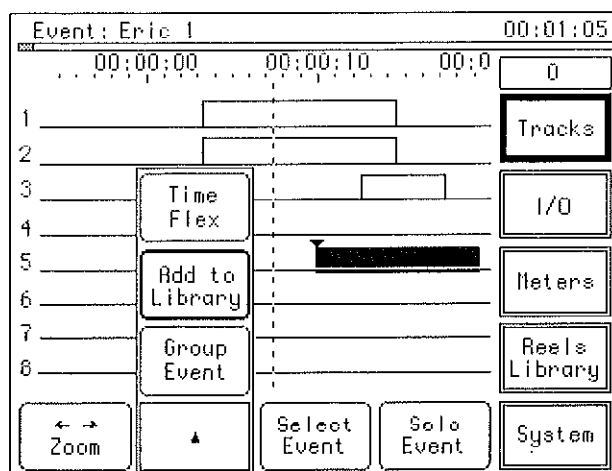
3 Select Add to Library from the menu.

The event is copied to the library, and remains intact on the reel.

4 To see the new event in the library, touch the Reels/Library button and select Library from the popup menu.
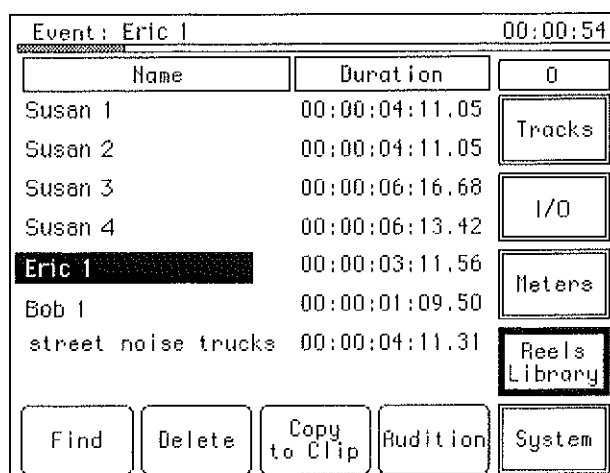
Selecting a library event

■ **Touch the event name in the library or press the up and down arrow buttons to select an event.**

When you reach the bottom or top of a page of events, press the arrow button again to see the next page of events.

Deleting events from the library

■ **Select an event in the library directory and touch Delete.**

| Find | Delete | Copy to Clip | Audition |
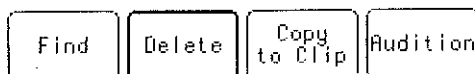
The event is deleted from the library directory (this cannot be undone). Deleting an event from the library does *not* delete it from the reel.

Editing the event name from the library

1 **Select an event in the library directory.**

Data
2 **Press [＿＿＿] to open the keyboard display.**

3 **Enter the desired event name, and touch OK.**

Changing an event's name in the library also changes it in the reel.

Finding an event

You can find a specific event in the library directory by searching for a string of letters and/or numbers.

1 **Touch the Find button to open the keyboard display.**

| Find | Delete | Copy to Clip | Audition |
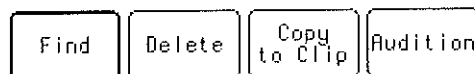
2 **Enter a name or the string of text you want to find, and touch OK.**

Enter name
to search for | dog

Auditioning an event in the library

1 **Select an event in the library directory, and touch Audition on the screen.**

| Find | Delete | Copy to Clip | Audition |
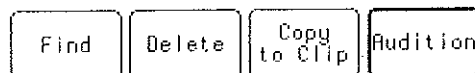
2 **To interrupt an audition, press the Stop button.**

Placing library events in the reel

Library events can be placed in the mounted reel at the In point on the Tracks display.

Placing a library event in the reel

1 Select the desired library event.

2 Touch Copy to Clip to copy the library event to the Clipboard.

Find	Delete	Copy to Clip	Audition
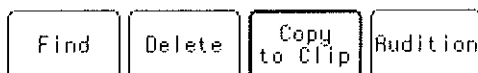
3 On the Tracks display, set the In point to indicate where you want to place the library event.

4 Ready the desired track(s).

5 Press [Paste] to place the library event at the In point, replacing any existing audio at that location.

OR

Press [Ripple] and then [Paste] to insert the library event at the In point. Other events "slide out" to make room for the pasted event.

Sample rates are not converted automatically. Therefore, if the sample rate of the pasted library event is not equal to the sample rate of the reel, the pasted event will play at a different rate than events in the rest of the reel.

EDITING

Events

Events on the tracks can be edited, moved or deleted from the reel. Some editing operations can be performed on the event itself, without moving it on the reel; other editing operations change the location of the event, altering its synchronization to other events in the reel.

Event envelope

Envelope
A window on the underlying audio of an event.

An event is a block of recorded audio which can be non-destructively edited. Each event has an envelope, which is like a window on the original block of audio, called "underlying audio." The envelope can be edited so that it reveals only part of the original recording. Changing the envelope does not affect the underlying audio. The envelope only indicates which part of the audio should play in the reel.

which | acts as a window | on the underlying audio

which acts as | window on the underlying audio |

The event envelope has many parameters which can be edited, including fade in and fade out ramps, and overall gain. Manipulating these parameters lets you control the playback characteristics of the event.
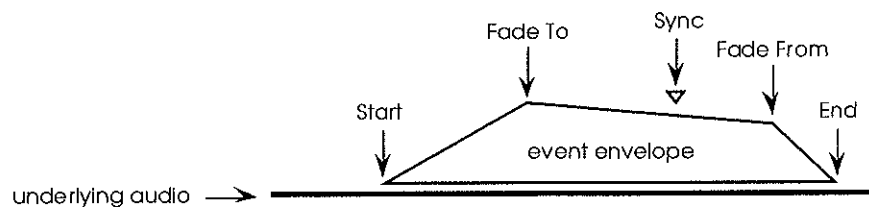
Parameter	Description
Start	The beginning of the event. The time at which the event plays in the reel.
End	The end of the event. The time at which the event is completely faded out.
Fade To	The end of an event fade in.
Fade From	The beginning of an event fade out.
Sync	A reference point that can be used to create an accurate synchronized relationship between the event and a time in the reel or another event. The Sync points does *not* have to be located between Start and End.
Gain	Overall volume level of the event. 0 to -60dB
Fade To Gain	Volume level at the Fade To point. 0 to -60dB
Fade From Gain	Volume level at the Fade From point. 0 to -60dB

Selecting events

Events appear on the Tracks display. To edit an event's parameters, you must first select the event. When an event is selected, its fades and sync point are visible. The underlying audio appears as a solid horizontal line under the selected event.

The name of the selected event appears at the top of the screen, replacing the project and reel names.
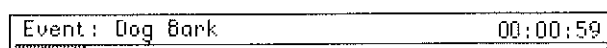
Selecting an event
Touching the screen or pressing the arrow buttons to indicate which event you want to edit.

To select an event for editing, you can simply touch it on the Tracks display. You can also use the Select Event button or arrow buttons to select an event.

If you select a stereo event, both tracks in the event are selected and all editing applies to both event tracks. If you select an event and then scroll off the screen, or if you open another display, the event remains selected, and its name remains in the status bar. You can perform editing operations, even when the Tracks display is not visible.

Selecting an event

■ **Touch any event on the Tracks display to select it.**

The selected event appears highlighted on the Tracks display.

Zooming lets you display fewer tracks, making the events larger and easier to touch. See "Zoom and scroll" in the Recording chapter for more details.

Select Event button

The Select Event button selects an event under the now line (the vertical line that represents the current time in the center of the Tracks display). You can touch Select Event repeatedly to cycle through all events under the now line.

1 **Use the jog/shuttle knob or transport buttons to locate to another event.**

2 **Touch the Select Event button at the bottom of the Tracks display.**
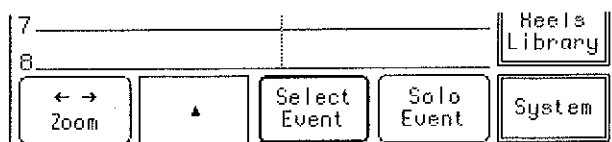
3 **Touch the Select Event button repeatedly to cycle through all events under the now line.**

Select mode

The button at the bottom left of the Tracks display lets you choose from four arrow button modes (Select, Zoom, Scroll, Jump).

1 **Touch the arrow button mode repeatedly until "Select" appears.**
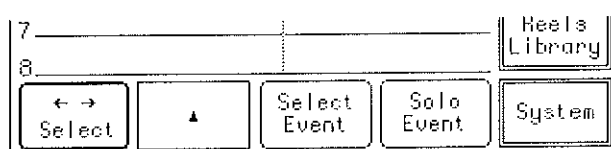
2 **Press the arrow buttons to select adjacent events on the Tracks display.**

Arrow button	Select Function
▲	Selects closest event on the previous track.
▼	Selects closest event on the next track.
◄	Selects next event on the track.
►	Selects previous event on the track.

Please refer to the Recording chapter for information about zoom, scroll and jump modes.

Locating the selected event

The GoTo button lets you locate to the envelope parameters of the selected event.

Locating to event times

1 **Select an event on the Tracks display.**

2 **Press** Go To **and then** Start **or** End **to locate to the Start or End point of the selected event.**

3 **Select another event, and GoTo its Start, Fade To, Fade From, End or Sync point.**

Trim and Align

Whenever an event is selected, you can use Trim, Align, and the six event envelope buttons on the Edit Controller to edit the event. When you press Trim or Align, its LED lights. The selected mode remains active until you either deselect the event or select the other mode.

```
     Trim          Fade To    Gain    Fade From

  ●  Align

                   Start      Sync    End
```
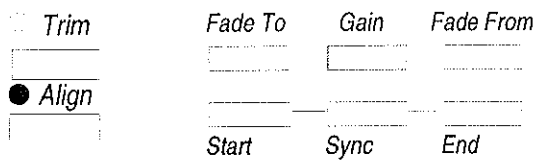
Trim

Trim mode lets you move an individual event parameter to the current time, without changing the location of other event parameters. For example, trimming the Start or End time changes the duration of the event. Trimming Fade To or Fade From changes the length of the fades, without changing the event's duration or its location in the reel.

Trimming Sync changes the location of the Sync time relative to the event without changing the event's duration or its location in the reel. The Sync point can be outside the event; it does *not* have to be between Start and End. When you first record an event, its Sync time is equal to its Start time.

Trimming the Start or End time makes the event shorter or longer, but it does not eliminate any underlying audio. The underlying audio is always available if you want to retrieve it. For example, if you move the event Start from 00:15:01 to 00:15:04, the event is three seconds shorter; but you can trim the Start back to 00:15:01 to hear those three seconds of underlying audio.

You can use Trim mode to make an event shorter or longer, but you cannot trim beyond the Start and End of the underlying audio.

Trimming the event

Trim
Moving an
individual
event parameter
to the current time.

● *Trim*

1   **Select the desired event and press** [＿＿]

2   **Locate to the desired time.**

```
     ▼
1 ─────────████████─────────
2 ─────────│─────────────
```

3   **Depending on which event parameter button you press next, the selected parameter moves to the current time:**

Press the Start button.

```
     ▼
1 ─────────████████──
    ──████──│
2 ─────────│─────────
```

OR

Press the End button.

1 ────────────────────────

2 ────────────────────────

OR

Press the Fade To button.

1 ────────────────────────

2 ────────────────────────

OR

Press the Fade From button.

1 ────────────────────────

2 ────────────────────────

OR

Press the Sync button.

1 ────────────────────────

2 ────────────────────────

The Recall and Store buttons let you display and update the envelope parameters of the selected event. You can use these buttons to trim the selected event by setting its parameters numerically.

Recall and store event times

1 **Select the desired event on the Tracks display.**

2 **Press** ○ | *Recall* | **and then** | *Start* | **to display the Start time of the selected event.**

The Start time appears in the bottom time display.

3 **Use the numeric keypad to edit the bottom time display.**

4 **Press** ○ | *Store* | **and then** | *Start* | **to update the Start time of the selected event.**

The new Start time must be within the boundaries of the underlying audio.

Align

Align mode lets you move the entire event relative to the reel, aligning the specified event parameter to the current time. Aligning does not change the event duration, or the shape of the event envelope.

Align
Move an entire
event to the current
time.

| Aligning the event |

● *Align*

1   **Select the desired event and press** [_____]

2   **Locate to a time.**

3   **Depending on which event parameter button you press next, the event moves so that the selected parameter is aligned with the current time:**

Press the Start button.
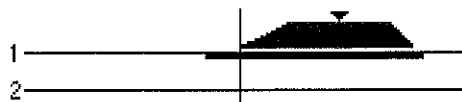
OR
Press the End button.

OR
Press the Fade To button. If you had given the event a fade in ramp, the edit would line up as follows.

OR
Press the Fade From button. If you had given the event a fade out ramp, the edit would line up as follows.
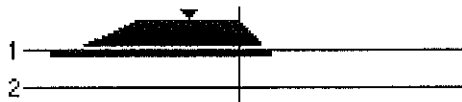
OR
Press the Sync button.

You cannot overlap more than two events on a track. If you want to overlap more than two events, move the third event to another track.

Adjusting the fades

Each event envelope includes a fade in and fade out ramp, which can be adjusted using the Trim function. One event can fade out while another event fades in (on the same or a different track). You can use the Align function to adjust the position of each event relative to the other.

Fade In   EVENT   Fade Out

Adjusting a crossfade

● *Trim*

1   **Select an event and press** [⬚]

Fade From

2   **Use the jog/shuttle knob to find a new Fade From time, and press** [⬚]

The event envelope shows the fade out starting earlier.

3   **Select an adjacent event.**

Fade To

4   **Use the jog/shuttle knob to find a new Fade In time, and press** [⬚]

The event envelope shows the new fade in ramp.

● *Align*

5   **Press** [⬚] **and adjust the overall location of either event. For example, you could turn the jog/shuttle knob counterclockwise and then press Fade To again so the second event fades in before the first event entirely fades out.**

When two events are butt spliced, a 10ms linear crossfade is performed between the events. If you adjust the fade length to larger than 10ms, the fade becomes exponential.

Gain

Three parameters let you adjust the level of the selected event: overall level, level at the Fade To point, and level at the Fade From point.

Adjusting the gain

1 **Press and hold the Gain button.**

   A popup window indicates the overall event level.

2 **Turn the jog/shuttle knob to attenuate the event.**

3 **To adjust the level at the Fade To point, press and hold both Gain and Fade To while turning the jog/shuttle knob.**

4 **To adjust the level at the Fade From point, press and hold both Gain and Fade From while turning the jog/shuttle knob.**

When adjusting the Fade To and Fade Out points, you must press Gain first and then Fade To or Fade From.

Copy, cut, paste

When an event is selected, you can use the Copy, Cut, Paste and Ripple buttons to move the entire event in the reel. These buttons edit the position of the event in the reel, rather than altering parameters within the event.
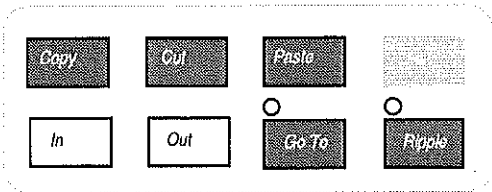
If no events are selected, you can use the Copy, Cut, Paste and Ripple buttons for region editing, described later in this chapter.

Copying and cutting events

Clipboard
A temporary storage area for events or other audio.

Copy and Cut save events in a temporary memory location called the "Clipboard." Each time you press Copy or Cut, you replace the contents of the Clipboard.

Copying an event

Pressing Copy makes a copy of the selected event, and saves it in the Clipboard without changing anything on the tracks.

■ **Select an event and press** [Copy]

   A copy of the event replaces the contents of the Clipboard.

Cutting an event

Pressing Cut removes the selected event from the track and saves it in the Clipboard.

■ **Select an event and press** $\boxed{Cut}$

The event is removed from the tracks and replaces the contents of the Clipboard.

Pasting events

Pressing Paste copies the Clipboard contents onto the readied track(s) at the In point, replacing any audio at that location.

Pasting an event

1 Ready the track on which you want to paste.

2 If desired, locate a new paste point and press $\boxed{In}$

You can use the jog/shuttle knob, the Play button, or any of the locate functions to find the desired paste point. Pressing the In button sets the In point to the time you located. The In arrow on the Tracks display indicates where the Clipboard contents will be pasted.

3 Press $\boxed{Paste}$

The Clipboard is copied to the tracks, beginning at the In point. You do not need to specify an Out point.

Ripple pasting

If Ripple is on when an event is pasted to the track(s), any audio after the In point automatically slides out to make room for the pasted event.

1 Ready the desired track(s).

2 Set an In point to indicate where you want to paste.

3 Press $\boxed{Ripple}$ **and then press** $\boxed{Paste}$

Events on the track slide out to make room for the pasted event.

Splitting events

Splitting lets you divide an event into one or more separate events. If you have a long recording that you want to checkerboard, you can split the event and then separate the resulting events from one track onto two.

Splitting an event

1   **Select the event (mono or stereo) that you want to split.**

2   **Play or locate to the desired split point.**

3   **Press** Split
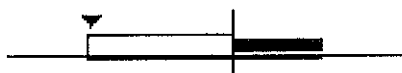
The event is split into two events at the current time. The second event is selected automatically. You can select either event independently. Both parts of the event retain the original sync point, underlying audio, and event name.

Splitting stereo events

If you select a stereo event and split it, both tracks of the event are split, resulting in two stereo events. You can also split a stereo event into mono events.

1   **Ready one track of the stereo event you want to split.**

2   **Touch a blank area of the Tracks display, to make sure no events are selected.**

The names of the current project and reel appear at the top of the screen.

3   **Locate to the desired split point within the stereo event.**

4   **Press** Split

The stereo event becomes three mono events (two on the readied track and one on the other track). Each mono event on the first track is automatically named "<event name>.L"; each mono event on the second track is automatically named "<event name>.R".
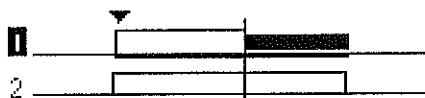
If no events are selected, you can split audio on any combination of tracks. See "Splitting tracks" later in this chapter for more details.

Region editing

When no events are selected, you can use the Cut, Copy, Paste, Fill and Ripple buttons to edit any region of the tracks, regardless of where events occur.
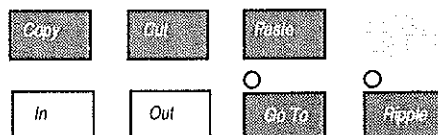
Button	Function
Copy	Copies the region to the Clipboard.
Cut	Removes the region from the reel and puts it on the Clipboard.
Paste	Copies the Clipboard contents to the reel at the In point.
Ripple Cut	Cuts the region, and automatically slides subsequent audio on the edited track(s) in by the length of the cut.
Ripple Paste	Copies the Clipboard to the reel at the In point, and automatically slides subsequent audio on the edited track(s) out by the length of the paste.
Fill	Fills the region with the contents of the Clipboard. If the region is longer than the Clipboard, the audio automatically loops to the end of the region. If the region is shorter than the Clipboard, the audio is automatically trimmed to fit the region.

Region

Region
An area on the tracks defined by In and Out points and track Ready buttons.

Two parameters define a region:

- In and Out points indicate where in time the region begins and ends.
- Ready buttons indicate which track(s) to edit.
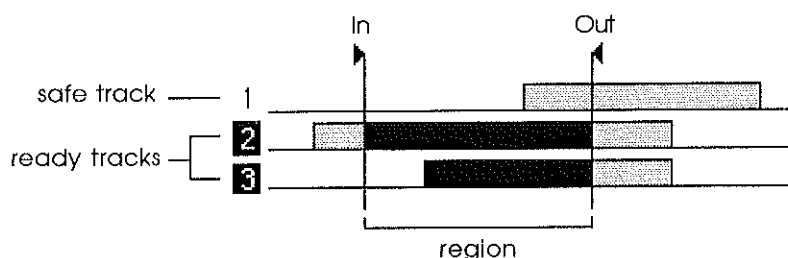
Setting In and Out points

1   Locate to the desired In point and press |In| to set the In point.

2   Locate to the desired Out point and press |Out| to set the Out point.

You can also set In and Out points by using the numeric keypad to enter the desired times.

Setting In and Out points numerically

1 **Press** `Clear` **to zero the bottom time display.**

2 **Use the numeric keypad to enter the desired In or Out time.**

3 **Press** `Store` **and then** `In` **or** `Out` **to set the In or Out point.**

Defining a region

1 **Touch a blank area of the Tracks display to make sure no events are selected.**

The names of the current project and reel appear at the top of the screen.

2 **Press the desired Ready button(s) to indicate which track(s) you want to edit.**

Readied track numbers are highlighted on the Tracks display. You can ready as many tracks as you want. When no events are selected, editing affects only ready tracks.

3 **Set the desired In and Out points to define where the region begins and ends.**

The region is highlighted on the Tracks display.

Copying and cutting a region

Clipboard
A temporary storage area for events or other audio.

Copy and Cut save the region in a temporary memory location called the "Clipboard." Each time you press Copy or Cut, you replace the contents of the Clipboard.

Copying a region

Pressing Copy makes a copy of the region, and saves it in the Clipboard without changing anything on the tracks.

■ **Define the desired region, and press** `Copy`

A copy of the region replaces the contents of the Clipboard.
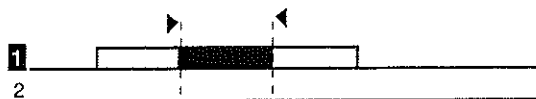
Cutting a region

Pressing Cut removes the region from the track(s) and saves it in the Clipboard.

■ **Define the desired region, and press** `Cut`

The region is removed from the tracks and replaces the contents of the Clipboard.
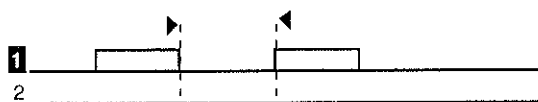
Pasting and filling a region

Pasting

Pressing Paste copies the Clipboard contents onto the readied track(s) at the In point, replacing any audio at that location.

1 **Ready the track(s) on which you want to paste.**
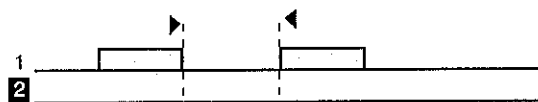
2 **If desired, locate a new paste point and press** `In`

You can use the jog/shuttle knob, the Play button, or any of the locate functions to find the desired paste point. Pressing the In button sets the In point to the time you located. The In arrow on the Tracks display indicates where the Clipboard contents will be pasted.

3 **Press** `Paste` **to copy the Clipboard to the tracks, beginning at the In point.**

You do not need to specify an Out point. If you haven't moved the In point from the previous cut, the Clipboard is "pasted in place" on the ready track(s).

Filling a region

Fill is a special paste function that lets you define a region and then fill it with the Clipboard contents. If the Clipboard is shorter than the region, it automatically loops to fill the region. If the Clipboard is longer than the region, it is automatically trimmed at the Out point. Fill is useful for ambiance or other looped sounds.

1 **Ready the desired track(s) and set In and Out points to define the region you want to fill.**

2 **Press** `Fill` **to fill the region.**

Ripple cut and paste

Ripple is a special mode you can use with cut or paste—

- Ripple Cut removes the specified region, and automatically slides in subsequent audio to close the gap.
- Ripple Paste automatically slides out any audio after the In point to make room for the pasted audio.

Ripple cutting

1   Touch a blank area of the Tracks display to make sure no events are selected.

2   Ready the desired track(s).

3   Set In and Out points to define the region you want to cut.

4   Press [Ripple] to turn on ripple mode.

5   Press [Cut]

The region is removed from the tracks and saved in the Clipboard. All subsequent audio on the readied track(s) automatically moves left by an amount equal to the length of the cut.
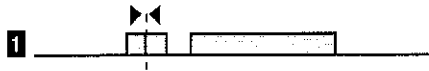
Ripple pasting

1   Ready the desired track(s) and set an In point to indicate where you want to paste.

2   Press [Ripple] to turn on ripple mode.

3   Press [Paste]

The Clipboard contents are inserted on the track(s) at the In point. The audio after the In point automatically moves right by an amount equal to the length of the paste.

Splitting tracks

If no events are selected, you can split audio on any readied tracks. When splitting a region, a vertical line indicates the split point. Events on readied tracks are split at that point. Events on unreadied tracks are not affected.

Splitting tracks

1   **Ready the track(s) containing audio that you want to split.**

2   **Play or locate to the desired split point.**

3   **Press** `Split` **to split the audio on readied tracks.**

To split tracks on the fly, ready different tracks and press Split while the Foundation is playing.

Inserting leader

You can insert leader, or silence, into one or more tracks. For example, you may need to insert several frames of silence on all tracks to compensate for a picture change. To insert leader, you copy the desired region of silence from any track and then ripple-paste it on any set of tracks. For example, you can copy a region of silence from track 1 and then ripple paste it on tracks 1, 2, 5.

Inserting leader onto a track

1   **Ready any track and set In and Out points where there is silence. Make sure the region is equal to the amount of silence you want.**

2   **Press** `Copy`

The region of silence is copied to the Clipboard.

3   **Ready the desired track(s).**

4   **Set the In point to the place where you want to insert silence.**
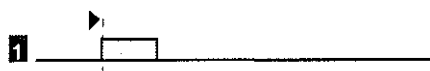
5   **Press** `Ripple` **and then** `Paste`

The silence in the Clipboard is inserted on the track(s). All audio following the In point automatically slides out to make room for the inserted silence.
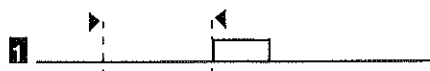
Undo and redo

Undo and redo provide a way to retrace your actions, letting you record and edit non-destructively. For example, after cutting an event, undo lets you restore the event, and redo lets you repeat the cut.

There are six levels of undo and redo, which means that you can undo the six most recent actions, or step forward through the six actions you undid. Undo and redo give you the flexibility to change your mind, or to toggle between two versions of an edit. The result of an undo or redo is visible on the Tracks display.

Actions you can undo and redo include record, trim, align, copy, cut, paste, fill, split.

Using Undo and Redo

Undo

1   **Press** ⌷‾‾‾⌷ **up to six times.**

Each time you press the Undo button, you step back in time to the previous action.

Redo

2   **Press** ⌷‾‾‾⌷ **up to six times.**

You can step forward through all the actions you just undid.

Undo and redo also restore the contents of the Clipboard and the In and Out points.

When you undo one or more actions and then begin recording or editing again, any action that you undid is no longer retrievable. The example below shows one recording and two edits (A, B, C). Pressing Undo removes the last edit (C), leaving B as the last edit. Recording or editing again (without pressing Redo) creates event D and makes C unretrievable. The new sequence of edits that is available to undo is A—B—D.

record   edit   edit
──────▶ A ────▶ B ────▶ C
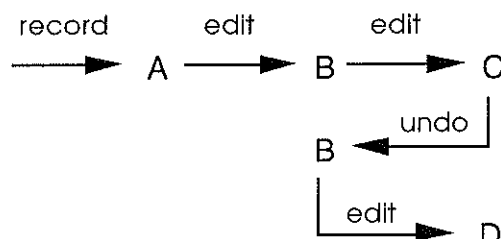
                    undo
           B ◀──────────┘

           └ edit ────▶ D   After you begin recording or
                              editing at B again, edit C is
                              not available through undo.

SYNCHRONIZATION

Preferences

Setting preferences

Each reel has a set of preferences, such as timecode format and sync reference. The Reels:Prefs display lets you define preferences for any individual reel. If you define preferences in the default reel, those preferences apply to each new reel you open.

For more information about the default reel, please refer to the Project Management chapter.

Setting	Definition	Options
VTR TC type	Type of VTR timecode read over the RS-422 port when controlling a video deck	VTR LTC VTR VITC
TC Source	Port for incoming timecode	LTC, VITC, ADAT TC
	Timecode format	30 Non-Drop, 30 Drop, 29.97 Non-Drop, 29.97 Drop, 25 fps, 24 fps
Reference	Incoming synchronization reference	Internal, Word Clock, Timecode, Video, AES pairs, SPDIFo, SPDIFe, ADAT optical
Int. Sample Rate	Foundation's internal sample rate used for recording and playback	32, 44.056, 44.1, 44.144, 47.952, 48 and 48.048 kHz
Speed	Varispeed adjustment for recording and playback	–1.0% to +1.0% (32kHz) –12.5% to +12.5% (44.1kHz & pull up/down) –12.5% to +6.0% (48kHz & pull up/down)
TC Output Offset	Difference between Foundation's internal timecode and its timecode output	00:00:00:00—23:59:59:29
Offset	Difference between incoming timecode and Foundation's internal timecode	00:00:00:00—23:59:59:29 Set using the Offset button.
MTC Out	MIDI timecode output	On, Off
Display	Time display format	SMPTE TC, 35mm or 16mm Feet/Frames
Remote	Type of external device that can control Foundation	MIDI, RS-422 or ADAT

Sync reference

The type of sync reference signal you use depends on the type of work you're doing. You can set the sync reference on either the Reels:Prefs display or the I/O:Patch Bay display.

Reference field	Sync Reference Source
Video Sync	Composite video or black burst video input
Timecode	LTC or VITC input
Word Clock	Word clock signal
AES 1,2 AES 3,4 AES 5,6 AES 7,8	AES digital audio input (sync reference source can be any of the four input pairs)
SPDIFo SPDIFe	SPDIF digital audio input (o=Toslink optical, e=RCA electrical)
ADAT optical	ADAT digital audio input
Internal	Foundation's internal clock reference

Setting a sync reference

1   Connect the desired sync source to the appropriate port on the back of the Foundation's Main Unit.

2   On the Reels:Index display, mount the desired reel.

3   Touch the Reels/Library button and select Prefs from the popup menu.

OR

Touch the I/O button and select Patch Bay from the popup menu.

4   Select the Reference field and press [Data]

5   Turn the jog/shuttle knob until the appropriate sync reference appears.

6   Press [Data] to close the field.

If the Foundation is slaved to an ADAT deck (the Foundation is in Remote mode, and the Remote field is set to ADAT), the Reference field is automatically set to ADAT Sync, and the Timecode Source field is automatically set to ADAT TC. If you want to change the sync reference or timecode source, you must either turn off Remote mode or select a different setting in the Remote field.

The reference you select indicates which port you've connected to the incoming sync signal.

digital inputs & outputs

Foundation 2000RE (back)

word clock   video   VITC   LTC
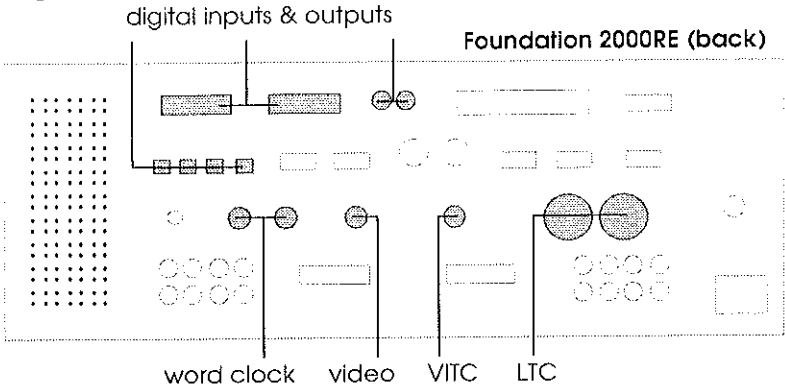
Status lights

When the Foundation is receiving a sync signal, the status of that signal is indicated by a row of LEDs under the time displays.

○ Timecode   ○ Word Clock   ○ Video Sync   ○ Lock
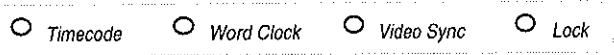
| Name	Indication
Timecode	Timecode signal is received at the LTC or VITC input. Blinks if drop-out occurs or if the incoming timecode format does not match the settings on the Reels:Prefs display.
Word Clock	Word clock signal is received at the Word Clock input or at a digital input. Blinks if drop-out occurs or sampling rate is not correct. Slow blink indicates that improper channel status bits may be causing data errors during a digital transfer.
Video Sync	Sync signal is received at Video Sync input. Blinks if the Reference field is set to Video Sync and no sync signal is received.
Lock	Indicates that Foundation is chasing LTC or VITC. Blinks if timecode drifts from selected sync reference signal.

Machine control

Machine control is the ability to control external devices or to be controlled by external devices. The Foundation can do either, using the two 9-pin RS-422 Sony serial protocol connectors on the back of the Main Unit.

Foundation as controller

The Foundation can control an external device, such as a video deck or a DAT machine, by connecting the Foundation's RS-422 Out port to the external device's RS-422 In port.
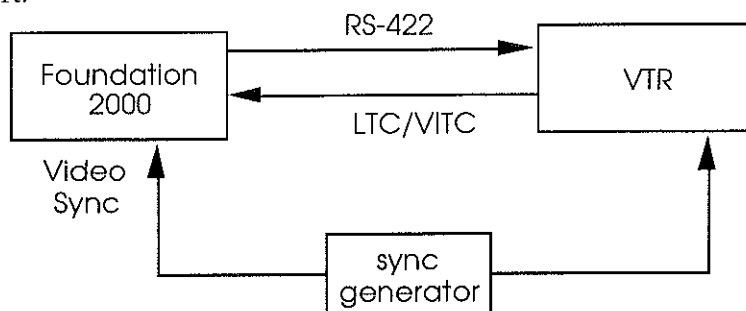
The "External" buttons at the top left of the Foundation's Edit Controller let you put external devices online or offline. When an external device is online, it responds to commands from the Foundation's Edit Controller via RS-422. The "Internal" buttons let you put the Foundation online or offline. When the Foundation is online, it responds to commands from its Edit Controller. You can use the Internal and External buttons to control both machines simultaneously, or either machine independently.
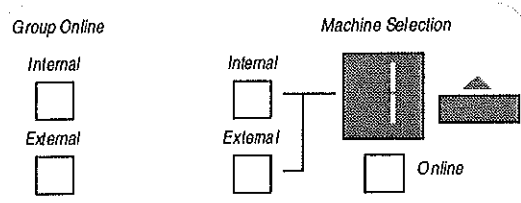
Internal (Foundation)	External	Result
online	online	Both the Foundation and the external device respond to commands from the Foundation's Edit Controller. You can move their transports together.
online	offline	The Edit Controller controls only the Foundation. You can locate on the Foundation without moving the external device.
offline	online	The Foundation does not respond to its Edit Controller. You can locate on the external device without moving the Foundation's transport.

Controlling an external machine

1   **Connect the Foundation's RS-422 Out port to the external machine's RS-422 In port.**

2   **Press and light** ☐ *External* **under Machine Selection.**

3   **If necessary, press the arrow button until "1" appears.**

External machine "1" represents a device connected to the RS-422 Out port. External machine "9" represents a device connected to the MIDI Out port.

4   **Press and light the Online button.**

5   **Press and light** ☐ *External* **under Group Online.**

If you want the Foundation and the external device to move together, make sure the Group Online "Internal" button is also on. If you want to control the Foundation and the external device independently, make sure only one Group Online button is on.

If you're controlling an external video deck and you want to accurately jog to picture, you also need to indicate what type of timecode the video deck is using.

Setting the VTR timecode type

1   **Touch the Reels/Library button and select Prefs from the popup menu.**

2   **Select the VTR TC type field, and set it to VTR LTC or VTR VITC.**

UTR TC type: ▐ **UTR LTC** ▌

If you have a VTR connected to your Foundation, a status message indicates what VTR is connected. You can select the status message and press Data to see what time was received from the deck when the Foundation came online.

Controlling Foundation

The Foundation can be controlled by an external machine, such as a video
controller, by connecting the RS-422 Out port of the external machine to the RS-422 In
port of the Foundation.
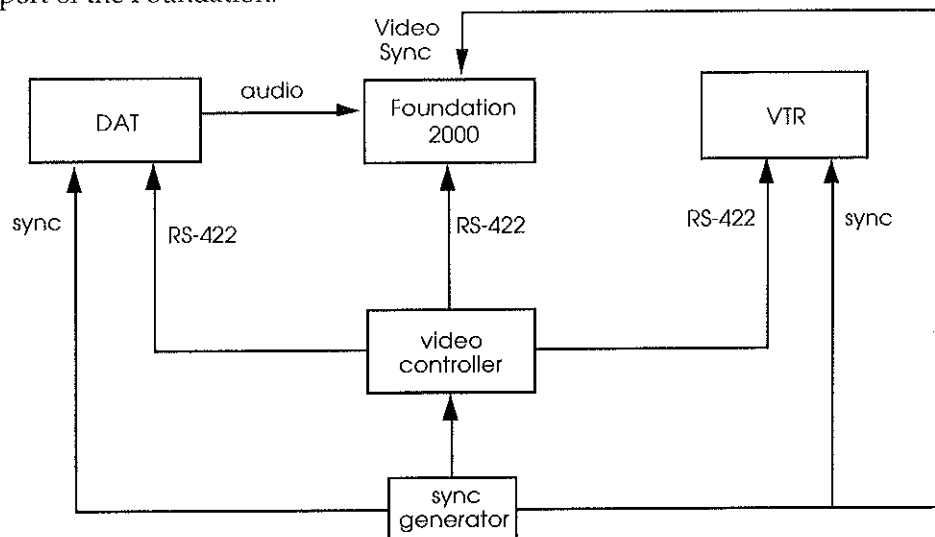
*If Foundation is being controlled by an external video edit controller,
Foundation performs edits at exact frame boundaries (zero subframes).*

The Local/Remote button on the front of the Main Unit indicates whether the
Foundation will respond to commands from an external machine.

LED on	Function
Local	The Foundation does not respond to commands from the external machine. The Foundation responds only to its Edit Controller.
Remote	The external machine controls the Foundation. The Foundation does not respond to its Edit Controller.
Local & Remote	The Foundation responds to commands from its Edit Controller as well as from the external machine.

Controlling Foundation via RS-422

1 **Press the Local/Remote button on the front of the Main Unit to select
Remote or Local & Remote.**

2 **Touch the Reels/Library button on the screen, and select Prefs from the
popup menu.**

Data
3 **Select the Remote field, and press** ☐

4 **Select RS-422 from the popup menu.**

MIDI machine control

The Foundation can send MIDI timecode, and can send and receive MIDI machine control messages. These features let you integrate the Foundation with MIDI-based music sequencing systems, and MIDI-controllable tape machines such as the Fostex RD-8.
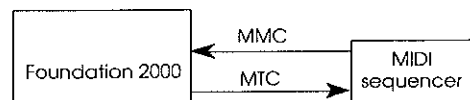
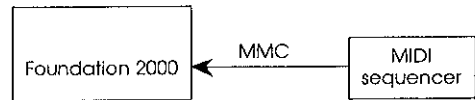Foundation 2000 is MIDI machine control master and chases timecode from RD-8
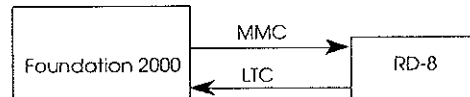
Foundation 2000 is MIDI machine control master; RD-8 chases timecode from Foundation 2000
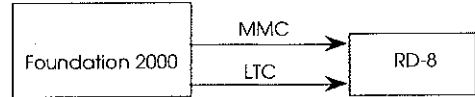
Foundation 2000 is MIDI machine control slave; Sequencer chases MIDI timecode from Foundation 2000

Foundation 2000 is MIDI machine control slave

The Foundation 2000 can send and receive these MIDI machine control messages—

function	sysex message (decimal)						sysex message (hex)					
stop	240	127	127	6	1	247	F0	7F	7F	06	01	F7
play	240	127	127	6	2	247	F0	7F	7F	06	02	F7
deferred play	240	127	127	6	3	247	F0	7F	7F	06	03	F7
fast forward	240	127	127	6	4	247	F0	7F	7F	06	04	F7
rewind	240	127	127	6	5	247	F0	7F	7F	06	05	F7
pause	240	127	127	6	9	247	F0	7F	7F	06	09	F7

You can also send these messages to the Foundation to set In/Out points and locators—

set in	(decimal)	240	127	127	6	86	6	1	[hh]	[mm]	[ss]	[ff]	[bb]	247
	(hex)	F0	7F	7F	06	56	06	01	[hh]	[mm]	[ss]	[ff]	[bb]	F7
set out	(decimal)	240	127	127	6	86	6	0	[hh]	[mm]	[ss]	[ff]	[bb]	247
	(hex)	F0	7F	7F	06	56	06	00	[hh]	[mm]	[ss]	[ff]	[bb]	F7
store locator	(decimal)	240	127	127	6	64	6	[register]	[hh]	[mm]	[ss]	[ff]	[bb]	247
	(hex)	F0	7F	7F	06	40	06	[register]	[hh]	[mm]	[ss]	[ff]	[bb]	F7
	(there are four general purpose registers, numbered 8, 9, 10, 11, for storing locators)													
locate	(decimal)	240	127	127	6	68	2	0	[register]	247				
	(hex)	F0	7F	7F	06	44	02	00	[register]	F7				
	—or—													
	(decimal)	240	127	127	6	68	6	1	[hh]	[mm]	[ss]	[ff]	[bb]	247
	(hex)	F0	7F	7F	06	44	06	01	[hh]	[mm]	[ss]	[ff]	[bb]	F7

Receiving MIDI machine control messages

When the Foundation is in Remote mode, it responds to incoming MIDI machine control messages.

1 **Connect the MIDI Out port of the external MIDI device to the Foundation's MIDI In port.**

2 **Press the Local/Remote button on the front of the Main Unit to select Remote or Local & Remote.**

3 **Touch the Reels/Library button and select Prefs from the popup menu.**

4 **Select the Remote field, and press** _{Data} [▭]

Data

4 **Select the Remote field, and press** [▭]

5 **Select MIDI from the popup menu.**

Sending MIDI machine control messages

To control an external MIDI device, you need to put it online.

1 **Connect the Foundation's MIDI Out port to the MIDI In port of the external MIDI device.**

2 **Press and light** *External* [▭] **under Machine Selection.**

3 **If necessary, press the arrow button until "9" appears.**

External machine "9" represents a device connected to the MIDI Out port.
External machine "1" represents a device connected to the RS-422 Out port.

4 **Press and light the Online button.**

5 **Press and light** *External* [▭] **under Group Online.**

General Purpose Interface (GPI)

You can use an external switch panel to control the Foundation through the General Purpose Interface (GPI) connector on the back of the Main Unit. Currently, eight GPI input functions are available; the GPI output functions are not yet implemented.

Each GPI input is triggered by applying ground (0 volts) to the GPI input pin. Most GPI inputs perform a single action whenever they are triggered.

GPI

General Purpose Interface for triggering Edit Controller functions.

GPI Inputs	Pin #	Function
Stop	4	Stops transport.
Play	16	Plays at 1x.
Rewind	17	Plays in reverse at 4x.
Fast Forward	18	Plays forward at 4x.
Punch In/Out	14	Toggles recording on and off.
Locate	6	Locates to the time in the edit time display.
In	19	Sets the In point to the current time.
Out	20	Sets the Out point to the current time.

GPI Outputs	Pin #
not yet implemented	21, 9, 22, 10, 11, 24, 12, 25

Common Pins	Pin #
VCC	15
Ground	1, 5, 13, 23
Reserved	2, 3, 7, 8
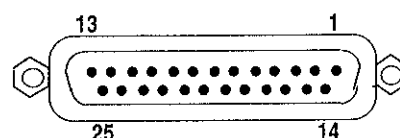
Using the GPI inputs, the Foundation can be controlled by devices that are not capable of RS-422 machine control. The GPI inputs can also be connected to foot switches, and other devices that act as a single-pole, single-throw switch electrically.

Never connect the GPI inputs to negative voltages or voltages greater than 5 volts DC. Damage to your Foundation could result.

Timecode

SMPTE timecode format

The Foundation can read and generate various SMPTE timecode formats—
24 fps, 25 fps, 29.97 fps (drop or non-drop), 30 fps (drop or non-drop). You set the
SMPTE timecode source and format on Reels:Prefs display.

Setting the SMPTE timecode source and format

1   Touch the Reels/Library button and select Index from the popup menu.

2   Mount the desired reel.

3   Touch the Reels/Library button and select Prefs from the popup menu.

4   Open the first "TC source" field and select the type of timecode that you're
    using.

    TC source: **VITC**   29.97 Drop

5   Open the second "TC source" field and select the timecode format.

    TC source: VITC   **29.97 Drop**

Timecode offset

You can specify offsets for both incoming timecode and outgoing timecode. The
incoming offset synchronizes the position of the Foundation relative to an external
machine's timecode when the Foundation is in chase mode. The output offset
synchronizes the position of an external machine relative to the Foundation's
timecode.

Setting an incoming timecode offset

1   Locate the external device to the desired time.

2   Locate the Foundation to the time you want to align with current position of
    the external device.

Offset
User-defined
numerical
difference between
the running
timecodes of two
machines.

3   Press [Offset] , [Hold] and then [Offset] again to specify the offset between the
   two machines.

4   Touch the Reels/Library button and select Prefs from the popup menu.

The amount of time that the two machines are offset from each other is shown in
the "Offset" field. This is a display field only; you cannot change it on the screen.
To change the offset, repeat steps 1–3.

You can also use the keypad to specify the offset numerically.

Setting an offset numerically

1 Press [Offset] to show the current offset in the bottom time display.

2 **Use the numeric keypad to edit the offset.**

You can press "+" or "−" to increase or decrease the offset. You can press Clear to delete the offset.

3 Press [Store] and then [Offset] to specify the new offset.

Setting a timecode output offset

1 **Locate the Foundation to the desired time.**

2 **In the bottom time display, enter the corresponding time you want the Foundation to send.**

3 **Touch the Reels/Library button and select Prefs from the popup menu.**

4 **Select the "TC output offset" field and press [Data]**

5 **Press [Hold] to calculate the timecode output offset.**

The output offset appears in the "TC output offset" field.

6 **To edit the offset time, use the [+] and [−] buttons.**

7 **When the "TC output offset" is correct, press [Data] to close the field.**

Chasing timecode

When the Chase button is on, the Foundation follows the incoming timecode from an external machine, such as a video deck. The Foundation locks to the timecode entering the LTC or VITC port, depending on which port you selected in the TC source field on the Reels:Prefs display. If you specified a timecode offset, it is included in the displayed time.

Locking to an external machine

Chase
Locking playback to
incoming timecode.

■ **Press and light** [Chase]

During the time that it takes for the two machines to lock up, the Lock LED on the Edit Controller blinks. When the two machines are locked and in sync, the Lock LED lights solid.

● Timecode   ○ Word Clock   ○ Video Sync   ● Lock

MIDI timecode

The Foundation can send MIDI timecode, and can send and receive MIDI machine control messages. MIDI timecode messages are sent while the Foundation is recording or playing, and after rewinding, fast forwarding, shuttling, jogging, and locating.

See "Machine Control" earlier in this chapter for more information about MIDI machine control.

Sending MIDI timecode

1   **Connect the Foundation's MIDI Out port to the MIDI In port of a MIDI sequencer or any device that reads MIDI timecode messages.**

2   **Touch Reels/Library and select Prefs from the popup menu.**

3   **Set the MTC Out field to "on."**

The MIDI timecode frame rate and format (24, 25, 29.97, 30 fps, non-drop or drop frame) are determined by the LTC settings in the TC Source fields. The output offset is applied to both LTC and MIDI timecode. Therefore, the Foundation's MIDI timecode output is always equal to its LTC output.

The MIDI specification supports only four timecode rates (30 fps drop or non-drop, 25 fps, 24 fps). If you set the TC Source field to some other value, such as 29.97 fps, the Foundation will send MIDI timecode at that rate. Some MIDI devices may follow that timecode better than others.

Digital transfer

Digital audio can be transferred to the Foundation 2000RE using AES, SPDIF, ADAT or SDIF2 formats. The Foundation can be either the source or destination device during the digital transfer of audio.

When you're transferring digital audio, the sync reference indicates the source of the word clock that insures sample accuracy between the two devices. The digital audio format must be compatible with the sync reference. You can set the sync reference on either the I/O:Patch Bay display or the Reels:Prefs display.

* SDIF2 audio cannot be used with ADAT optical, AES or SPDIF sync references.
* ADAT audio cannot be used with AES or SPDIF sync references.
* AES audio cannot be used with ADAT or SPDIF sync references.
* SPDIF audio cannot be used with ADAT or AES sync references.

Please refer to the Recording chapter for more information about the Patch Bay display.

Transferring digital audio

Transferring digital audio to the Foundation

1 Connect the source machine's digital output to the appropriate input on the Foundation.

2 If you're using SDIF2 inputs, connect the source machine's word clock output to the Foundation's Word Clock input.

3 Touch the I/O button and select Patch Bay from the popup menu.

4 Select the appropriate settings to route the digital inputs to the tracks.

5 Make sure the Reference field is set to a sync source that is compatible with the digital input.

6 Touch the Reels/Library button and select Prefs from the popup menu.

7 Set the Int. Sample Rate field to the sample rate of the digital input.

8 Ready the tracks on which you want to record.

        Record   *Play*
9 Press [●] and [▶] on the Foundation to start recording.

10 Put the source machine into play.

11 Press Stop on both machines when you are finished transferring audio.

To insure sample accuracy when transferring digital audio to the Foundation, connect only one source machine at a time.

Transferring digital audio from the Foundation

1 Connect the appropriate digital output from the Foundation to the digital input on the destination device.

2 If you're using SDIF2 outputs, connect the Foundation's Word Clock output to the destination device's word clock input.

3 Set the destination device to external clock.

4 Touch the I/O button and select Patch Bay from the popup menu.

5 Select the appropriate settings to route the tracks to the desired digital outputs.

6 Ready the desired tracks and start recording on the destination device.

        Play
7 Press [▶] on the Foundation.

8 Press Stop on both machines when you are finished transferring audio.