Cakewalk® Pro Audio™ 6.0

for Windows 95

README.RTF

This file contains information on Cakewalk® Pro Audio™ that became available after the printed documentation went to press. If you enlarge the document window to its maximum size, this document will be easier to read. To do so, click the Maximize button in the top-right corner of the window. You can also open the Control menu in the top-left corner of the window (press ALT+SPACEBAR), and then choose the Maximize command.

To move through the document, press PAGE UP and PAGE DOWN, or click the arrows at the top and bottom of the scroll bar along the right side of the window.

To print the document, choose the **Print** command from the **File** menu.

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General information

Press F1 for context-sensitive Help

Remember that you may press the **F1** function key at any time to get help related to what you're doing in Cakewalk Pro Audio.

Web

Please visit us on the World Wide Web at www.cakewalk.com

Newsgroups

The Cakewalk newsgroups are discussion forums that let you trade tips, advice, and success stories with other Cakewalk users. Here are four Cakewalk newsgroups in which you can participate:

Beginners

`news://news.cakewalk.com/cakewalk.beginners`

The cakewalk.beginners group is for users new to Cakewalk, MIDI, and digital audio.

General

`news://news.cakewalk.com/cakewalk.general`

The cakewalk.general group is for general Cakewalk and MIDI issues.

Audio

`news://news.cakewalk.com/cakewalk.audio`

The cakewalk.audio group focuses on issues related to digital audio.

Coffeehouse

`news://news.cakewalk.com/cakewalk.coffeehouse`

The cakewalk.coffeehouse group is for chatting and brainstorming with the Cakewalk community, from exploring music composition techniques to trading secrets for mastering projects at home like a pro.

If you're using a dedicated newsreader like Free Agent or Microsoft Internet News, just point the application toward the server `news.cakewalk.com.` If you need help accessing any news server, including Cakewalk's, please consult the documentation for your newsreader program or the customer support for your online service or Internet Service Provider.

Driver Included with Cakewalk Pro Audio

Most drivers you will use are either included with Windows 95 or provided by the manufacturer of the MIDI interface or sound card. However, we have included our driver on the Cakewalk Pro Audio diskette.

IMPORTANT! If you have a SCSI hard drive controller, be sure to thoroughly read the "WARNING: SCSI Hard Drives" section of this README!

Roland MPU-401 and compatibles

Windows 95 includes a driver for MPU-401 compatible MIDI interfaces, but you may want to use our driver instead. The Cakewalk driver can be opened for output by more than one program at the same time, so that you don't have to quit one MIDI program before starting another.

> **Important:** Be sure to **Remove** the Microsoft driver before you **Add** ours. If both drivers are installed, you will experience problems.

Please see the Cakewalk Pro Audio *User's Guide* for instructions on adding or removing drivers using the Drivers icon of the Windows Control Panel. Insert the Cakewalk Pro Audio disk in the drive when prompted.

Additions and corrections to the 6.0 documentation

We added or refined some features in Cakewalk Pro Audio 6.0 after the manual went to press. Read this section thoroughly for information about these changes. Other corrections and clarifications to the manual are also found below.

Working with linked clips

Selecting linked clips

While in Track view, you can select all of the clips (if any) that are linked to a clip. To do this, right-click on any linked clip in the Track view Clips pane and choose **Select all Siblings**.

Linked clips and StudioWare view

When you take snapshots and record widget movements in StudioWare view, Cakewalk inserts the events (such as volume Controller messages) into clips. If the clips are linked, you will get multiple instances of the events, which may be what you want. However, if you want to avoid this, set up a fresh extra track (with the same port/channel as the track containing the linked clips) and record the widget events in that extra track.

See the "Track View" chapter in the *User's Guide* for more information on clip linking. See the "StudioWare View" chapter to learn more about recording widget movements.

Piano Roll view enhancements

Selecting notes of a single pitch

In Cakewalk 5.0, you could drag notes in Piano Roll view by double-clicking on the piano keys or note names at the left of the view. This has changed somewhat to give you more editing power. In version 6.0, you can use the keys or note names (at the left of the view) to select all note events that have the same pitch or MIDI note.

This new method is more flexible, because you can select all notes of a single pitch (or several pitches) first, then move or edit the notes. For example, you can click on C4 to select all notes of that pitch, then drag the notes to different pitches or times. You can also apply editing commands to just the selected note events.

To select and move notes of a single pitch:

1. Click on the Selection tool (the arrow-shaped tool at the upper left of the Piano Roll view) to enter Select mode.
2. Click once on the piano key or note name in the keyboard pane at the left of the Piano Roll view. This selects all notes of that pitch in the track; you'll see them highlighted in the note pane. To select notes having several pitches, hold the mouse button and drag up or down to select the pitches you want.
3. Click once on any of the selected notes in the note pane.
4. While still holding the mouse button, drag the notes to the location you want, and release the mouse button.

You can use Shift+Click to add notes to the selection, and Ctrl+Click to toggle between adding to or removing from the selection.

Moving and copying Controller events

This section corrects information on page 180 in the *User's Guide*.

You cannot drag-move or drag-copy selected Controller events in the Controllers pane of the Piano Roll view. To move or copy Controller events with drag and drop, you must first select them by clicking and dragging in the time ruler. This is called a "deep selection," because you have selected all of the track's events in that time span, including note events and Controller events. Now you can move or copy the notes, and the Controllers will be moved or copied too.

You can also copy, move, and delete Controller events *without* affecting other data. First select the desired Controller events in the Controllers pane, then use the Edit menu's **Cut**, **Copy, Paste,** or **Delete** commands. The Ctrl+X, Ctrl+C, and Ctrl+V keyboard shortcuts also work, as well as the Delete key.

Staff view enhancements

Percussion notation "ghost stroke" support

In percussion notation, parentheses around a note mean that it is a "ghost stroke," played very lightly and barely heard. Cakewalk currently supports this by displaying parentheses around any percussion note event with velocity less than 32, a fixed, arbitrary threshold. You can adjust the Vel+ of the track vs. the velocities of the individual notes to effectively move this threshold without changing the way the note sounds.

Inserting measures

The *User's Guide* mentions an "Insert Measures" command. It is mistaken. If you want to open up measures of silence in a song, you can use any one of the following methods:

- Select the events and use the **Cut** and **Paste** editing commands (or the Ctrl+X and Ctrl+V keyboard shortcuts for these commands.)

-or-

- Split the clips where you want the empty measure. Select the clips, right-click on them, and choose the **Split** command (see the *User's Guide* for steps on using **Split.**) Next, turn Snap to Grid on, and set the Snap to Grid value to Whole note. Then drag the newly-split events over by one or more measures.

-or-

- In some cases, you can use the **Edit | Slide** command for inserting measures. Keep in mind though that the **Slide** command won't move tempo and meter/key changes.

An important note about ActiveMovie

Microsoft has changed the name of their ActiveMovie technology, a plug-in format that Cakewalk Pro Audio uses for audio effects. As of March 31, 1997, the official name of this technology is *DirectX*.

The Cakewalk 6.0 *User's Guide* describes an "ActiveMovie" menu that appears on the **Edit | Audio** submenu, and in the Audio view's **Inspector** menu. You access the DirectX plug-ins through this menu, or through the **Edit | Audio | ActiveMovie** submenu.

Audio plug-ins that use the ActiveMovie/DirectX format work as described in the *User's Guide*. See the "Audio Editing Commands" and "Effects View" chapters for details.

Exporting audio events as Wave files

You can use the **File | Utilities | Export Audio to Wave** command to export audio events as a stereo .WAV file. However, **Export Audio to Wave** is not intended as a general-purpose "mixdown" function; it won't always recreate exactly what Cakewalk plays. Your exported Wave files may sound slightly different from the audio you hear when playing back your sequence, in two ways:

5. Any Controller 7 (volume) and Controller 10 (pan) events that appear in audio tracks will be left out of the exported audio. All audio volume will be computed solely on the basis of the track Volume, Pan, and Vel+ properties, plus each event's velocity.

6. The newly-exported files will not include any real-time effects added in the Effects view. Real-time effects are added "on-the-fly" during playback, just like effects that you might add during mixdown using outboard effects processors. Therefore, the real-time effects are never stored permanently as audio. This lets you use the same audio events in different songs, with different effects each time.

If you want to create .WAV mixdowns of your audio tracks, here's one method (you need a full-duplex sound card, preferably with digital I/O): Arm a fresh pair of audio tracks for recording. Route the output of the sound card to the input. Next, start playback/recording in Cakewalk; this re-records the final output mix into the fresh pair of tracks. Finally, select only those two tracks, and choose **Export Audio to Wave**.

If you don't have a full-duplex sound card, try this instead: Copy the audio you want to export to one or more unused "scratch" tracks and use the effects commands in the **Edit | Audio** submenu on the copied audio. (Be sure not to use linked clips in these scratch tracks!) For more about these commands, see the "Audio Editing Commands" chapter in the *User's Guide*. When you're done exporting waves, you can just delete or archive these scratch tracks.

Tip: If you've worked hard at tweaking your effects parameters for playback, and you want to apply the same settings to the copied audio, be sure to take advantage of Cakewalk Pro Audio's Presets feature. Presets let you easily save and recall your Cakewalk effects settings for use at any time, even in different song files. You can read more about Presets in the "Navigation" chapter in the *User's Guide*.

Real-time effects and processor speed

To properly use real-time effects in Effects view, you need a computer with a Pentium 100 MHz or faster processor. Even with such a powerful CPU, there is a limit on the number of effects you can use simultaneously. Furthermore, different types of effects are "more expensive" in terms of how much CPU they consume. For example, Reverb is relatively expensive, whereas the 2-band EQ effect is relatively inexpensive.

A good strategy is to use an expensive effect like Reverb in an Effects Loop. That way, you can have several audio tracks share one effect. You can then individually adjust each track's send and return levels.

Finally, no matter how slow your CPU is, you can always use any effect by applying it to the audio as an off-line edit command. See the "Audio Editing Commands" chapter in the *User's Guide* for more information on these commands.

Track volume and audio event velocities

If you try using an older version of Cakewalk to play files created in Cakewalk 6.0, you may notice that audio tracks play back at a different volume. This is because Cakewalk 6.0 uses a different technique for mapping track volumes and event velocities to audio volumes (in dB.) Note, however, that 6.0 will always play back older files at the proper volume.

StudioWare Tutorial correction

Step 4 under "Create new Widget Properties" (on page 115 of the *User's Guide*) is wrong. The step should read:

4. Choose "Pitch Wheel" in the Primary Action Kind field. Then type "Track2Pitch" in the Amount field.

StudioWare enhancements

StudioWare view and audio tracks

When you select one or more tracks playing on audio ports and choose **View | New | Panel**, the Panel is different than it is for a MIDI track. You get an Arm button and send and return level controls for Effects Loop 1. This makes it easier to work with real-time audio effects that you have set up in that Effects Loop in the Effects view.

Arm button

Audio tracks have an Arm button instead of the Chorus knob supplied for MIDI tracks. This kind of button will be familiar to anyone who uses multitrack recording gear — the button lets you arm (record enable) or disarm (record disable) the track. Having an Arm button is especially useful for audio tracks, as opposed to MIDI tracks, because you often need to arm multiple audio tracks at once.

Note that on a generic Windows sound card, you can only arm two tracks at a time, because there are only two input channels available. If you try to arm a third track, Cakewalk will automatically disarm some other track. Odd-numbered tracks are always armed for the left channel, and even-numbered tracks are armed for the right channel.

Send knob

Panels for audio tracks also have a Send knob instead of the Reverb knob supplied for MIDI tracks. The Send knob is assigned to Controller 91, channel 1 (i.e., the send level out to Effects Loop 1.) So if you've put effects in Effects Loop 1 in the Effects view, the Send knob is a quick and easy way to control the send level.

Return cluster

Any Panel containing at least one audio track has an extra "Return" cluster. The Return cluster controls the volume and pan of the return level coming in from Effects Loop 1. In other words, the Return cluster's Pan knob has been assigned to Controller 93, channel 1, and its Volume fader has been assigned to Controller 92, channel 1. Just as with send levels, these controls make it easy to control and automate effects return levels.

Widget Properties Channel field

There is a "Channel" property in the Design mode Widget Properties dialog. This field appears when you select an Action Kind that sends events via MIDI. The Channel field selects the MIDI channel on which the widget will send its events. You can choose 1-16, a simple alias, a calculated expression, or a formula.

Closing a StudioWare view

If you have changed a StudioWare Panel in Design mode, and you try to close the StudioWare view without saving it first, you will see a warning. Click Cancel and click the Save button to save the Panel, or click OK to discard the Panel.

If you save a workfile, any open Panels will be saved as part of the workfile. Note that if you want the Panels to be open when you reload the song file, you must check "When Opening a File, Load its Layout" under **View | Layouts**.

You can save a Panel at any time by clicking the StudioWare view's Save button. This will let you use the **View | Layouts** command to open the Panel and use it with any workfile.

Advanced Panel programming

The text at the bottom of page 299 reads: "A complete description of the expression syntax is beyond the scope of this manual, but some samples follow:" The samples were omitted; they are shown below:

Formula:	**Example:**
x = y	Alias x is assigned the value of alias y whenever the value of alias y changes.
x = y + 2 * z	Alias x is assigned the value of alias y plus 2 times the value of alias z whenever either y or z changes.
x = (y + 2) * z	Alias x is assigned the value of alias y plus 2, then multiplied by the value of alias z whenever either y or z changes.
x = y | z	Alias x is assigned the value of alias y bitwise ORed with the value of alias z whenever either y or z changes. If y==0xF0 and z==0x0F, then x is set to 0xFF.

Widget bitmaps

Horizontal and vertical slider bitmaps
You may notice that horizontal sliders use the same "thumb" as the vertical sliders. You can change this by entering Design mode, right-clicking on the slider, and choosing **Foreground Bitmap**. Click "None" in the dialog box that appears. This will change the slider's thumb so that it better fits the horizontal slider.

To go back to the thumb for a vertical slider, enter Design mode, right-click on the slider, and choose **Foreground Bitmap**. Then click Default, and the slider will return to its original look.

Suppressing the display of all widget bitmaps
You can force Cakewalk to hide all widget bitmaps while in Use mode (except those in Image widgets) for faster screen updates. To do this, type the following line in the `[WinCake]` section of the WINCAKE.INI file:

```
[WinCake]
PanelsShowWidgetBitmaps=0
```

To let widgets show their bitmaps again, change the entry to:

```
[WinCake]
PanelsShowWidgetBitmaps=1
```

You can also change these options within Cakewalk by using **Settings | Initialization File**. You must then restart Cakewalk for the settings to take effect.

Note: Bitmaps are always displayed in Design mode, so that you can edit them.

Copying widgets

There is an error on page 283 in the *User's Guide*. Using Shift+Drag will *not* copy a widget. To copy a widget, select it and hold down the Ctrl key while you drag a copy to a new location. Then release the mouse button.

Widget groups and group ranges

The *User's Guide* describes widget groups on page 293; we would like to clarify this section.

- You set **min** and **max** values in Design mode Widget Properties. Min and max values are what the widget will send at its start and end positions, respectively. (For example, when a knob is rotated all the way counter-clockwise, it's at its start position; when rotated all the way clockwise, it's at its end position.) The min and max values also define the highest and lowest values that a widget can send or receive.
- You set up **group ranges** in Use mode, to control things like submixes and crossfades. A group range defines how a widget will move relative to other widgets in the same group. There isn't any field for entering these ranges; you just hold the Shift key and drag each grouped widget to a new position. When you release the Shift key and move the widgets, you'll see that they move according to how you arranged them.

> Note that the min and max values discussed on pages 294 and 295 (under "Group Examples") refer to group ranges, and not the values that you define in Widget Properties. This may seem confusing, but just try grouping some widgets and setting their group ranges using the examples on those pages. Doing this should help you see how group ranges affect grouped widgets.

In short: First you set the min and max values in the Design mode Widget Properties dialog. Then you group some widgets. Finally, you set up group ranges that tell the grouped widgets how to move within their min and max values.

Grouping widgets in Use mode

You can group and ungroup widgets while in Use mode. Hold down the Ctrl key and click on widgets to add them to a group. Hold Ctrl and click on any grouped widget to remove it from the group.

Faders templates and StudioWare Panels

As you may have noticed, Cakewalk StudioWare is similar to the Faders view from Cakewalk 5.0. StudioWare goes far beyond the Faders view, which was mostly limited to Controller number changes. StudioWare gives you even greater control over products like the Yamaha ProMix 01 and the Roland VS-880, and lets you send more kinds of data, including Sysx and MCI commands. Though you cannot directly convert any old Faders templates into StudioWare Panels, we are offering new StudioWare versions of the Faders view templates we used to supply.

If you want to quickly call up a set of controls for mixing your song, select one or more tracks and choose the **View | New | Panel** command. This automatically creates a default Panel similar to the old Faders view, with one fader group for each selected track.

See the "Sample Files" section of this document for a list of StudioWare Panels included with Cakewalk Pro Audio 6.0.

Window layouts enhancements

We've improved Cakewalk's window layouts feature so that you can better control how Cakewalk Pro Audio looks each time you start it.

Choosing **View | Layouts** opens the Window Layouts dialog box. Window layouts consist of currently open windows, their positions, and the tracks (if any) that each window shows. You can save this window layout any time you want, and load it into files of your choice later. Every time you save a Cakewalk .WRK file, its current layout is saved too. You can automatically reset Cakewalk's window arrangement to this saved state when loading a file, if you want. Your songs can all use the same layout, or use different ones — it's entirely up to you.

When you save a StudioWare Panel, it will also appear as a layout in this dialog box.

Adding and loading layouts

To add a new layout, just arrange your windows as desired. Choose **View | Layouts**, and click Add. Type a name for the layout, then click OK. The Window Layouts list will grow each time you add a new layout. Whenever you want to apply one of your layouts to a view, highlight the layout you want in the list, and click Load.

Replacing, renaming, and deleting layouts

If you change an open layout that already exists, and you want to replace the original layout, just choose **View | Layouts** and highlight its name in the list. Click Add, then click OK without changing its name. You will be asked if you want to replace it, and you can click Yes.

To rename a layout, highlight it and click Rename. Type in a new name and click OK.

To delete a layout, highlight it and click Delete. You can't undo this, so be sure that you really want to delete the layout.

Window layouts options

You have two options for using layouts with songs. The first is "Close Old Windows Before Loading New Ones." Checking this means that Cakewalk will close all windows that a newly loaded layout doesn't use. If you leave it unchecked, open windows will stay open when you load a new song.

The second option only applies to layouts saved in workfiles and templates. Check "When Opening a File, Load its Layout" if you want Cakewalk to reset the windows and views to each file's saved layout whenever you open a file.

Layout and StudioWare default directories

By default, Cakewalk looks for layouts and StudioWare Panels in your workfile directory. If you want to choose where you store your layouts and Panels, and still access them through **View | Layouts**, you can specify the directories where Cakewalk will look for these files. You do this by typing LayoutFileDir and StudioWareFileDir options and path names in the `[WinCake]`section of the WINCAKE.INI file. Here is an example:

```
[WinCake]
StudioWareFileDir=c:\Panels
LayoutFileDir=c:\Layouts
```

You can also change these options within Cakewalk by using **Settings | Initialization File**. You must then restart Cakewalk for the settings to take effect.

Once you've done this, choose **View | Layouts**, and you will see all the Layouts and StudioWare files that are stored in the directories you specified.

See "Appendix D" in the *User's Guide* for more about changing the **Wincake.INI** file.

Other notes

Window layouts are saved in your default Cakewalk directory, and have a **.CakewalkWindowLayout** extension. StudioWare Panel layouts are also saved in this directory, and have the **.CakewalkStudioWare** extension.

Tip: If you want Cakewalk to use a certain layout when you create a new file, you can arrange windows in an empty file, and save the file as a template; give the template a name like "New" or "General MIDI Authoring." (Be sure to make a backup copy of Cakewalk's Normal.tpl file first, just to be safe.) Now when you open a new file using your template, and you've checked "When Opening a File, Load its Layout," Cakewalk will arrange the screen the way you like. For more information on templates, see Appendix F in the *User's Guide*.

Stretch Audio and tempo changes

The *User's Guide* mentions a "Stretch Audio" option at the bottom of page 398. Note that you can turn the option on and off by checking or unchecking the Stretch Audio checkbox in the Tempo dialog box.

If the Stretch Audio option is **on**, Cakewalk will shrink or stretch all audio in the song to conform to tempo changes. This is good if you want to change the tempo, and the audio is already lined up with measure boundaries. Let's say you've recorded vocals into a song. Click on the Tempo window in the Control bar, check the Stretch Audio option, and click OK. Now when you insert tempo changes or use the Control bar's tempo scroll buttons, the vocals will stretch or shrink to stay lined up with measures and with other events you may have recorded.

Note: When the Stretch Audio option is **on** and you change the tempo, a dialog box will appear with the message "Processing audio data."

If the Stretch Audio option is **off**, Cakewalk will *not* change the length of audio events when you change the tempo. Sometimes when importing a .WAV file, you have to adjust the tempo in Cakewalk in order to have the measure boundaries align with the imported audio. For example, a lot of drum groove CD-ROMs contain grooves at fixed tempos (like 112 bpm.) If you import such a .WAV file and you need to change the song's tempo, turn the Stretch Audio option off. That way, the imported groove will stay at its original length, and changing the tempo will let you line up the groove with measure boundaries.

Note: The Stretch Audio option is **off** by default for tempo changes that you make using the Control bar.

Audio Event Properties Material field

The "Material" field has been removed from the Audio Event Properties dialog box. You can choose the material type for audio by changing the Patch property on any track assigned to an audio port.

Syncing audio to SMPTE

When syncing audio to SMPTE in Cakewalk, you may notice two puzzling behaviors:

- The first time you play any audio, the pitch of the audio seems to fluctuate wildly.
- Every time you play audio, it sounds "fuzzy" and is consistently higher or lower in pitch.

The next few paragraphs will explain what's going on, and will give you some tips on how to remedy these unwanted side-effects.

As you read this section, keep a simple analogy in mind: Synchronizing audio to SMPTE is like trying to catch up with another car on the freeway, and then staying neck-and-neck. If the car is ahead of you, you'll need to drive faster to catch up, and if it's behind you, you'll have to slow down. Once you're caught up, staying caught up means changing your speed only if the other car changes its speed.

Getting caught up

The first time you play audio in a Cakewalk session, it has to "catch up" to the external SMPTE clock. This could mean "racing ahead," which would raise the pitch of the audio, or "hitting the brakes," which would lower the pitch of the audio. These wild fluctuations in pitch last as long as it takes for Cakewalk to get fully caught up – at worst no more than 30 seconds.

Why does Cakewalk have to do all this catching up in the first place? Because no two clocks ever run at the same pace. Your SMPTE timing source contains one clock, and your sound card contains another clock. The SMPTE clock decides that 1 second has elapsed after it has counted a certain number of video frames, while the sound card clock decides that 1 second has elapsed after it has played several thousand audio samples. The bottom line is that both clocks are running independently of each other, without reference to each other.

Therefore, when Cakewalk is catching up, it's actually figuring out the difference in rates between these two clocks, making increasingly better "guesses" until it gets it right. This difference in clock rates translates directly into a change in pitch, which explains why you hear pitch fluctuations the first time you press Play. Also, *the bigger the difference in clock rates, the more noticeable the pitch-shift*, which means that the initial pitch fluctuations will be more severe if the SMPTE signal is coming from unreliable (analog) gear.

Staying caught up

If the SMPTE timing source was 100% stable and never wobbled, Cakewalk's job would basically be done. It would just continue to apply the difference in clock rates to the audio, keeping audio in perfect sync with the SMPTE clock. However, no timing source is perfect. So every once a while, Cakewalk may need vary the speed by a minuscule amount in order to stay caught up.

<u>Important:</u> **Being caught up still means that Cakewalk is applying a pitch shift to your audio tracks.** If you've got an accurate and steady SMPTE clock source, then this pitch shift is extremely minor and probably imperceptible. However, if you're chasing to an analog SMPTE clock source, the pitch shift may become more noticeable. Also, analog mechanisms are usually unsteady, so you will hear the pitch "wobble" more frequently as Cakewalk tries to catch up to adjust itself.

(Again, take yourself back into your car on the freeway. You've caught up to the other car, but the other driver occasionally speeds up or slows down a tiny bit. If you want to stay caught up, you have to speed up or slow down a bit too.)

Unfortunately, all of this pitch shifting causes distortion. Depending on what kind of audio material you're working with (and depending on your ears!), there may be enough distortion to be a nuisance. We've improved the sound immensely in version 6.0 by adding an option for a "high-quality" SMPTE sync mode (found under **Settings | Audio Options | Advanced** in Cakewalk.)

Making the best of the situation

To make sure that you get the best possible audio quality while recording or playing back audio to an external clock, always use a simple procedure that will allow Cakewalk to "catch up" with clock rate of your external gear: Start off each new session in Cakewalk by playing some audio under SMPTE sync; let it play for 30 seconds at most, or until all audio pitch fluctuations have stopped.

Doing this procedure ensures that Cakewalk knows the difference in rates between the SMPTE and audio clocks. Cakewalk will then remain caught up for the remainder of the session and will continue to play at the rate it last knew to be correct, with only occasional minor rate adjustments as they become necessary.

Note: If you've *recorded* audio while slaving to SMPTE, and there was distortion or pitch fluctuation while you recorded, then these effects will unfortunately be part of the audio data, and will be there even if you switch back to audio clock in Cakewalk. Though this is due to the stretching algorithm that Cakewalk uses, remember that audio must be stretched to stay in sync during both record and playback.

Full MMC Auto Punch

Auto Punch works for all MMC devices that support on-the-fly recording. (In past versions of Cakewalk, Auto Punch was restricted to only those devices that supported the MMC Event command.)

If all MMC features work *except* for Auto Punch record mode, your equipment probably doesn't support the MMC Event command. (Consult with the manufacturer if you aren't sure.) You can overcome this limitation by adding the following line to the Options section of your **TTSSEQ.INI** file, which can be found in your Cakewalk Pro Audio directory:

```
[Options]
MMCUseEvent=0
```

Make sure you restart Cakewalk for the new setting to take effect. This mode causes Cakewalk to send MMC commands to perform automated punches during recording. This method is less precise than use of pre-programmed events, so only use this setting if necessary.

Chord dialog Import button

In the Staff view, when you right-click on a chord event, you get the Chord Properties dialog. This has an **Import** button, which allows an existing chord library to be merged into your current chord library. This is especially useful when you install a new version of Cakewalk and you've added your own chords to the chord library that you don't want to lose.

Cakewalk installation will never overwrite the existing chord library, which is in file **CHORDS.LIW**; it will copy the new chord library to **CHORDNEW.LIW** if **CHORDS.LIW** already exists. You can then use the Chord dialog Import button to import the new chords from **CHORDNEW.LIW** without losing your own chords. The Import function checks each chord carefully to avoid creating duplicates.

Due to the large number of chords in the standard chord library, the Import function may take a long time to complete. If you are sure that you never added chords of your own to the library, then you can simply copy **CHORDNEW.LIW** to **CHORDS.LIW** to get the new library.

Note: The chord library in 6.0 has been updated from 5.0 – some chords have been added, while other duplicate chords have been removed. Also, all barred chords have been updated so each strings sounds when you press the Play button in the Chord Properties dialog box.

Panic strength

The **Panic** button stops playback and turns off any "stuck notes." There are two ways a MIDI note can be turned off: By a note-off message or by MIDI Controller number 123 ("all notes off.") By default, Panic uses Controller 123 only.

This may not work for some older synthesizers. If so, set PanicStrength=1 in the [WINCAKE] section of **WINCAKE.INI**, or within Cakewalk by using **Settings | Initialization File**.
Panic will send a note-off message for every note on every channel of every port. This makes Panic much slower but will resolve the problem.

MIDI activity monitor

The MIDI activity monitor is the small keyboard-shaped icon next to the clock in the taskbar. The figure on page 119 of the *User's Guide* incorrectly points to another icon.

Hardware-specific information

MIDI Time Piece tips and tricks

Below are comments to help you use the MIDI Time Piece (MTP) made by Mark of the Unicorn (MOTU.)

MIDI output port restriction

A problem with the initial release of Windows 95 restricts the number of MIDI output ports to 11. There is no known work-around for this problem. This means that you can't access all 16 ports when using a pair of MTPs.

System Exclusive tips

"FAST 1X" mode of the MTP may exhibit strange behavior with System Exclusive send. This is a result of the MTP's "middle-man" processing techniques. The MTP Windows driver won't send System Exclusive through the MTP byte by byte; instead, the MTP stores System Exclusive in a buffer to be sent out in larger, faster packets. This causes checksum errors on a Sound Canvas, for example.

We are able to send System Exclusive to the Sound Canvas in FAST 1X mode by lowering the **TTSSEQ.INI**'s `SysxSendPacketSize` parameter to 344. However, note that if you want to try this yourself, you'll need to find a number that works on your computer system. In short, use FAST 1X mode with System Exclusive "at your own risk."

MOTU starting template

MOTU provides a starting template for their setup software called **WINDOWS.MTP**. Make sure that this is loaded before using the MTP as an interface in Cakewalk Pro Audio. The MTP driver will access the MTP's current state as configured by **WINDOWS.MTP** rather than reinitializing it. This will let you customize the provided template using MOTU's MTP software, and then access this setup in the Windows driver.

Connecting two MTPs

When connecting two MTPs together for 16 input/output ports, put the unit assigned to ports 1-8 first in the chain. Then connect the network cable from the back of the first unit to the network input on the second unit (ports 9-16.)

Using the sync input port

Since the MTP has a 17th port for sync input, you will see this in the Cakewalk Pro Audio **MIDI Devices** list as a separate input port. Cakewalk Pro Audio supports a maximum of 16 input ports. If you have two MTPs using all 16 input ports and are using SMPTE sync, deactivate one input port in **MIDI Devices** so that you can use the 16th available input port as your sync port. Also, sync audio input should be read on the first MTP. This configuration is based on the routings of the provided WINDOWS.MTP template.

General information about GPFs (General Protection Faults)

In general, if you're experiencing GPFs when printing from Cakewalk, try the following:

- Lower the printing resolution. For example, if the printer is configured to use 600dpi, try 300dpi.
- Use another driver. If the latest driver doesn't work, see if the printer can emulate another printer, and use the driver for that printer instead.
- Lower the screen resolution of your monitor. For example, if you're using 1024x768, try 800x600 or 640x480. The video driver might interfere with printing. As a test, try to use the generic VGA video driver that is included with Windows.

HP Deskjet printers

HP 500, 600, and 800

The drivers that ship with Hewlett Packard 500, 600, and 800 series Deskjet color printers cause a GPF when printing from Cakewalk. Use the generic Deskjet driver from the Windows 95 CD-ROM (or diskettes.) Unlike MIDI drivers, you can have multiple printer drivers installed, but use the plain Deskjet driver when printing from Cakewalk.

HP 870C, 660C, 680C, and 690C

You may have problems when printing from Cakewalk to these printers. Here is a workaround:

7. Go into Cakewalk, and choose **File | Print Setup**.
8. Select Landscape paper orientation and Grayscale mode. Click OK.
9. Choose **File | Print Preview**.
10. Click on the Configure Button.
11. Make sure that Choice #2 is selected (Regular, Common, or Ordinary.) Some printers also let you use #4 Peter, which allows faster printing on few pages.
12. Click OK to close that window.
13. Click on the Print button; the sheet music should now print.

HP 820Cse and 850C

As of 3/20/97, there are no drivers available that will let you use the HP Deskjet 820Cse with Cakewalk.
Please contact Hewlett Packard to see if an updated driver has become available.
If you have problems with the Deskjet 850C, try the Deskjet 540 or 550 driver.

Canon BJC printers

You may have problems when trying to print from Cakewalk to certain Canon BJC printers. The following workarounds and fixes are available:

- The BJC-620 has been reported to work with the BJC-600e driver.
- The Canon BJC-610 is able to emulate dozens of printers, and the Epson LQ-2550 driver seems to solve the problem.
- If you're using a Canon BJC-600, set the printer to "Normal" instead of "Enhanced Black."
- The Canon BJC-10sx should work with the Epson LQ-510 driver.

-

Other printers

The following document on our web site offers solutions for several other printers:

`http://www.cakewalk.com/html/tech/install/PrinterAndVideoDriverProblems.html`

Gravis UltraSound

Cakewalk Pro Audio supports sound cards that use "patch caching," such as the Gravis UltraSound. These cards load sounds from your hard drive as needed. If you are using this kind of sound card, the **Update Patch Cache** command on the **Realtime** menu will be enabled. When you choose this command, Cakewalk examines your song to see which patch numbers you have used. It gives this list to the sound card, which loads the required sounds. This process can take some time, so Cakewalk lets you decide when to use **Update Patch Cache** to "recalculate" the patches used. (Cakewalk also performs the "recalculation" when you use **File | Open** or **File | New** to open or clear a song file.)

If you are using the Play List view, please be aware that there may be a delay between songs, because the sounds required for the next song need to be loaded. This doesn't mean that there is a problem with Cakewalk. This is just the way such a sound card must work.

WARNING: SCSI hard drives

The installation of most Windows MIDI drivers also installs a virtual device driver ("VxD"). For example, this file is **VMPUD.386** for our **MPU.DRV** driver (MPU-401).

The purpose of the VxD

The Twelve Tone Systems VxD reads the card's base address from SYSTEM.INI (which you set using Control Panel Driver Setup) and traps accesses from that address to that address plus 10h (10 hex or 16 decimal.) The goal of this VxD is simply to prevent DOS programs from accessing the card and interfering with the Windows driver's handling of the card while Windows is running. If an access is detected, the VxD displays an error message and simulates a dead card to the "offending" DOS program. The Twelve Tone Systems VxD is based on the original Microsoft VxD sample code and works the same way over the same address range.

Why are addresses trapped from the base address to the base address plus 10h, when supposedly the MPU-compatible cards only use addresses from the base address to the base address plus 1? Many MPU-compatible cards, such as the original Roland MPU-401 and Music Quest cards, actually respond to other addresses within that 10h range. When set at base address 330h, the Music Quest PC MIDI card has been reported to respond to 332h-337h as well, and the MPU-401 has been reported to respond to 338h-339h. Apparently, these cards do not decode all the address lines. Thus the safest, most-complete approach when dealing with MPU-compatible cards is for the VxD trap the whole range of 10h addresses.

The potential problem with SCSI cards

Unfortunately, it has also been reported that if the access comes from a SCSI card trying to access a SCSI hard drive within DOS, the error message never appears and DOS hangs. **Hard drive data loss is possible. SCSI card owners should beware of setting their SCSI card address anywhere within this range.** If it doesn't conflict with the card directly, then it will conflict with the VxD like this in enhanced mode if it's installed. If you're sure it doesn't conflict with your card, you can decide to forego the VxD protection by removing the VxD.

Removing a VxD .386 file

If you decide it's safe to remove the VxD, here's how to do it. Although Control Panel's driver installation knows how to install the VxD file associated with a driver, its driver removal does not know how to remove it. Therefore, an installed VxD will remain forever installed, unless you remove it manually. To do this, edit SYSTEM.INI with a text editor like the Windows Notepad. Find the line DEVICE=VMPUD.386 or DEVICE=VMQXD.386 under the section [386Enh] and delete it. Save the file and restart Windows. If you ever re-install the driver using Control Panel, you'll have to do this again.

Sample files

The following sample files are installed automatically by Cakewalk Pro Audio SETUP.

StudioWare View Layouts (.CakewalkStudioWare) and Template Files (.TPL)

Cakewalk Pro Audio comes with sample StudioWare Panels. Some of these are available by choosing **View | Layouts** and double-clicking on the StudioWare icons (the icons with pictures of "sliders" and "buttons" on them.) Others are included within template (.TPL) files.

Cakewalk Pro Audio 6.0 ships with these StudioWare Panels:

Panel:	Format:
Mackie OTTO 1604	.CakewalkStudioWare and .TPL
MMC (A generic Panel for products that support MIDI Machine Control)	.CakewalkStudioWare
Roland SoundCanvas	.CakewalkStudioWare
Roland VS-880	.CakewalkStudioWare
Session 8	.CakewalkStudioWare and .TPL
Tascam RC-808	.CakewalkStudioWare
Yamaha ProMix 01	.CakewalkStudioWare and .TPL

DNA Grooves (.GRV)

A sample groove file, **Cakewalk DNA Grooves.GRV**, is included. This contains approximately a dozen groove patterns for use with the Groove Quantize command. Please see the **WC.TXT** file for more information.

Work files (.WRK)
Various Cakewalk song files are included for your learning and entertainment pleasure!

Template files (.TPL)

Example of templates that make it easy to start a new WRK file for a particular purpose.

Bundle files (.BUN)

Cakewalk comes with "bundle" files, which are used to transport MIDI and audio in a single file. These files demonstrate synchronized playback of digital audio and MIDI.

Cakewalk installs two complete bundle files on your hard drive:

- **RIFFUNK Audio and MIDI Demo.BUN**
- **RIFFRAFF Audio and MIDI Demo.BUN**

Cakewalk also installs icons for .BUN file versions of Charlie Farren's "Love Street" and "Animal Dance." Note that your Cakewalk Pro Audio CD-ROM must be in the CD-ROM drive for these two .BUN files to play back (the files are very large, so Cakewalk reads them from the CD-ROM rather than installing them onto your hard drive.)

CAL files (.CAL)

Examples of various program files for the Cakewalk Application Language.

Playlist files (.PLY) and Set files (.SET)

You can load the sample Set files in Cakewalk's Playlist view. You can use the Virtual Jukebox utility to play the sample Set files and Playlist files.

TECHniques on-screen tutorials

Cakewalk Pro Audio SETUP will install several TECHniques on-screen tutorials. Each TECHniques tutorial file covers a different topic, from basic selection to audio effects. You can find these files in the Start menu program group for Cakewalk Pro Audio.

When you open a tutorial, it automatically launches the Lotus ScreenCam program and starts playing. When a lesson finishes playing, always be sure to close ScreenCam by clicking the Exit button on the Lotus ScreenCam control panel.

CD audio tracks!

The Cakewalk Pro Audio 6.0 CD-ROM includes two CD audio tracks, "Love Street" and "Animal Dance," both by Charlie Farren. You can play these tracks on any CD player, or on your computer if you have CD-player software. Play tracks 2 and 3 to hear the songs.

Instrument definitions

Instrument definitions help Cakewalk understand the way a particular synthesizer works. This enables Cakewalk to adjust some of its features, making them easier for you to use.

If a definition doesn't exist for your particular synthesizer, that doesn't mean that it's incompatible with Cakewalk. Certain features (like choosing patches) won't be quite as easy or automatic, but they won't be impossible. Remember too that you can create your own instrument definitions for use with your MIDI gear.

For a full explanation of instrument definitions, please see the sections on the **Settings** | **Instruments** command in the *User's Guide*.

Upgrading from an earlier version

Cakewalk SETUP does *not* overwrite your existing **MASTER.INS** file. That file contains the instrument definitions that Cakewalk loads every time it starts. SETUP installs new **.INS** files for each supported manufacturer. These files contain the latest complete set of available instrument definitions.

To learn how to import any of these .INS files, see "Importing and exporting instrument definitions" in the *User's Guide*.

Roland SR-JV80 series expansion boards

Cakewalk Pro Audio 6.0 includes instrument definitions for many of the Roland SR-JV80 Series expansion boards. In order to use these patch lists properly, you must add banks to existing Roland JV/XP instrument definitions. This section will show you how to add banks from these expansion boards.

14.   Open Cakewalk, and go to **Settings | Instruments.** Click on the Define button to open the **Define Instruments and Names** dialog box.

15.   Click the Import button.

16.   Select ROLAND.INS, then click Open.

17.   Select "Roland SR-JV80 Expansion Boards," then click OK.

All of the *Roland SR-JV80 Expansion Boards* patch names have now been imported, but this instrument definition will not work by itself. It is just a placeholder for the individual expansion board patch names. You can safely delete the *Roland SR-JV80 Expansion Boards* instrument definition if you wish, since the individual Patch Name lists will remain.

To use the expansion board Patch Names, you must add new banks to an existing Roland JV/XP instrument definition (e.g., Roland JV-1080, XP-50, or XP-80.) To add a new bank to an existing instrument definition, you must know the bank number of the new bank. The expansion board slot bank numbers are:

Bank #:	Expansion Board Slot:
10752	A1 (patches 1-128)
10753	A2 (patches 129-255)
10754	B1 (patches 1-128)
10755	B2 (patches 129-255)
10756	C1 (patches 1-128)
10757	C2 (patches 129-255)
10758	D1 (patches 1-128)
10759	D2 (patches 129-255)

The steps below show you how to add one of the expansion board Patch Name lists to an existing instrument definition. For example, if you have the Roland XP-50 with the SR-JV80-04 Vintage Synth expansion board installed in slot A, do the following:

18.   Import the Roland XP-50 and Roland SR-JV80 Expansion Boards instrument definitions (if you haven't already done so.)

19.   Expand the Roland XP-50 branch until you can see the *Patch Names for Banks* branch.

20.   Expand the *Names* tree so you can see all the individual *Patch Name* branches.

21.   Drag the *SR-JV80-04 Vintage Synth 1-128* list from the *Names* tree to the *Patch Names for Banks* folder (or over an existing bank.) Release the mouse button, and enter the proper bank number. According to the list above, we know that patches 1-128 in expansion slot A uses bank # 10752, so enter that number.

22.   Drag the *SR-JV80-04 Vintage Synth 129-255* list from the *Names* tree to the *Patch Names for Banks* folder (or over an existing bank.) Release the mouse button, and enter the proper bank number. According to the list above, we know that patches 129-255 in expansion slot A uses bank # 10753, so enter that number.

You can repeat this process for any other expansion boards that you have.

Other notes

Virtual Piano

Cakewalk Pro Audio includes Virtual Piano^{TM}, an on-screen musical keyboard. Virtual Piano turns your computer keyboard and mouse into a simple MIDI instrument for playing notes. You may use it with any Windows program, including Cakewalk Pro Audio, as a substitute for an external MIDI keyboard.

Cakewalk Pro Audio SETUP automatically installs the Virtual Piano application and its companion MIDI driver.

Important: You must perform an additional step to make sure Cakewalk will accept input from the Virtual Piano MIDI driver. Choose **Settings** | **MIDI Devices**, and select the Virtual Piano driver in the list of input ports. This input port is how the Virtual Piano sends notes to Cakewalk.
You can start Virtual Piano from Cakewalk by choosing the **Virtual Piano** command from the **Realtime** menu. The shortcut key for this command is Ctrl+K. Virtual Piano uses the same key to switch back to Cakewalk. Therefore, you can move between the two programs quickly by typing Ctrl+K.

For more information about Virtual Piano, see the "Tools Menu" chapter in the *User's Guide*.

Lyrics view, CAL view, and special keys

The shortcut keys for starting and stopping playback (Spacebar, P), recording (R), and rewinding (W), do not work in some circumstances. If the Lyrics view or CAL view is active, then you use these keys to type spaces and characters. For example, you need to be able to type spaces in your lyrics, so the Spacebar lets you do that instead of starting and stopping playback!

Note that if the Lyrics view or CAL view is minimized (an icon) and you click on the icon, that becomes the active view. The title beneath the icon is highlighted. Even though you are not displaying the window at its normal size, it is still the active window. Thus the shortcut keys for playback, recording, and rewinding do not work. Make another window active (for example by clicking on it) to regain the use of these keys as shortcuts.

Dump Request Macros

When you press the Receive button in the Sysx window, you may pick from a list of Dump Request Macros. These are short System Exclusive messages sent to a synthesizer to make it dump (send back) System Exclusive data. DRMs are defined in your WINCAKE.INI file in the [Dump Request Macros] section. You may add your own DRMs or modify the ones that we have provided. Use the Windows Notepad to edit the file.

Please note that many DRMs have been donated by customers who are using the particular equipment. In some cases we have not been able to test those DRMs because we do not have access to that equipment. We are redistributing such DRMs on an as-is basis. Additional user-supplied DRMs may be available on BBSs like CompuServe.

Mail support

Cakewalk Pro Audio lets you send files via Microsoft Mail or any other mail system that offers the MAPI Simple Mail Interface. If you have installed such a mail system, Cakewalk Pro Audio will automatically add a **Send** command to its **File** menu. Choosing **Send** will call up the standard MAPI dialog box with the current Cakewalk Pro Audio song file attached to the message.

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StudioWare Panels

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MMC - Robin Kelly
Roland SoundCanvas - Alan Myers
Roland VS-880 - Robin Kelly
Session 8 - Ron Kuper
Tascam RC-808 - Morten Saether
Yamaha ProMix 01 - Robin Kelly

Instrument definitions

ADA MP-2 - Morten Saether
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Alesis S4 QuadraSynth - Bo Bickley
Digitech DSP-128 - Morten Saether
Digitech DSP-256XL - Richard S. Huntrods
Digitech DSP-2101 - Christopher Orth
Digitech GSP-21 Legend - Russell C. Cole
E-MU Classic Keys - Morten Saether
E-MU ProFormance - Morten Saether
E-MU ProFormance+ - Morten Saether
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E-MU Proteus FX GM - Andrew Fiddian-Green
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Ensoniq SQ-1 - Dave Weatherall & Gabi Heigl
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Korg 03R/W - Chinh Nguyen Do
Korg 05R/W - Art Slater
Korg i3 - Brian P. McCarty
Korg T3 - Paul Spencer
Korg Wavestation SR - CIS 76075,1726
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Peavey UltraVerb II - Russell C. Cole
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Roland D-70 - G. W. Greene
Roland GP-8 - Morten Saether
Roland GR-1 - Morten Saether
Roland GSmkII - Jim Kometani
Roland JD-990 - G. W. Greene
Roland JV-1080: Patch - Mark Bridges
Roland JV-1080: Rhythm - Mark Bridges
Roland JV-880 - Warren Bedell
Roland JV-880 Drums - Warren Bedell
Roland JV-90 - Jamie Macgregor
Roland JX8P - CIS 70242,505
Roland R-8M - G. W. Greene
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Roland SRV-330 - G. W. Greene
Roland U-220 - G. W. Greene

Roland XP50 - CIS 73040,146
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Yamaha PSR-500 - Bill Sweeney
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Yamaha SY-85 - Daniel K Jorenby
Yamaha SY-99 - Jean-Philippe Poibeau
Yamaha TG100 - James Spooner
Yamaha TG300 - Jac Hedberg
Yamaha W5/7 - Jeff Barnett
Yamaha SY-35 - Russell C. Cole
Yamaha SY-77 - Jeffrey Greenberg
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Yamaha TG-33 - Deb Rogowski
Yamaha TG-500 - Paul Fuller & William H. McCloskey
Yamaha XG - Morten Saether

Dump Request Macros

360 Systems 8x8 Midi Patcher - Bob Camp
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Alesis Midiverb III - Robert Rampley
Alesis Quadraverb - Sergio Blostein and Chris Connell
Alesis QuadraSynth - Robert Rampley
Alesis Quadraverb GT - Robert Rampley
Casio CZ-1000 - Steve Quinlan
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Ensoniq TS-10/12 - David UZ Hahn
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Kawai K5/K5m - Sergio Blostein
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Korg O1/W - Larry Poulin
Korg O3R/W - Brian P. McCarty
Korg 05R/W - Art Slater
Korg i3 - Brian P. McCarty
Korg DS-8 - Peter Glass
Korg M-1 - Ozzie B. Bostic and Pete Halliday
Korg M-1 All Sequence - Dan Kudo
Korg 707 - Sergio Blostein
Korg DDD-1 - Sergio Blostein
Korg M3R - Sergio Blostein
Korg T1 - Sergio Blostein
Korg DW-6000 - Christopher Moreno
Korg T3 - Larry Bachtell
Korg Wavestation - Larry Bachtell
Korg X3 - Daniel Joseph Oak
Korg X5DR - Jay M. Meyers
Kurzweil K1000 Plus - Jeffrey K. Morris
Lexicon LXP-1 - Sergio Blostein
Lexicon LXP-5 - Sergio Blostein
Peavey DPM 3 - C. L. Carter
Roland A-80 - Sergio Blostein
Roland D-50 - Steve Quinlan
Roland JV-880 - Warren Bedell
Roland S-550 Sampler - Bob Camp
Roland D110 - Jim Kometani
Roland D-20 - Matt Boland
Roland JD-800 - Stephen Tapp
Roland JD-990 - G. W. Greene
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Roland U-20 - Sergio Blostein

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Yamaha DX-100 - Steve Quinlan
Yamaha DX-2 - Sergio Blostein
Yamaha DX7II - Susan Gulick
Yamaha DX-21 - Christopher Moreno
Yamaha ProMix 01 - Richard R. Goodwin
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Yamaha TX7 - Sergio Blostein
Yamaha TX81Z - Sergio Blostein

There is no additional information at this time for README.RTF.