If you later change your mind about how you want your default Time Line Cue List to be set up, just change the Time Line Cue List to what you want and use the Save Default command again.

Record A Track

Select the Track

1. Click the Track Select button on the first track. The Track Select button is to the right of the track's Name button, and it looks like an arrow when it's selected. A track will turn dark blue when it is selected. Only the selected track will be used for recording.

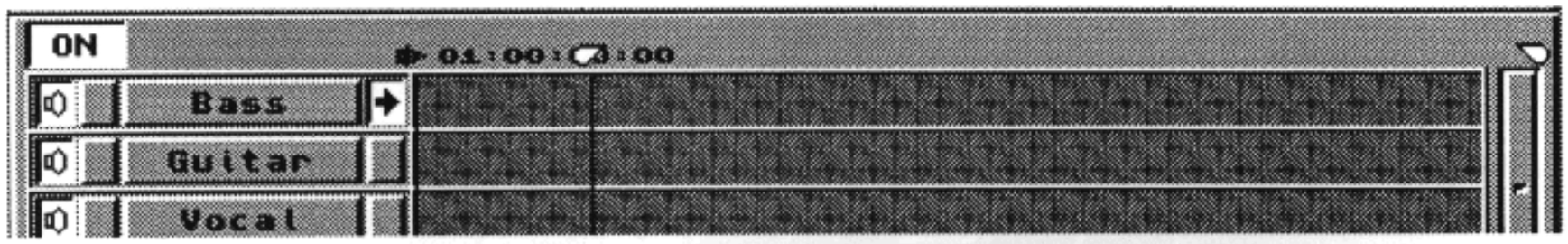

Figure 6-26. Bass Track Selected

NOTE AD516 Only - Record stereo samples by shift-clicking multiple tracks. Set one track to record "Input L" and the other to record "Input R".

Set the Input Levels

1. It's important to set your levels carefully before you record a sample. To monitor levels, select the Meters command in the Applications menu to open the Meters.

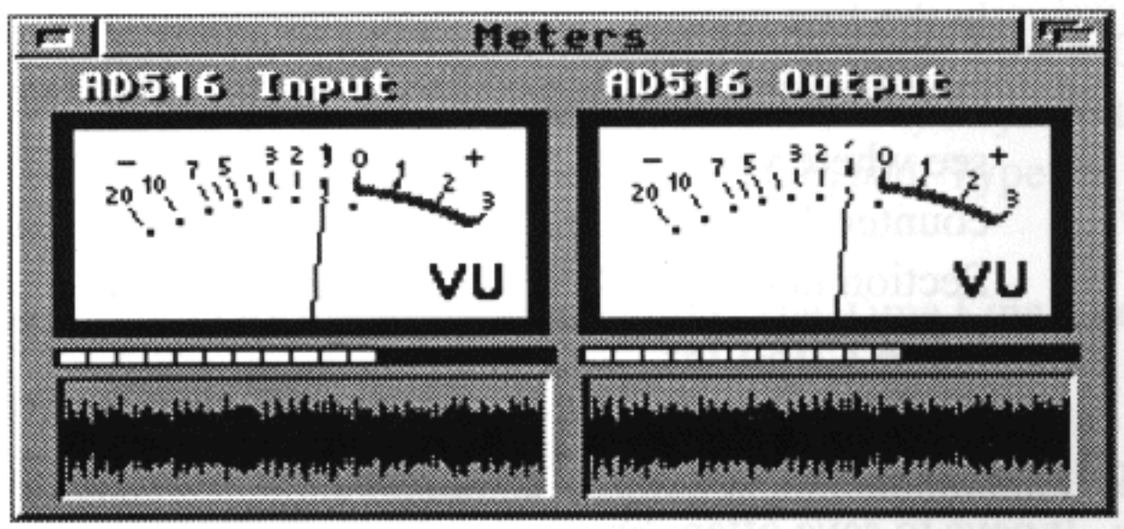

Figure 6-27. Meters

2. Click the Meters to select it, then look at the Channels menu and select "Input". Other selections can also be selected. Then move the Meters window so it doesn't obstruct the Time Line Cue List.
3. Now in the Cue List, click on the Name button for Track 1 to open the Audio Track Parameters. At the bottom left of the requester is a Gain slider. This slider lets you increase the input gain into your SunRize card. When you click on the slider and hold down the left mouse button, you will be able to see your SunRize card's input level displayed on the Input meter in Meter.

4. Click the Gain slider, play or sing your loudest note, and watch the Input meter.
5. If you can't play and click on the Gain slider at the same time, there's another way to see the input level. Open the Mixer and drag the Input level slider up to +00 dB. Then you don't have to hold down the left mouse button over the Gain slider.
6. As you watch the Input meter, adjust the gain on your hardware mixer so that the loudest note is as high as possible without going into the overload area of the Studio 16 Input meter on your screen.
7. The overload area is above +00 dB. It's marked in a different color than the rest of the meter. Going into the overload area will cause clipping, which creates an annoying distortion. On the other hand, recording at a low average level can add noise to the signal. Also, low average signals don't take full advantage of the dynamic range of your SunRize card. The key is to record at as high a level as you can without clipping.
8. Meters lets you watch three types of metering. The LED-style metering is the most responsive to watch for setting input gain. Different color "LEDs" on the right show overload. The scrolling graph shows a history of the last few moments of the input and you can see overload when the graph touches the edge on the top and bottom. The analog-style metering shows overload as a different colored area of the meter on the right just past 0 dB.

NOTE Always set your hardware mixer's input gain, channel gains and output gains for best performance. Any noise or distortion you add with your mixer before the SunRize card's input will be faithfully recorded by your SunRize card. Consult your hardware mixer's manual for instructions on setting the levels there.

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9. If you have your hardware mixer set up correctly and you still can't get enough level showing on the Studio 16 Meter, adjust the Gain slider in Audio Track Parameters until you have a good level. With proper input level settings your SunRize card will make excellent digital recordings.

Record a Take

1. Click the Record button.

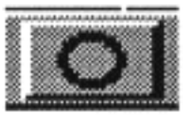

Figure 6-28. Record Button

2. Turning on the record button prepares the Time Line Cue List for recording. Now when you play the Time Line Cue List, and the Position flag passes the Punch-In flag you will be recording on the selected track. The selected track is now red. This indicates where the recording will take place.

3. Click the Play-From-Start button.

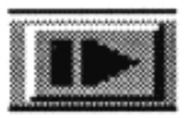

Figure 6-29. Play-From-Start Button

4. You now have 10 seconds to get ready to play, sing or talk your way through your first take. When the Position flag passes the Punch-In flag, you're recording.
5. When you're done with your performance, click the Stop button right away to stop recording.

Figure 6-30. Stop Button

6. If you don't hit the stop button right away, the recording will continue until the position lines passes the Punch Out flag. You will be recording and eating up hard drive space even if you've stopped singing or playing.
7. Listen to the take by clicking the Record button to turn it off.
8. Then click the Play-From-Start button again to hear your performance. When it's done, hit the Stop button.

Get Rid of a Bad Take, if Necessary

1. If you don't like your performance, click on the new sample to select it. Then choose the Delete Selected command in the Entry menu. This will delete the sample from your hard disk forever.

NOTE Delete erases the take from hard disk. There is no Undo for Delete.

2. Once the old take is gone, repeat the Record a Take section of this tutorial.
3. Record two more tracks.
4. Once you have a take you like, repeat the above procedure for the second and third tracks. Where it says Track 1, use Track 2 and then Track 3. Have fun recording more parts to your masterpiece of experimentation.

Add a Solo

1. OK, you now have three tracks recorded, you've saved your Cue List, and you're ready to add a solo on your fourth track.
2. Move the Punch-In and Punch-Out flags. Let's not add the solo to the beginning of the piece. Instead let's add it a few measures in. You decide where the solo should start, and move the Punch-In flag to that time. If the Punch-In flag is a few seconds before the actual time you want to start the solo, that's fine.

3. Then decide where the solo should end and move the Punch-Out flag to that time. That way recording will stop when the Position flag passes the Punch-Out flag, and you won't have to jump to hit the Stop button so quickly. You'll still need to hit the Stop button to stop playback of the other tracks.
4. By the way, the Period key . on the numeric keypad will always stop the Time Line Cue List. The keypad's Enter key will stop the Time Line Cue List if it's playing, or start it from where the Position flag is if it's not playing.
5. Select the fourth track.
6. Add a Locate flag. There are 10 locate flags, tied to the function keys on your keyboard. Lets add one now to mark a spot before the Punch-In flag where we want to start the Time Line Cue List Playing. That way you'll have a few measures to hear the other tracks before you start performing the solo.
7. Move the Red Position flag about five seconds before the Punch-In flag.
8. Now hold down the shift key and hit the F1 function key at the top of your keyboard. You've just added a F1 locate flag right where the Red Position flag is.
9. Let's name the locate flag. Double click the F1 flag to open the Flag requester. Type the word "Solo" in the comment field and hit the return key on your keyboard. Now the word "Solo" is next to the F1 Locate flag on the Cue List.

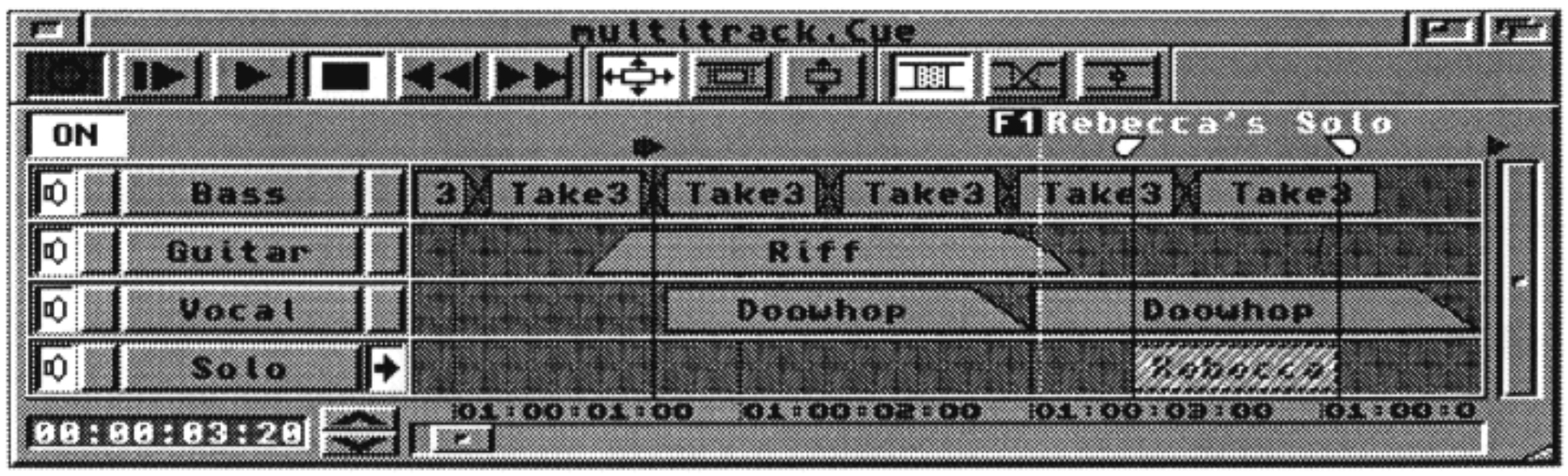

Figure 6-31. Multitrack Cue List with F1 Flag Set

10. Type the (key on the numeric keypad so the Position flag jumps to the Punch-In flag location. Now type the F1 key. The Position flag jumps back to the F1 locate flag.
11. With the position flag at F1, record the solo by turning on the Record button, and clicking the Play button. Do not use the Play-From-Start button this time.

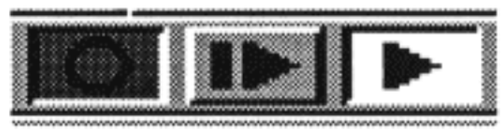

Figure 6-32. Record and Play Button Selected

12. When you click the Play button the Time Line Cue List plays from the Red Position flag. Since we moved the Red Position flag to the F1 Locate flag, the Time Line Cue List plays from there.
13. When the Position flag passes the Punch-In flag, you're recording.
14. When it passes the Punch-Out flag, you're done. Click the stop button and playback your performance. Don't forget to turn the Record button off before you listen.
15. If you don't like your solo, delete it and do another one.

Punch In To Fix a Mistake

1. Lets pretend you made a mistake in the middle of Track 3. What we're going to do is replace the middle of your take in track 3.
2. Move the Punch-In and Punch-Out flags. Just pick a short section that you can replace by punching in and out. Move the Punch-In flag to where you want to start recording. Then move the Punch-Out flag to where you want to stop recording.
3. Add another Locate flag. Add the F2 Locate flag about 5 seconds before the Punch-In flag. Remember how you added the F1 flag above? Just move the Position flag to about 5 seconds before the Punch-In flag. Then hold down the shift key and type the F2 function key on the top of your keyboard.
4. Just for fun, type F1. Notice how the Time Line Cue List view and the Position flag jump to the F1 Locate flag. Now type F2. The Time Line Cue List view and the Position flag jump to the F2 Locate flag. Locate flags are very useful for moving around in a project, and it's much faster than shuttling tape!
5. Name the F2 Locate flag "Punch". Double click the F2 Locate flag, and type "Punch" into the Comment field of the Flag requester.
6. Select track 3 by clicking the Track Select button on the third track.
7. Turn on the Record button.

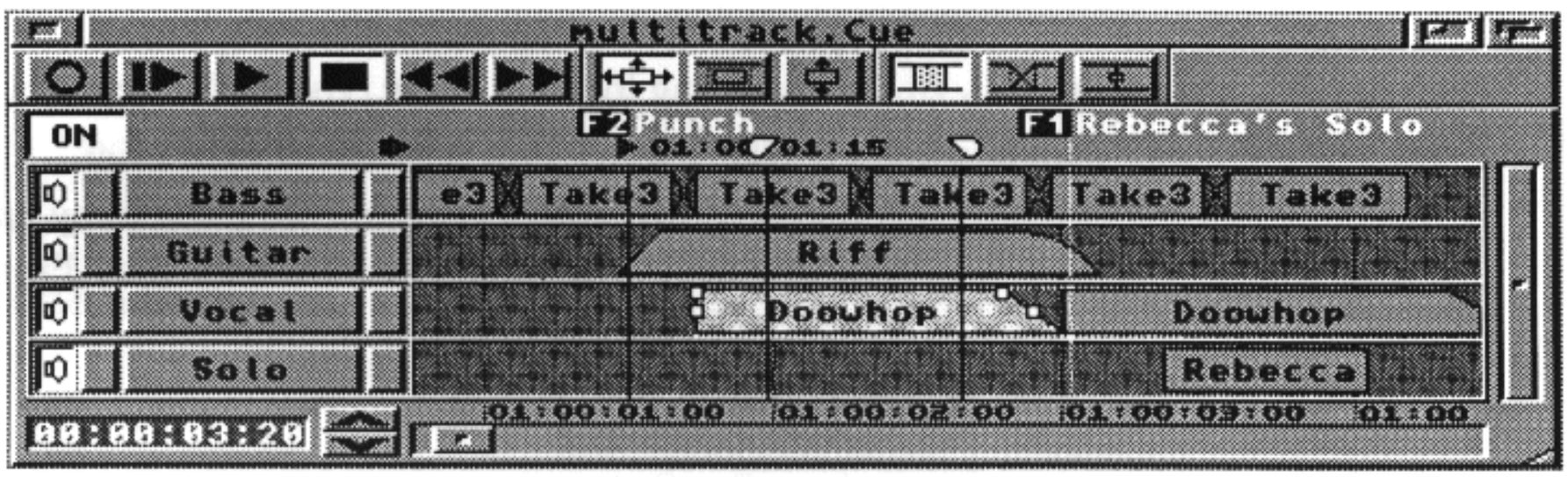

Figure 6-33. Multitrack Cue List Ready for Punch In and Punch Out

8. Type the F2 key to set the Position flag on the F2 "Punch" locate flag.
9. Click the Play button (or hit the Enter key on the numeric keypad).

10. You now have about 5 seconds to get ready to play, sing or talk your way through the punch. When the Position flag passes the Punch-In flag, you're recording.
11. When it passes the Punch-Out flag, you're done recording.
12. Since you're adding a new Audio entry on top of an existing Audio entry, the Overlap Contention requester will appear.

Figure 6-34. Overlap Contention

13. Click the stop button to stop the Time Line Cue List. You'll have to use the mouse since the Cue List is not the active window.
14. Now choose how you want the new Audio entry to integrate with the existing Audio entry by clicking either of the top buttons on the Overlap Contention requester. (Left & Right Butt or Left & Right Crossfade)

    If you want the punch to start immediately at the punch-in point and end immediately at the punch-out point, with no overlap between the old Audio entry and the new one, select Left & Right Butt. This is how punching works on many tape decks.

    If you want to cross fade from the old Audio entry to the new Audio entry at the start of the punch, and then cross fade back from the new Audio entry to the old one at the end of the punch, select Left & Right Cross Fade. Some tape decks automatically create a slight cross fade at the edit points to smooth over the punch.
15. In either case, no matter which you select, your choice is non-destructive. You can change the edit type, cross fade length and curve later if you wish.
16. After you click a button on the Overlap Contention requester, you will see the new Audio entry appear on the track. What has happened is that there are now two copies of the old Audio entry, one before the punch and one after. Both have been automatically cropped so that they are still playing your first performance exactly where they should. The new Audio entry has been inserted between them for a perfect punch.
17. Turn off the Record button and listen to your punch by typing the F2 key on your keyboard and hitting the keypad's Enter key.
18. If you don't like the performance, click the punch entry and use the Delete Selected command in the Entry menu to delete it forever. Then use the Undo

command in the Options menu to remove the second copy of the old entry and stretch the first copy back to its full length. Then you can record the punch again.

Change Volumes and Pans

You can change volumes and pans for your multitrack masterpiece the same way you did with the Audio entries in the first tutorial. Or you can use the Mixer to use a set of sliders like a standard mixer.

For instructions on using the Mixer, see the Mixer Reference Section in Chapter 8. Here are some important guidelines when using the Time Line Cue List and the Mixer together:

- Activate Use Mixer Levels in the Options menu. If it is not activated the Cue List will ignore the Mixer and use the Volumes and Pans set for each entry in Audio Entry Parameters.
- Set the output of each track to play on a specific channel like we did in this tutorial. If each track is set to play on "Any" in the Audio Track Parameters requester your tracks will jump around from channel to channel, and your Mixer fader settings will not have an effect.

Slide a Track In Time (Using Group)

Here's a cool technique. You can select all the Audio entries on a track and slide them all earlier or later in time together. This can be very useful for moving a rhythm track's entries so that they're pushing the beat (slide them earlier) or so they have a laid back feel (slide them later).

To try this out, and to learn how to select two tracks at once, lets move the entries on tracks 3 and 4 together. You'll also learn how to group entries in this exercise.

1. Click the Track Selection button for track 3. (It's the one that turns into the arrow, just right of the Track Name button.)
2. Hold down the shift key on your keyboard and click the Track Selection button on track 4. The Track Selection buttons for both track 3 and track 4 should now be selected (they should look like arrows). Let go of the shift key.
3. Click on any track in the Time Line Cue List, in a place where there are no entries. This deselects all entries. Choose the Select All On Track(s) menu item in the Entry menu. Now all the entries on tracks 3 and 4 are selected.
4. Choose the Group command in the Entry menu. Now when you move any of the entries on tracks 3 or 4, all the entries will move together.
5. Move the entries. You guessed it. Drag any entry with the mouse and all the entries in the group will follow.

   If you move them to the left, you'll cause them to push the beat. If you move them to the right, you'll cause them to be laid back. Minor moves can make a big difference. Major moves can really screw things up.

Don't worry, play around with it, listen to how it sounds each time you drag them, and then use Undo to get them back to where they were before. If you move them more times than you have undo steps, just reload the Cue List from your hard drive. (You have been saving frequently, haven't you?)

NOTE You can set the number of Undo steps in Cue List Preferences.

6. If you decide to move any one of the entries in the group by itself, click any member of the group. Then use the Ungroup command in the Entry menu. Now all the entries are individually movable again.

Edit a Sample

Studio 16 has a graphic Editor that gives you a powerful set of tools for editing your samples. You can access the Editor directly from the Time Line Cue List.

1. Choose an entry in the Cue List by clicking the Audio entry you want to edit.
2. Use the Edit Selected command in the Entry menu to open an Editor. The sample used by the Audio entry will load into the Editor. For more on using the Editor, see its Reference Section in Chapter 8.

Keep in mind that if any other Audio entries in this or another Cue List use the same sample, any changes you make to the sample in the Editor will show up in those Audio entries also. In the case of this tutorial you don't have to worry about that, so go ahead and experiment.

Mute and Solo a Track

You can use the Time Line Cue List's muting and soloing abilities to hear only the tracks you want to hear.

1. Click the Sound buttons on track 1, track 2 and track 3. The Sound buttons are the first buttons on the left for each track. When they're on they look like speakers. Turn them off.

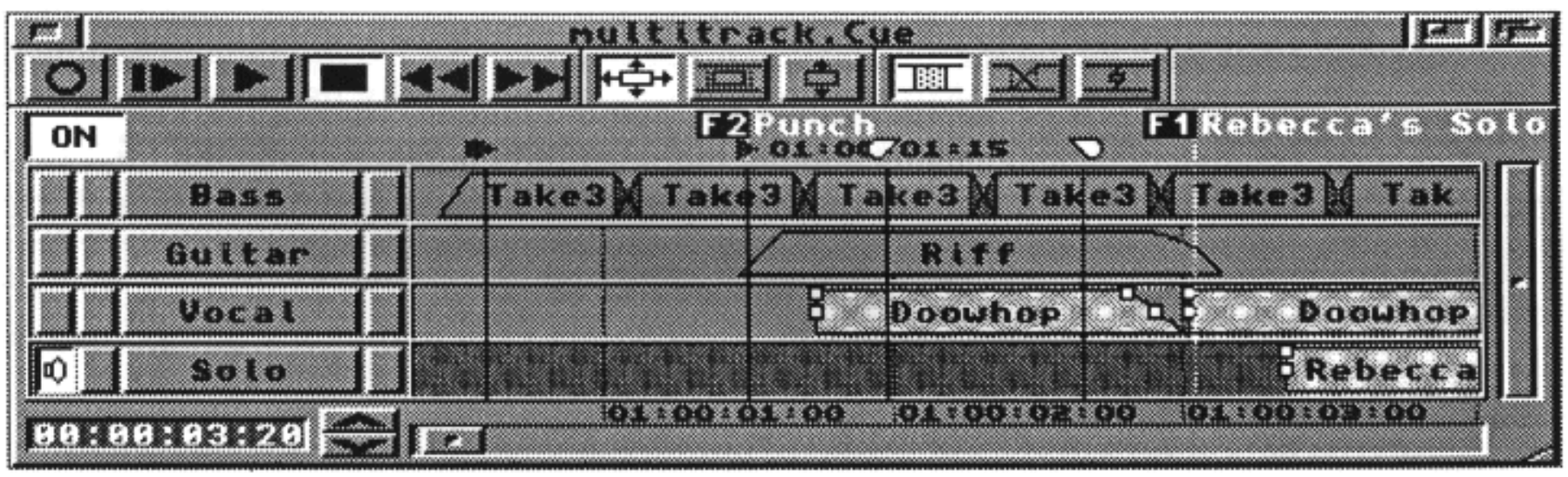

Figure 6-35. Multitrack Cue List with Track 4's Sound Button ON

2. Now Play the Time Line Cue List. Only track 4 will sound.
3. Now do the same thing with a Solo button. Turn on all the Sound buttons again.

4. Click the Solo button for track 4. When a Solo button is on it looks like headphones.

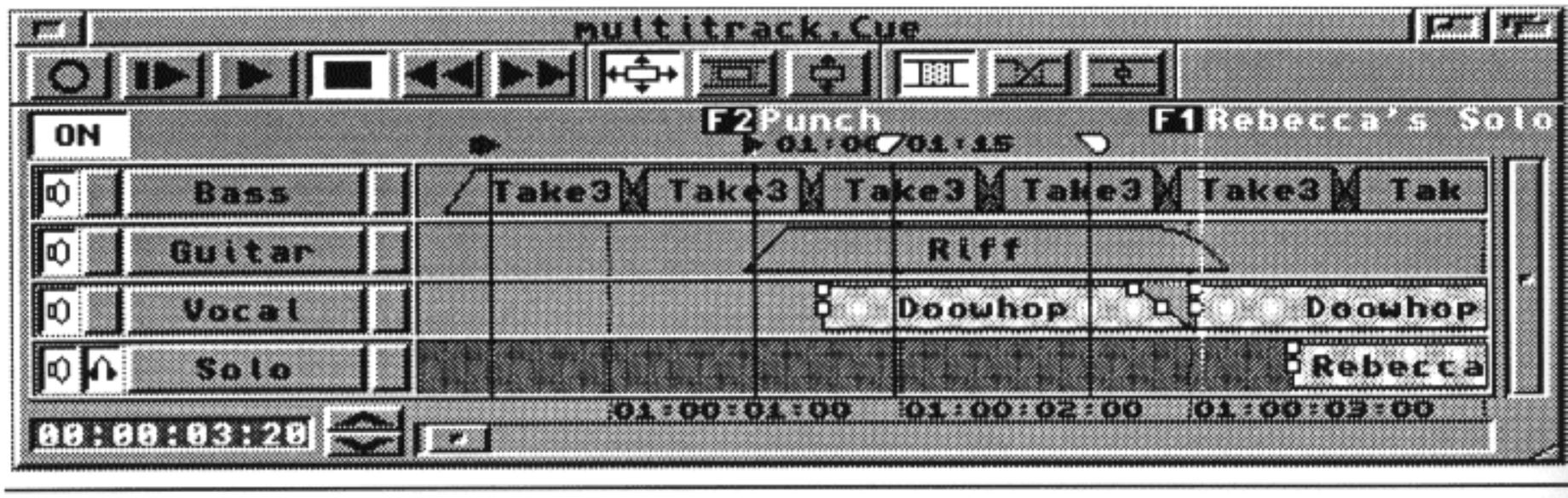

Figure 6-36. Multitrack Cue List with Track 4's Solo Button ON

5. Now Play the Time Line Cue List. Only track 4 will sound, just like before. But it's much easier to click a single Solo button than to turn off three Sound buttons.
6. Any time you have one or more Solo buttons on, the Sound buttons are overridden and make no difference. Put another way, the Sound buttons only have an effect when all Solo buttons are off.
7. This lets you set up the tracks you want to hear by selecting their Sound buttons, but you can at any time listen to one track alone by clicking its Solo button. Then, when you turn off the Solo button, you'll again hear just the tracks that have their Sound buttons on.
8. Solo buttons work with the shift key to let you solo several tracks at once.
9. Click the Solo button on track 1.
10. Hold down the shift key on your keyboard and click the Solo button on track 2, then let go of the shift key.
11. Now Play the Time Line Cue List. Only track 1 and 2 will sound.

To turn off the Solo buttons on both tracks, turn the Solo button off on either track.

NOTE Muting and soloing are especially useful when you arrange similar entries on the same tracks. For example, if you're working on a movie, put all the dialog for each actor on their own tracks. Then you can solo one track to listen to one actor's lines.

Congratulations on completing the Multitrack Recording tutorial. Many of the techniques you learned here will also apply to other kinds of projects.

Don't forget to save your masterpiece for posterity (or destroy it quickly before it has a chance to reproduce, depending on how it sounds). Seriously, do keep it around for further experimentation if you have the hard drive space to store the samples. One of the best ways to learn the Time Line Cue List and other parts of Studio 16 is to experiment, and your two tutorial projects are perfect for further experimentation.

Troubleshooting

The following symptoms and their solutions are covered in this chapter.

- Not being able to hear input
- Not being able to hear playback
- Can't select correct sampling rate in Editor
- Card communication errors
- Cue List won't trigger
- Samples loosing sync in Cue List
- Flashing screens, "overload errors", or skipping, missing or repeating sound
- Flickering screen on an A4000
- Full hard disk
- Gain won't adjust
- Graph doesn't match sound
- Hard disk read/write errors
- Installation problems
- Modules don't open when selected

If the following recommendations do not solve your problem, call SunRize technical support for more information.

Not Being Able to Hear Input

A. Problem Mixer level is set too low.

Solution Open the Mixer from the Applications Menu, and set the Input and Output Channels' volume level to +00 dB.

B. Problem Input cables are not connected correctly. (You know this is the problem if you don't see Meter activity on the Input channels.)

Solution The audio In jack(s) must be connected with an RCA patch cable to the line out of an audio source. Turn your audio source on.

C. Problem Gain chip is malfunctioning -- only a possibility on the AD1012.

Solution If you do not see activity on the input channel of the Mixer, and you're sure your audio source is connected properly, the Digital Pot on the Gain circuit may be bad. Especially if you can barely hear the playback, or changing the gain level has no effect on the volume. Call SunRize technical support if you suspect this problem.