ReBirth
RB-338 1.5
Techno Micro Composer

Operation Manual

propellerhead SOFTWARE   Steinberg

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Introduction

Thanks!

Thanks for choosing ReBirth RB-338!

It is our sincere belief that this program will prove to be a valuable, exciting and creative tool in your music making. Our primary goal during the development of ReBirth RB-338 has been to deliver what software synthesis for so long has promised: a real alternative to expensive and – in this case – partly "extinct" hardware. We simply love synthesizers, and this love has been a major motivation during the development process.

Now we hand our creation over to you. We hope you will have as much fun using it as we had designing it!

We'd also like to take this opportunity to thank everybody that helped out during development, for the enormous support!

Please stay in touch, preferably via the web sites (www.propellerheads.se and www.steinberg.net). We need your comments and ideas for the future!

Again, thanks!

Propellerhead Software/Steinberg Soft- & Hardware GmbH

About this Documentation

Using Acrobat Documents

The following methods will help you find the information you require:

- **Use the Table of Contents provided by the Adobe Acrobat Reader program.**
- **Use the Adobe Acrobat Reader Find function.**
- **Click on a cross-reference (green text) to jump to the respective topic.**

It is possible to print out this document or parts of it.

Additional Information on how to use the Adobe Acrobat Reader program can be found in its on-line Help.

How the Documentation is Organised

The documentation for ReBirth RB-338 is divided into two parts:

- **The printed documentation.**
  This describes how to install the program and gets you started using it.

- **This on-line documentation**
  This contains detailed instructions, reference material, troubleshooting, glossary and index.

2

Making Audio Settings

Introduction

It is extremely important that you make the correct audio settings on your computer. Please follow the instructions for each computer platform, below.

Windows Computers

The following text is a duplication of the help file that appears automatically when you first launch ReBirth for Windows. If you have just followed the on-screen instructions, you naturally don't need to do this all again!

Selecting an Audio Card Driver

● If you are unsure about the terminology and concepts used in the following text, look up the chapter "Audio on Computers" in this manual.

First, you must determine if you have DirectX installed on your system, or not:

1. **Open the Preferences dialog and locate the sound card settings.**

The sound card settings in the Preferences dialog.

2. **Pull down the Audio Card driver pop-up and select the *last* item.**

3. **Check the text below the box, does it say "Driver type: Direct X"?**

• If it does, you have DirectX installed. Proceed to the next step, "Finding out if your DirectX Driver is Emulated or not".

• If it doesn't, instead skip to the heading "Selecting an MME Driver" below.

Finding out if your DirectX Driver is Emulated or not

If (and only if) you have DirectX installed you need to find out if the audio card driver is emulated or not. You should *not* use an emulated DirectX driver with Re-Birth RB-338. To find out which type of driver you have, proceed as follows:

1. **Pull down the Audio Card driver pop-up and select the drivers that correspond to the card you want to use, one by one.**

2. **For each one, check the text after "Driver type:" below the pop-up.**

- If one says Direct X only (and the word emulated is not mentioned), use this driver. Then proceed to the heading "Setting the Audio Card Buffer", below.

- If all say emulated, you should not use any DirectX driver. Instead read "Selecting an MME Driver", below.

Selecting an MME Driver

To select the appropriate MME (Multimedia Extensions) driver, proceed as follows:

1. **Pull down the Audio Card driver pop-up and select the first item on the menu that corresponds to the name of the card you want to use.**
   You should avoid choosing generic driver names.

2. **Check the text below the box, it should say "Driver type: MME". If it doesn't, select another driver.**

3. **Proceed to the heading "Setting the Audio Card Buffer", below.**

Setting the Audio Card Buffer

It is very important that you trim the buffer setting properly. The buffer setting is a balance between fast response to control changes on one hand and "safe" audio playback on the other.

1. **Open one of the demonstration songs.**

2. **Activate Playback.**

3. **Open the Preferences dialog, from the Edit menu.**

4. **In the Preferences dialog, locate the Playback performance slider and drag it all the way to the right.**

5. **Now drag the Playback Performance slider to the left, a bit at a time. Try positions further and further to the left, until the sound starts "breaking up" and the Underruns indicator starts incrementing.**

6. **Drag the fader a little bit to the right, so that the sound is OK again.**

- If you use DirectX under Windows 95, you will normally be able to trim the buffer sizes down to between 40 and 90 milliseconds.

- If you use MME under Windows 95, the same figure will normally be around 160 milliseconds.

7. Close the dialog.

You are now finished with your audio settings for ReBirth. The settings you just made are stored automatically.

Macintosh Computers

Why are there two ways of Playing back Audio?

ReBirth uses the Sound Manager on the Macintosh to play audio. This allows it to play in the background and happily co-exist with other audio applications. Great care has been taken to make ReBirth compatible with all other Sound Manager applications. This is what we call "Multitasking friendly" audio playback.

However, there's a problem with some combinations of Sound Manager versions and certain Mac hardware, where ReBirth can't automatically determine the correct "audio buffer size". This might lead to crackles or glitches in the audio playback.

● We recommend all users to check the buffer size, as described below, even if you don't have problems with your audio. If you can use a lower buffer setting than the default, the program will be more responsive to control movements.

On some rare occasions, adjusting the buffer size might not be enough to remedy the Sound Manager problems. In this case, you have the option of selecting another method for playing back audio, which we call "Crackle safe". Selecting this method has some drawbacks though, see the end of this chapter.

Setting the Correct Buffer Size

Normally you should leave the Sound Manager Audio setting at "Multitasking friendly". However, you should make sure you have the correct audio buffer size setting. Proceed as follows:

1. **Open one of the demonstration songs.**

2. **Activate Playback.**

3. **Open the Preferences dialog, from the Edit menu.**

4. **Locate the Buffer size pop-up.**

5. **Select the *smallest* buffer size that allows you to play back audio without problems.**

6. **If none of the buffer sizes seem to work, switch from "Multitasking friendly" to "Crackle safe", in the Preferences dialog and set the buffer pop-up to the value closest to "(1024)".**

About the Crackle Safe Option

Selecting the Crackle Safe option will make sure that ReBirth RB-338 works properly in all situations. However, the mouse pointer will not move as smoothly and you might possibly run into audio problems with other programs playing via the Sound Manager. Furthermore ReBirth RB-338 might possibly disturb other background processes such as networking.

System 8 note

System 8 users should make sure virtual memory is turned off in the Memory control panel, since it affects audio playback.

If you have to have virtual memory activated for some reason, you might have to raise the buffer settings drastically to get clean audio playback.

3

Overview and Basic Concepts

Introduction

This chapter introduces you to some basic methods and concepts in ReBirth RB-338. To get a "hands-on" introduction to the program, read the quick tutorials in the printed documentation.

Song Mode vs. Pattern Mode

The Song/Pattern Mode switch.

These are the two major modes in ReBirth RB-338. Basically, Pattern mode is for creating Patterns and experimenting with sounds and other settings. Song mode is for stringing Patterns together and recording the automation of controls. Here are a couple of the major differences between the two modes:

- In Pattern mode, the controls are all manual, that is, if you move them they stay where you left them. In Song mode, the controls are all automated, that is they will move automatically on playback, if movements have been recorded. You can not move the controls during playback in Song Mode.

- In Pattern mode, the Loop feature has no function, the currently selected Patterns always loop. In Song mode the Loop is used for repeating any section of the Song.

Setting Values

Apart from the normal operations, double clicking, dragging, using menus, etc, Re-Birth RB-338 employs some special techniques for changing values:

Knobs

Knobs come in a number of different shapes.

Knobs are always operated in the same way: To change a value, press the mouse button over the knob, and drag up/down.

Faders

An example of a fader.

To move a fader, press the mouse button over the handle and drag up/down.

Value displays

A value display.

The value displays have two small arrow buttons located beside them.

- **Clicking either of these buttons changes the value one step up/down.**
- **Keeping the mouse button pressed over an arrow, makes the value change continuously.**

Using the Computer Keyboard

The computer keyboard is used for four purposes:

- **For menu shortcuts.**
  These are listed on .

- **For Transport controls (Play, Stop, Rewind etc).**
  This is mainly done from the numeric key pad. Again see .

- **For quick programming of the synthesizers.**
  To do this, activate "Program Synth from Keyboard" on the Options menu. For more information, see .

- **For Pattern switching.**
  For this to work, "Select Patterns from Keyboard" must be active, on the Options menu. See and below for details.

MIDI

MIDI is used for two things in ReBirth RB-338.

- For synchronization to other equipment, see and .

- For Remote Control, see .

Real Time Operation

All operations in ReBirth RB-338 can be executed while the program is playing, even saving to disk! There is no need to turn off playback to perform any operation!

Pattern Selection

The Pattern selectors.

How to Select a Pattern

Each of the three main sections has 32 Patterns, arranged in 4 Banks of 8 Patterns.

- **To select a Pattern in the current Bank using the mouse, simply click on the corresponding Pattern button.**

- **To select a Pattern from the computer keyboard, make sure "Select Patterns from Keyboard" is activated on the Options menu and press the relevant key, as indicated in the figure below.**

- **To select a Pattern in another Bank, first select a Bank, using the buttons labelled A to D, then select a Pattern.**
No change takes place until you actually select a Pattern.

Synth 1 - Pattern 1 to 8
Synth 2- Pattern 1 to 8
Rhythm - Pattern 1 to 8
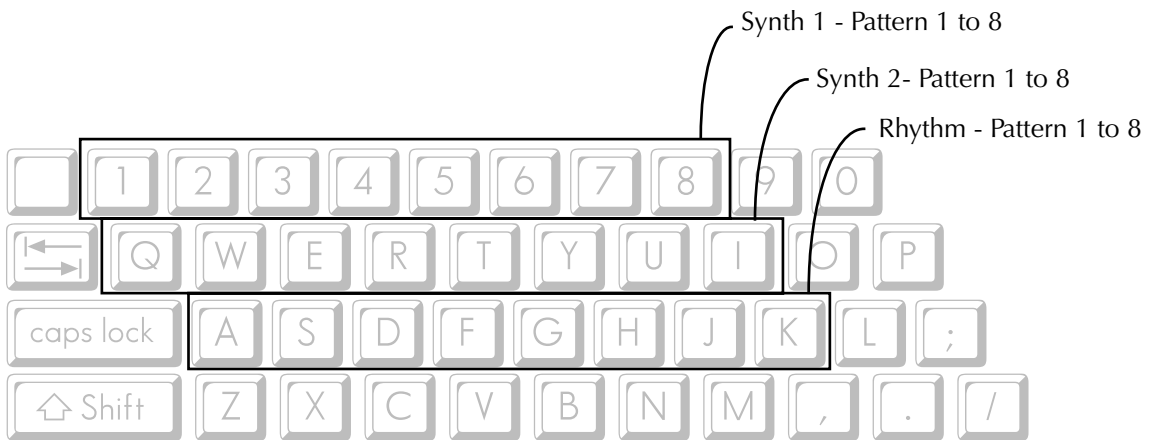
- **You can also select Patterns via MIDI, see page 104**

Switching a Section Off

You can turn a section off completely, by deactivating it in the Pattern section. This is equivalent to selecting a silent Pattern.

A section, activated and deactivated.

Pattern Changes take Effect on the Next Downbeat

When you select a new Pattern, the change doesn't take effect until the end of the Pattern.

This can be used to good effect, especially when switching Patterns from the computer keyboard; you have time to hit the right key in advance.

Please note that this is true for each individual Pattern, regardless of its length. For very short Patterns, it is more important to hit the key or press the mouse button at the right time.

About Focus and the Focus Bar

Many operations may only be performed on one of the three main sections in Re-Birth RB-338. To see which section "has the focus", look for the vertical orange bar, to the right of the Pattern selectors.

In this example, the rhythm section has the focus, as indicated by the orange bar.

The focus can be moved to the relevant section, in one of three ways:

- **By clicking with the mouse in the relevant section.**

- **By selecting a Pattern in a section.**
  This automatically sets the focus to that section.

- **By using the up and down arrow keys on the computer keyboard.**

The Mixers

A Mixer

Section Mixers

In the Mixer parts of the various sections, you can adjust the relative balance of volume. You can also adjust things like panning (stereo positioning) and effects. This is all covered in great detail in the chapter "Mixing & Effects". For now please note that:

- **If a section is too loud or weak, use the volume faders to balance it.**
  The small meter gives you an indication of the output level from this section.

- **If you want to move the sound left/right in the stereo image, use the Pan control.**

Master Level

The Master Level section.

The master level adjusts the overall audio output from the program. For more info, see the next paragraph.

About Levels

You have to be slightly careful when adjusting levels so that you don't get any unwanted distortion on the master output, due to a phenomenon called clipping. On the other hand, levels that are too low can lead to an undesired amount of noise.

● Clipping cannot occur within an individual section, even when it's volume is set to maximum. Any distortion that appears can *always* be removed by lowering the Master level, as described below.

Here's our recommended procedure for setting levels:

1. Set up a rough balance between the three sections.

2. Lower or raise the master level so that the signal on the meters only hit "the red", during the loudest passages.

The level should very rarely
reach this marking.

3. If you change your mixer levels, or adjust the sound on the synth section, be sure to re-check the master level.

So why is it so important to adjust the levels correctly? Those of you who only have experience of analog equipment should note that digital levels are completely different in nature. A digital audio system can by definition only represent a limited range of levels correctly. This is called the dynamic range.

When you try to exceed the dynamic range (when the signal is amplified to a level the system can't handle), hard clipping occurs, and the sound will be distorted in a very harsh, unpleasant way (if you like this distortion, go ahead and use it, we don't mind. We just want to make sure you don't run into it unintentionally.)

On the other hand, if the levels are too *low* the signals may not be represented accurately enough and unwanted noise will be audible.

Systems based on personal computers are slightly different compared to dedicated digital audio systems, by nature. Maintaining the dynamic range properly is even more critical in a personal computer system. Therefore, in our efforts to provide you with the best possible sound quality in all situations, we have handed over some of the responsibility to you, the user.

It's up to you to check and adjust the master level. This method ensures the highest possible sound quality, in all situations.

4

Programming Rhythm Patterns

Preparations

1. If required, create a New song or Open an existing one.

2. Make sure Pattern mode is selected.
You can only program Patterns in Pattern mode. See page 15.

3. Select a Pattern to program.
How to do this is described on page 18.

4. The Pattern you select can be empty or it can be one already playing some rhythm, it doesn't matter. If it already plays something, you can either clear it (see later in this chapter) to start over from scratch, or modify the existing rhythm as you like.

● Please note that it is often convenient to make copies of the same basic rhythm into a few Pattern locations. You can then make minor or major variations to this rhythm, in each of the Patterns, and use them in various parts of the Song. For more info on copying, see page 45.

Soloing the Rhythm Section

If you want to make sure you are only hearing the rhythm section while programming, you will want to turn off all other sections:

• **Click on the on/off button (in the upper left corner) in the mixer for each synth, to turn them off.**

With both synths turned off, you will only hear the rhythm section.

Programming and Playback

You can program rhythms, either when the program is in stop mode or when it is playing. It doesn't really matter which, but the most convenient is probably to have playback going so that you will hear how the Pattern evolves as it repeats.

Selecting Sounds

Before you can start programming any notes, you must of course select a sound. This can be done in several ways:

- **By using the large rotary knob to the right in the rhythm section.**
  Drag up/down, as always.

The sound selector knob.

- **By clicking directly on the sound name legends above the colored step buttons.**

The sound selector buttons.

- **Via MIDI, see page 104.**

A list of all sounds can be found on page 126.

About "Shared slots"

Some instrument "slots" are shared by two sounds. One example is Low Tom (LT) and Low Conga (LC). You select between shared instruments as the illustration below indicates:

First click in either of these two places
...then click on the switch.
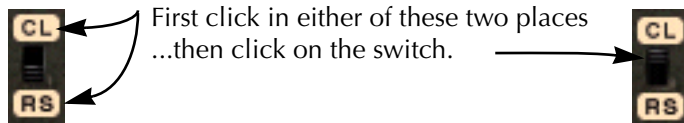
More about shared instruments on page 28.

Adding and Removing Notes

To add notes with the selected sound, proceed as follows:

- **Click on the colored step buttons, to add a note with the selected sound.**
  The step buttons that are lit up indicate programmed notes.

The sixteen step buttons represent sixteenth notes in a measure. If you for example add notes at step 1 and step 9, you will get sounds at the downbeat and on the third quarter.

Here, a bass drum is programmed on step 1 and 9.

- **You can remove notes in the same way, by clicking on steps that are already lit up.**

Dragging to Add/Remove Notes

You can also drag to add/remove a number of notes at the same time. Whether the drag operation adds or removes notes depends on the step where you start dragging. If this is empty, you will be adding, if it already plays a note, you will be removing.

If for example you want to add a sound at all sixteenth notes in a Pattern, proceed as follows:

1. **Locate a step where there is no note (not lit up).**

2. **Position the pointer over this step, and press the mouse button.**

3. **Drag back and forth over the steps, without releasing the mouse button.**

4. **When all step buttons are lit up, release the mouse button.**

Dragging to add notes on all sixteenths.

Tap Recording

The computer keyboard can be used for programming any and all rhythm sounds, by "tapping" the correct keys. The key row starting with A is used for accessing the drum sounds, starting with BD, Bass Drum. The accent is reached from the minus key in the top row.
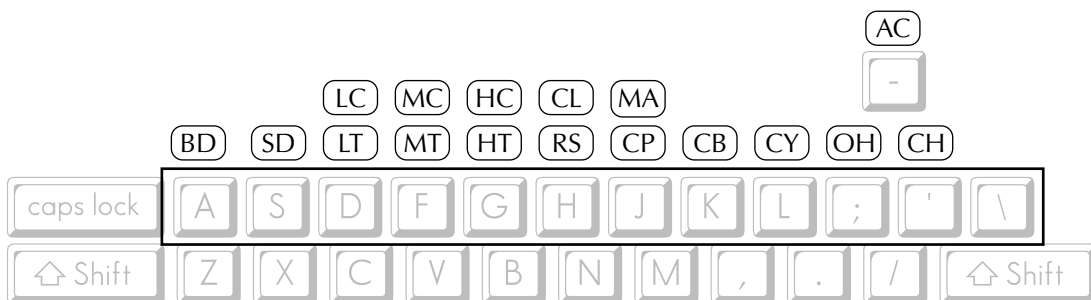
● The key mapping i based on an American keyboard layout!
On the Macintosh, the keys are always in the positions indicated in the picture above, but the labels on the keys may be different in your country. Under Windows, you may need to press other keys, depending on the keyboard layout in your country.

To use Tap Recording, proceed as follows:

1. Make sure you are in Pattern mode.

2. Create a simple beat as a metronome, so that you know where in the beat you are.

3. Make sure "Program Synth from Keyboard" is activated on the Options menu.

4. Activate playback.

5. Make sure the rhythm section has the focus.
See the main ReBirth manual for more info on focus.

6. Hit the relevant key at the time you want the drum played.
Getting the rhythm right might take a little bit of practice, since a computer keyboard wasn't really designed for playing drums.

7. Keep playback going and add as many notes as you like.

● Please be aware that the latency phenomenon (see page 155) applies to tap recording as well. If your system has a large latency, you will need to hit the keys slightly in advance.

Deleting notes via the Computer Keyboard

You can also delete notes from the computer keyboard:

1. **Select the drum instrument you want to delete, using the rotary knob or the name labels.**

2. **With playback activated, press and hold the [Shift] key, when the notes you want to delete are playing.**
   Notes get deleted for as long as you keep the [Shift] key pressed.

Working with Shared Instruments

There are 16 sounds to select from, plus the Accent (see page 29). However, there are only 11 sound *slots* (not counting the Accent), that is, you can only have up to 11 sounds playing at any time (techniques for extending the number of sounds used in a Song can be found on page 28).

An example of a "shared instrument" is Low Tom (LT) and Low Conga (LC). You can only have either Low Tom *or* Low Conga in one Pattern.

Selecting "Shared" Sounds

To select one of the two sounds in a shared "slot", proceed as follows:

1. **Select the basic sound in the pair, using the rotary knob.**

2. **Flick the switch on the panel that selects between the two sounds in a shared slot.**

These switches selects between two sounds in a pair.

You can flip the shared instruments switches at any time, even after programming a sound. The Pattern will then play back with the newly selected sound, rather than the other.

Using Song Mode to play two Shared Instruments in one Song

● If you are not familiar with Song mode, the text below might not make sense to you. Please get back to this section once you have acquainted yourself with Song automation.

The settings of the shared instrument switches are part of the Song automation, like most other controls on the panel. This means that a Pattern programmed with Toms might be played back with Congas, if that is the way the switches are set in the *Song*. While this might be confusing at first, it can also be used to good effect. You can program sound changes as part of your song automation, and therefore have both (for example) Toms and Congas in one Song. See page 64 for more information.

Working with Accents

The sound to the far left on the Panel is labelled AC, for accent. This is not a drum sound as such, but rather a way to control the dynamics for a Pattern. Steps where an Accent is programmed will be louder than other steps. The effect is global for all sounds, that is, they will all be louder by the same amount.

1. **Select the Accent Instrument.**

2. **Add an Accent to steps you want to be louder.**

3. **Adjust the Accent volume knob, to set the difference in volume between accented and un-accented steps.**

Accent is most often used for adding "life" to a rhythm part. To check out the effect, try this example:

1. **Program a simple Pattern that plays a closed hi-hat on all sixteenth notes.**

2. **Add accents to every other step, that is step 1, 3, 5, 7 etc.**

3. **Adjust the Accent level.**

About Open and Closed Hi-hat

Open hi-hat (OH) and closed hi-hat (CH) are mutually exclusive. That is, only one of them can sound at a time. Here are the rules:

• **If you program an open hi-hat on one step, and a closed on the next, the closed hi-hat will cut off the sound of the open hi-hat.**

• **If you program open and closed hi-hat on the same step, you will get a very short open hi-hat sound, that sounds very much like a closed hi-hat.**

Clearing the Pattern

If you wish to clear the Pattern, proceed as follows:

1. Move the focus bar to the rhythm section, either by clicking between the Pattern selector and the actual "drum machine", or by using the up/down keys on the computer keyboard.
Either way, you want the orange indicator to be in the rhythm section.

Focus set to the rhythm section.

2. Select Clear from the Edit menu.
The Pattern is cleared.

Working with Various Pattern Lengths

By default all Patterns are one bar long, that is they are made up of sixteen sixteenth note steps. However, you can shorten a Pattern to any number of sixteenth notes, between 1 and 16. This allows you to program rhythms in unusual time signatures.

• **To set the Pattern length, use the Length indicator arrow buttons.**

The Pattern Length setting.

This operation can be performed at any time, whether the Pattern is empty or not, and both in playback and stop mode. The change takes effect immediately.

Sound Parameters

The rhythm section sound parameters.

Each individual sound has one or more parameters for adjustment of sound character and level. Every sound has a level control and many sounds have additional parameters. Below follows a summary of the available parameters:

Level
This is simply the volume for the sound.

Tune
This is the pitch of the sound, the tuning. For the snare, please note that this only affects the "body" of the sound, not the "rattle".

Tone
This is like a tone control, a "filter" that adjusts the timbre. The higher the setting the brighter the sound.

Decay
This adjusts the length of the sound.

Snappy
This is only available for the snare. It adjusts the balance between the "body" of the sound and the "rattle".

5

Programming Synth Patterns

Preparations

1. If required, create a New song or Open an existing one.

2. Make sure Pattern mode is selected.
This is done using the Song/Pattern switch on the Transport panel. You can only program Patterns in Pattern mode.

3. Select a Pattern to program.
How to do this is described on .

The Pattern you select can be an empty one or one already playing something, it doesn't matter. If it is filled with notes you can either clear it to start over from scratch, or modify the existing Pattern as you like.

Soloing a Synth Section

If you want to make sure you are only hearing one of the synths while programming, you will want to turn off all other sections:

- **Click the on/off button in the mixer for the rhythm section and the other synth, to turn them off.**

In this example you will only hear the upper synth.

Programming and Playback

You can program synth Patterns, whether the program is in stop mode or playing. It doesn't really matter which, but the most convenient is probably to have playback going so that you will hear the notes you have programmed so far as the Pattern repeats.

Clearing the Pattern

In a new default Song document, all Patterns are already programmed. You might want to clear the Pattern before you start, using Clear on the Edit menu. For more info, see .

Basic Procedures

Basically, creating a Pattern is a question of selecting each of the sixteenth note steps, and making settings for each one. These settings determine whether each of the steps plays a note or a pause, what the pitch should be etc.

Here's a step by step instruction for the basic method of making a Pattern:

1. Make sure you are not in Pitch mode. If the Pitch mode light is lit, click on it to turn it off.
See for more information on Pitch mode.

Pitch mode deactivated.

2. Use the Step and Back buttons to move to the step you want to make changes for.
The step counter shows you where in the Pattern "you are".

The step counter.

● If you want to move to step one, there's a shortcut: Click on the Pitch mode button twice.

3. Adjust the settings for each step, as desired.
Below follows a quick description of the possibilities, details about each one follows later in this chapter.

This determines whether the current step plays or not.

The pitch for the step.

Decides if the pitch of this step should slide over to the pitch of the next step.

These allow you to transpose the note up or down.

Determines whether this step should be played with an accent (louder and with a different character).
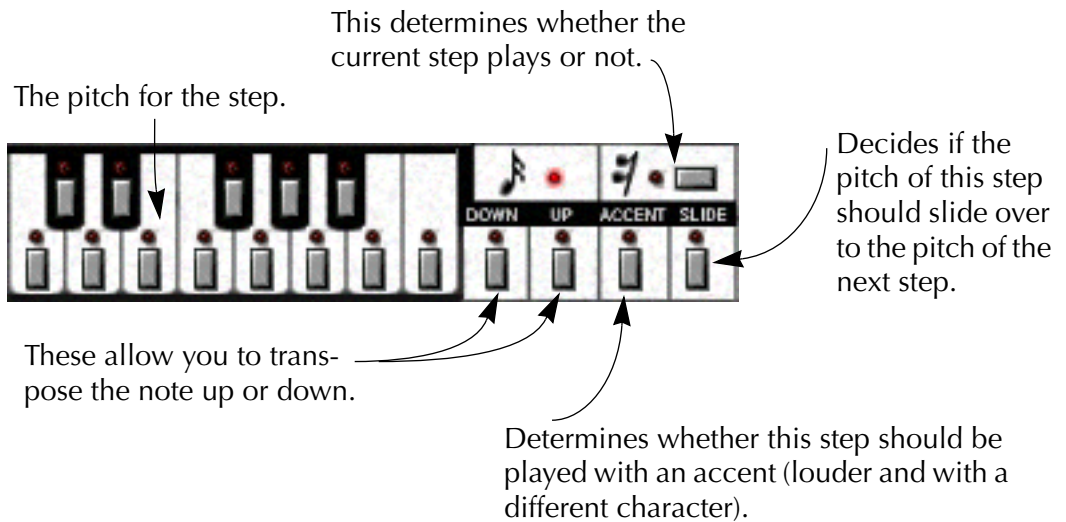
4. Use the Step button to move to the next step, and make settings for this.
If you are already at the last step, this button takes you to the first step in the Pattern.

5. If required, use the Back button to step back through the steps and adjust the settings as needed.
If you're at the first step, this button takes you to the last step.

6. Repeat steps 2 to 5 above for the remaining steps until the Pattern plays as desired.

Using Pitch Mode

When Pitch mode is activated, the programming procedure is slightly different. In this mode, as soon as you select a pitch on the keyboard, the program automatically advances to the next step. This can be used for two things, for programming a Pattern quickly from scratch, and for altering the pitches in an existing Pattern.

Programming a Pattern from Scratch in Pitch Mode

1. **Set up an empty Pattern and make sure you are at the first step.**
   Check the step counter if you are unsure.

2. **Activate Pitch mode.**
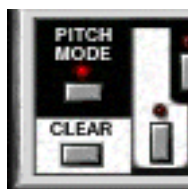
Pitch mode activated.

3. **For the first step, set the note/pause, octave, accent and slide switches as desired.**

4. **Select a pitch for the step by clicking the keyboard, and the program automatically advances to the next step.**
   Note that selecting the pitch should be the last thing you do, since the program then advances to the next step.

5. **Repeat steps 3 to 4 until the Pattern is finished.**

Changing the Pitches in an Existing Pattern

Pitch Mode is extremely useful if you have a Pattern with the correct rhythmic phrasing etc, but want to use it in different places in the song, with other pitches (for example to fit different chord progressions).

1. **Select the Pattern and make sure you are at the desired step, probably the first.**

2. **Activate Pitch mode.**

3. **Select a new pitch for the step by clicking the keyboard, and the program automatically advances to the next step.**

4. **Repeat until the Pattern is finished.**

If you have a step where the pitch is already correct, you can instead just click the Step button to advance to the next step.

Using the Keyboard for Creating and Editing Patterns

There are computer keyboard equivalents for all the step settings. On the next page there is a diagram of these. We strongly recommend you to take some time to get acquainted with using the keyboard, it is a much faster way of programming Patterns than using the mouse, once you get used to it.

Switching Keyboard Input to Synth programming

On the Options menu, you will find a switch for what the keyboard is used for. To use the keyboard for synth Pattern editing, set it to "Program Synth from Keyboard".

Setting the focus to the correct section

Since there are two synthesizer sections, you must also make sure that your keyboard input is routed to the correct one. This is done by moving the focus bar to that section (see page 19). This is done by clicking in the relevant section or by using the cursor up/down keys.

In this example, the focus is set to a synth section.
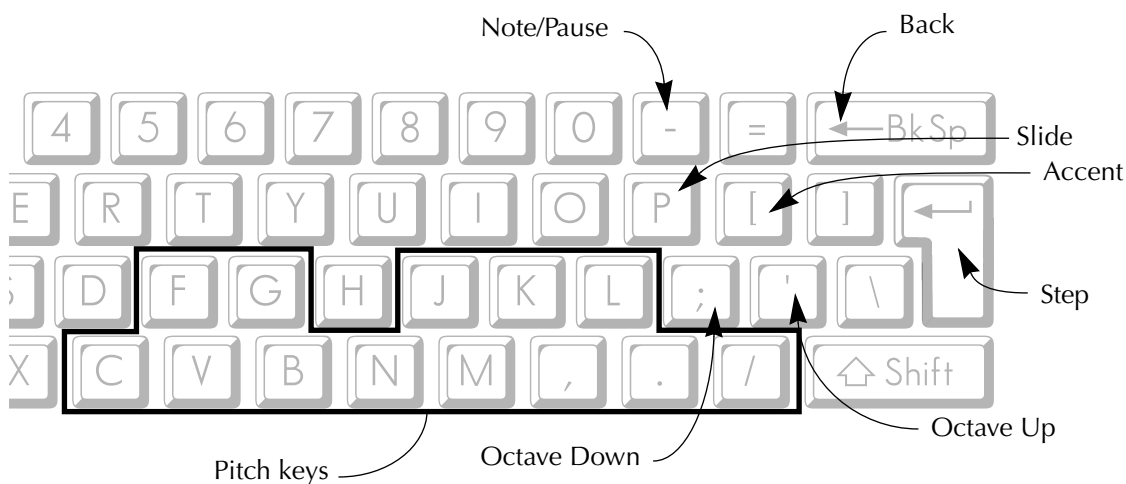
The keys used for editing synth Patterns. The illustration shows a US keyboard. Note that the keys are on the positions indicated, regardless of which letters are printed on the keys in your particular country.

Tapping the Rhythm

Tapping can be used for defining a rhythm for a synth pattern. The way this works is that when you tap, that step is set to Note (as opposed to Pause) regardless of its previous state. That is, tapping only adds notes, it never deletes them.

1. **Set up a Rhythm Pattern so that you have something to go by.**

2. **If you like, clear the synth Pattern before you start tapping.**

3. **Make sure "Program Synth from Keyboard" is activated on the Options menu.**

4. **Activate playback.**

5. **Make sure the desired synth section has the focus.**
   See page 19 for more info on focus.

6. **Hit the [Tab] key at the time you want to add a note.**
   It will play back on the next lap, at whatever pitch as programmed for that step.

7. **Keep playback going and add as many notes as you like.**

● Please be aware that the latency phenomenon (see page 155) applies to tap recording as well. If your system has a large latency, you will need to hit the keys slightly in advance.

Deleting Notes

You can also delete notes using the computer keyboard. Technically this means switching the steps from Note to Pause mode.

• **With playback activated, press and hold the [Shift] key, when the notes you want to "delete" are playing.**
   Notes get switched to Pause mode for as long as you keep the [Shift] key pressed.

Working with Octave settings

The Octave settings transpose a step one octave up/down. This gives you a total octave range of three octaves, from the lowest C transposed down to the highest C transposed up (not counting the tuning parameter, see).

● You can activate both octave switches at the same time, but this is the same as having no transposition at all.

Working with Accents

When Accent is activated for a step, the step will be louder, different in sound character and the note will be shorter. Exactly how different it will be is determined by the Accent knob setting.

If the Accent knob is all the way down, notes with Accent will only be shorter.

The Accent *button* activates
Accent for the current step...

...while the Accent *knob* sets the
amount for *all* "accented" steps.

Working with Slide

When Slide is activated for a step, the note will be tied to the next and the pitch will continuously "glide" to the pitch of the following step.

● Please note that Slide should be activated on the note you slide *from,* and not the note you slide *to.*

There are a few special cases you should be aware of:

Sliding from a Pause

If a step is set to pause it won't sound. However, if Slide is activated for that silent step, the *next* note will still slide in to the right pitch. The slide will *start* at the pitch set for the silent step and end at the pitch of the next step.

Several Sliding Notes after each other

If you have several sliding notes, one after the other, they will all be tied together to one long legato phrase. This can be used to good effect to create "wavy" or pitch bend effects.

Sliding to Notes with the same Pitch – Long Notes

If two or more notes are tied together with the slide feature, but they all have the same pitch, the result will be one long note. This is how to create longer notes (eighth notes, quarter notes etc).

Sliding and Accents

Among other things, the accent affects the envelope – the device that shapes the sound over time. However, if a note is sliding from previous notes, and you add Accent for one ore more steps, the exact effect of the Accent depends on a number of parameters. Sometimes the Accent has less effect on sliding notes. Experiment to get the hang of it!

Clearing the Pattern

If you wish to clear the Pattern, proceed as follows:

1. **Move the focus bar to the desired synth section, either by clicking between the Pattern selector on the actual 'synth panel', or by using the up and down keys on the computer keyboard.**
Either way, you want the orange indicator to be in the synth section you want to clear.

2. **Select Clear from the Edit menu.**
The Pattern is cleared.

Working with Various Pattern Lengths

By default all Patterns are one bar long, that is they are made up of sixteen sixteenth note steps. However, you can shorten a Pattern to any number of sixteenth notes, between 1 and 16. This allows you to program rhythms in different time signatures.

• **To set the Pattern length, use the Length indicator arrow buttons.**

The Pattern Length setting.

This operation can be performed whether the Pattern is empty or not, and both in playback and stop mode. The change takes effect immediately.

6

The Synth Sound settings

The Synth sound controls.

Waveform

This allows you to select between two waveforms for the synth oscillator:

Symbol:	Name:	Description:
M	Sawtooth	This is a full and rich waveform where all harmonics are included.
Π	Square	This waveform only contains odd harmonics, which gives the sound a more "hollow" quality.

Tune

This sets the tuning of this synth section. The range is ±1 octaves in steps of semi-tones. This control can be used for matching the pitch of Patterns programmed in different keys, for real time transposition and for effects.

● Please note that there is also a Transpose function (on the Edit menu), that allows you to alter all notes in a Pattern (in steps of semi-tones) to fit a particular key.

Cutoff

This is the overall filter setting for the sound. The higher the setting, the 'brighter' the sound. This setting interacts with Envelope Modulation as described in more detail under the Envelope Modulation heading later in this chapter.

Resonance

This is another control for the overall character of the sound. Technically it routes the sound at the output of the filter back to the input, in a feedback loop. Soundwise it gives the sound a more hollow, pronounced character. Together with envelope modulation, slide and accent (see page 53), it is largely responsible for the 303 sound character. To try this out, turn the resonance all the way up, and twist the Cut-off and Envelope Modulation knobs.

Env. Mod. (Envelope Modulation)

This adjusts the way the envelope affects the cutoff frequency. Let's describe this in more detail:

As described above, the cutoff setting is a basic tonal setting for the filter. In addition to this there is the *envelope*, which makes the cutoff frequency vary as the note decays. This is the way many "real" instruments work, as the sound decays it also gets less bright. The envelope simulates this by making the cutoff frequency continuously lower as the sound decays. How fast this decay actually occurs is set with the Decay knob, see below.

- In its lowest position, the envelope has little effect on the sound.
- At higher values, the envelope makes the filter open further, that is the sound will be brighter.

Decay

This adjusts the length of the envelope, to make notes decay faster or slower.

Accent

This knob is used for setting to what extent the steps with Accent activated should be different from the other steps. The setting does not only affect volume, but also the shape and character of the sound.

7

Pattern Editing Functions

● To have access to the functions described in this chapter, you must be in Pattern mode, not in Song mode!

Cut, Copy and Paste (Pattern)

These functions allow you to move and copy Patterns between Pattern locations. You can cut, copy and paste within one Song document, or between two Song documents. Proceed as follows:

1. Set the focus to the section you want to cut or copy *from*.
See for details about the focus.

2. Select the Pattern you want to cut or copy.

3. If you want to *move* the Pattern to a new location, select Cut from the Edit menu. If you want to make a *copy* of it, instead select Copy.

4. If you want to paste into another Song, click on its window, so that it becomes active.

5. Move the focus to the section where you want to paste the Pattern you just cut/copied.
If you want to Paste it in the same section, this step is not required.

6. Select the Pattern location where you want to paste.

● Note that when you select Paste, the Pattern that was currently in this location, will be overwritten and can not be retrieved.

7. Select Paste from the Edit menu.
The Pattern you cut or copied is pasted in at the selected Pattern location.

● You can not paste Synth Patterns into the Rhythm Section and vice versa.

Pattern Functions

There are a number of menu functions that allow you to perform various types of editing to your Patterns.

Selecting the Pattern to be Affected

Any of the functions described above always operate on one Pattern in one section. Before you use the function you must make sure the right Pattern will be affected.

Please proceed as follows:

1. **Set the focus to the correct section.**
   See for details about the focus.

2. **Select the Pattern you want to be affected.**

3. **Select the function from the Edit menu.**

About Multiple Menu items

Some functions appear more than once, depending on the various options. The available items might also vary with the focus. If the rhythm section has the focus, other options are available than if a synth section has a focus. Let's take Shift as an example of this:

- If a synth has the focus, there will be two Shift items: Shift Pattern Left and Shift Pattern Right.

- If the rhythm section has the focus there will be four Shift items: Shift Pattern Left, Shift Pattern Right, Shift Drum Left and Shift Drum Right.

Clear

To clear a Pattern completely, use this function.

- **For the rhythm section, this will deactivate all steps for all instruments.**

- **For the synth sections, this will set all steps to pause (as opposed to note), no accent, to the pitch C, no slide, and no octave transposition.**
  In both cases, this means the Pattern will be silent after the operation.

Shift Pattern/Drum Left/Right

This function moves the notes in your Patterns "left" or "right". It either acts on the whole Pattern (Shift Pattern Left/Right), or – for rhythm Patterns – it can be used for shifting the selected drum instrument only (Shift Drum Left/Right).

If you for example use Shift Pattern Right on a synth Pattern, notes that were on step 1 will be moved to step 2, notes that were on step 2 will be on step 3, and so on, up to the notes on the last step which will be moved to the first.

This function can be used for interesting rhythmic effects. It can sometimes also be used as a rescue. If, for example, you have created a great synth Pattern but realize that the downbeat as you hear it, is not on the fist step, use this function to rectify the situation. To move the Pattern several steps, simply use the function repeatedly.

● This function does not take Pattern length into consideration. It always operates on all 16 steps.

Random Pattern/Pitches/Accents etc./Drum

These functions can be used for creating a completely new Pattern, or to only randomize certain aspects of it.

Use this is as a way to generate music automatically, or as an inspirational tool. Patterns that are generated in this way can be edited as any other, so if you don't think the result is exactly what you need you can change it in whatever way you require.

Option	Description
Random Pattern	Creates a complete Pattern with random pitches, accents, slides etc.
Random Pitches	Randomizes the pitches of the Pattern without changing anything else.
Random Accents etc.	Randomizes the Note/Pause, Accent, Slide and Octave settings for the steps.
Random Drum	Randomizes the programming for the selected rhythm instrument.

Alter Pattern/Pitches/Accents etc./Drum

This alters existing synth and rhythm Patterns, by randomly shuffling the data in an existing Pattern. Note that there must be some material to alter for this function to work. In other words, applying it to an empty Pattern will leave you with an empty Pattern.

| Option	Description
Alter Pattern	Alters all aspects of the Pattern.
Alter Pitches	Alters the pitches.
Alter Accents etc.	Alters the Note/Pause, Accent, Slide and Octave settings.
Alter Drum	Alters the rhythm of the selected instrument.

If you want to create a pseudo-randomized Pattern that stays within certain musical boundaries, try the following:

1. Activate Pitch Mode in a synth section.

2. Play the notes you want included in the Pattern, in no particular order.

3. Deactivate Pitch Mode.

4. Select Alter Pattern or Alter Pitches.

● This function does not take Pattern length into consideration. It always operates on all 16 steps.

Transpose

This function allows you to change the pitch of the notes so that the Pattern fits another key. The dialog box that appears allows you to specify the number of steps you want to transpose up/down (±12 semitones).
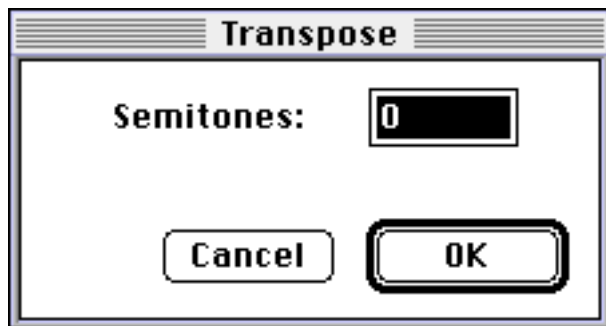
The transpose dialog. (Macintosh version).

● Please note that there's a limitation to how much you can transpose notes. If they already have very high pitches, they might be moved one octave in either direction, so that they "appear" within the valid range of pitches.

8

Mixing & Effects

Introduction

This chapter describes how to use the various features used for creating a final mix of the sounds: levels (volumes), panning and effects.

The effects in ReBirth RB-338 consist of a distortion unit a delay and the PCF (Pattern Controlled Filter). These work just like their physical counterparts, you connect them in the signal chain and make settings for intensity and other characters of the effect.
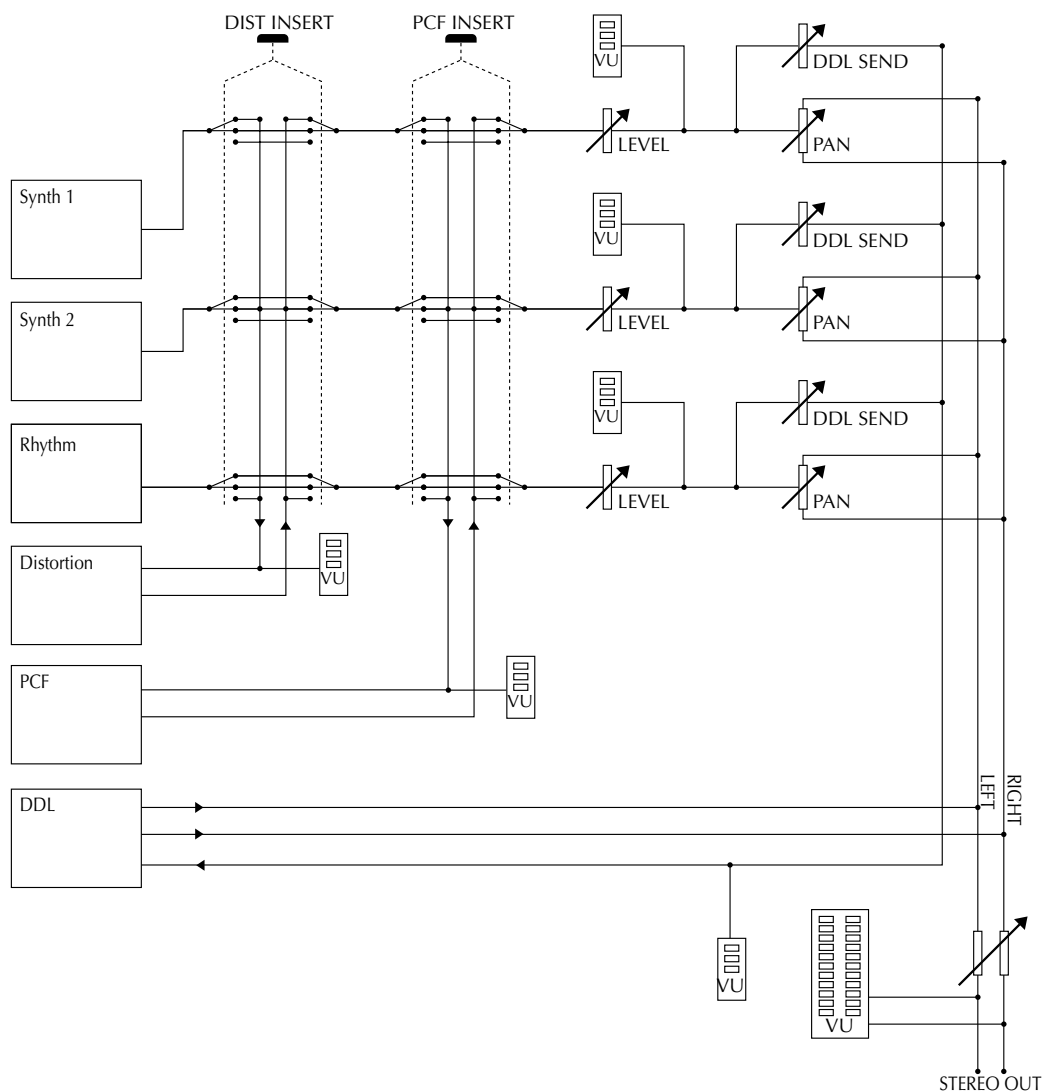
ReBirth RB-338 signal flow diagram.

Setting Levels

Section Levels

The section levels are located in the Mixers.
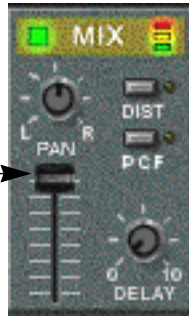
Each of the three sections has a level control, the slider. This is used for adjusting the balance of this section against the others. Here are some guidelines for setting levels:

• Don't worry about cranking a section all the way up. Any distortion (clipping) that occurs can always be removed with the Master Level control, see page 21.

• To get the lowest amount of noise, keep the levels up as much as possible at all times. For example, set the loudest section to play at full level and adjust the other levels downwards to this, to get the right balance.
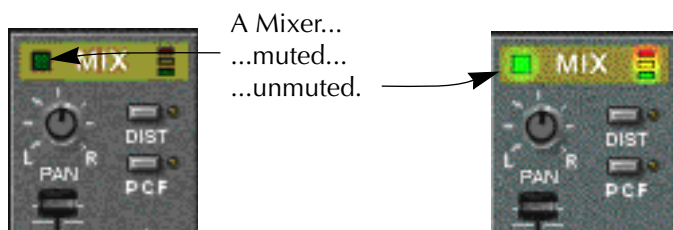
Master Level and Meter

The Master level and meter.

This is used for adjusting the overall level from ReBirth RB-338. It is also used for compensating for any clipping that occurs on the output, due to loud levels from the three sections and the effects. Again, see page 21.

● The Master level setting is not part of the Song automation!

Muting

A Mixer...
...muted...
...unmuted.

In each mixer there's an on/off setting, a mute function. This is used for temporarily silencing the audio from a section.

● This setting is not part of the Song automation. To incorporate silent parts in the Song, use the Pattern on/off switches instead, see page 64.

Using Pan

The Pan controls are located in the Mixers
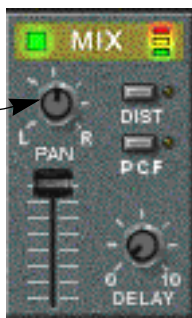
Panning allows you to position a section anywhere in the stereo image. There are several uses for this:

• To increase separation between the three sections, by giving them different stereo positions.

• To create interesting effects by panning a section one way and adding a delay to it, panned the other way.

• To pan sections fully hard/left to use the stereo output as two separate outputs. You can then get total separation of sections when recording to other media or using external effects.

• Using the Song automation you can create sounds that move "automatically" across the stereo image.

Dist (Distortion)

Distortion on/off

Distortion Amount

The Distortion section.

Distortion makes the sound dirtier and grungier, like when you turn up the volume on a guitar amplifier. The distortion in ReBirth RB-338 is an insert effect. This means it will be inserted into the signal, just after the output of one of the sections. Only one section at a time can be distorted.

Trying out the Distortion

1. Activate playback, in Pattern mode.

2. Make sure only one of the synthesizers sound, by using the Mute buttons in its mixer.

3. Active the Dist in that synth's mixer, by clicking the switch so that it lights up.

4. Activate the Distortion, by clicking the on/off button in the Dist section.

5. Raise the Amount switch in the Dist section to about one o'clock.

6. Check the sound with and without distortion by clicking the on/off button in the Dist section. Also check the Distortion effect at various cutoff and resonance settings.

Routing

To decide which section will use the distortion, you use the Dist switches.

• **Only one section at a time can have Dist activated.**

• **You can turn Dist off for all sections, should you wish.**

This section has Distortion activated.
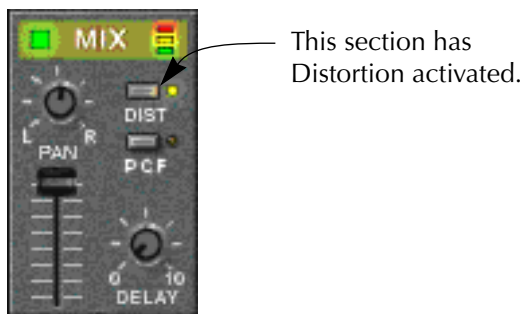
Activating/Deactivating

Once you have decided which section will use the Dist effect, you need to activate the effect itself. This is done in the Dist section by clicking the on/off button.

- **When this is on, one of the sections will pass through the Distortion effect.**

- **When this is deactivated, no sound will pass through the distortion effect (bypass).**

The Amount Setting

There is only one setting for the distortion, Amount. The higher this setting, the dirtier the sound.

Delay

Delay on/off

Sixteenth note/eighth note triplet switch

Delay Length (sixteenths or eighth note triplets)

Feedback (number of repeats)

The panning of the output from the delay

The Delay section.

Delay adds echoes, or repeats, to the sound. The Delay effect in ReBirth RB-338 is a send effect, which means is can be utilized by all the sections, by variable amounts. In addition, the Delay appears after the distortion in the signal chain. In other words, the sound will first get distorted and then pass through the delay unit. Please refer to the signal flow diagram on .

Trying out the Delay

1. **Make sure only one of the synthesizers sound, by using the Mute buttons in the mixer.**

2. **Select a pretty simple synthesizer Pattern and activate playback, in Pattern mode.**

3. **Raise the Delay setting in that synth's mixer, to about two o'clock.**

4. **Activate the Delay, by clicking the on/off button in the Delay section.**

5. **Set the delay controls as the picture below indicates:**
   This will give you a basic delay with a length of three sixteenth notes with approximately three repeats.

Delay example.

The Delay Amount Setting

This section has Delay added.

The Delay knob in each section is used for determining how much of the signal from this section that should be "fed" into the delay unit.

- **If you set this all the way down, no delay will be added to this section.**

- **If you raise it all the way up, the first repeat from the delay will have the same level as the original signal.**

Activating/Deactivating

In addition to setting the Delay level for each section, you need to activate the Delay section itself. This is done by using the on/off switch in the Delay section on the front panel.

The Delay Settings

Setting:	Description:
Number of sixteenth notes (Steps)	This is the length of the delay. The shortest setting is one sixteenth note, the longest is 32 eighth note triplets (see below).
Straight notes/Triplets	This allows you to switch between repeats at eighth note triplets and straight sixteenth notes.
Feedback	This is used for setting the number of repeats, by adjusting how much of the signal from the output of the delay is fed back into the input. When this is all the way down, there will only be one repeat. When it is all the way up, there will be an infinite number of repeats, which means the delay will keep sounding even if you stop playback.
Pan	This is used for setting where in there stereo image the delay signal will appear. For example, you might pan the sound from some section to the left and the delay right, to get a stereo effect.

The PCF (Pattern Controlled Filter)

Introduction

The PCF is an extremely versatile synth effect. It allows you to change the sound, from any of the sections in ReBirth RB-338, in a number of ways.

Basically, the PCF is a filter with an envelope, just like there are filters with envelopes in the synth sections. You route the output of one of the sections through the PCF and thereby shape the tonal character of the sound.

The main difference between the PCF and the synth filters is that this filter is "pattern controlled". There are a large number of preset patterns that allow the filter to "superimpose" pumping effects, slow sweeps and rhythmic phrasing onto the sound. But before we go into the technical details, let us give you an example of how the PCF can be used.

Trying out the PCF

1. **Make sure you are in Pattern mode.**

2. **Create a simple rhythm Pattern to use as a guide.**

3. **Create a synth Pattern that only plays one long droning note.**
   One way to do this is as follows: Clear a Pattern, step through it, activating Slide for each step, and switch each step from Pause to Note.

4. **Mute the other synth section.**

5. **Turn off Delay and Distortion.**

6. **Play back to make sure you hear the long note with a basic sound (set Cutoff at two o'clock). Leave playback on.**

7. **In the Mixer section of the synth you are listening to, click on the PCF button, so that it lights up.**

8. **Activate the PCF by clicking in its upper left corner, so that the LED lights up.**

9. **In the PCF, select Pattern "5" and set the filter type switch to BP. Then set up the faders approximately as in the picture below.**

You will now hear a repeating effect occurring on quarter notes. What happens is that the filter envelope is being retriggered on quarter notes.

10. Step through PCF Patterns 0 to 11 and listen to the various rhythmic figures.

11. Before you test Pattern 12 to 21, raise the Decay and Q settings as the picture below indicates.

You will hear that Pattern 12 to 21 more or less imitate filter "sweeps", rather than repeat effects.

12. Set the controls back as they were before, and test Patterns 22 to 33.
These Patterns are more complex, they contain various rhythmic figures including dynamic changes and various time signatures.

13. Finally, test the Patterns above 33.
These are triggering on 32nd notes, rather than on sixteenth notes.

14. Experiment with various settings and apply the PCF to other Patterns than the one you have now.

15. Mute the synth you are hearing.

16. In the Rhythm section Mixer, click on the PCF button, so that it lights up.
You will note that the LED goes out for the synth, since only one section at a time can use the PCF.

17. Experiment with various settings in the PCF section.
You will notice that it is quite simple to create really interesting electronic sounding drum sounds.

To find out more about the various controls and the technical details, read on.

How the PCF Works - Background Information

The PCF is built from two major components:

1. The Filter

This is a 12dB/octave (2-pole) design that can be switched between lowpass and bandpass operation and has cutoff and resonance controls.

2. An Envelope with Patterns

This is a simple Attack/Decay envelope. The Decay time can be set on the PCF panel. The Attack is controlled via the Patterns, as described below. By using the AMT (Amount) control on the PCF panel, you can set to what extent the envelope affects the filter.
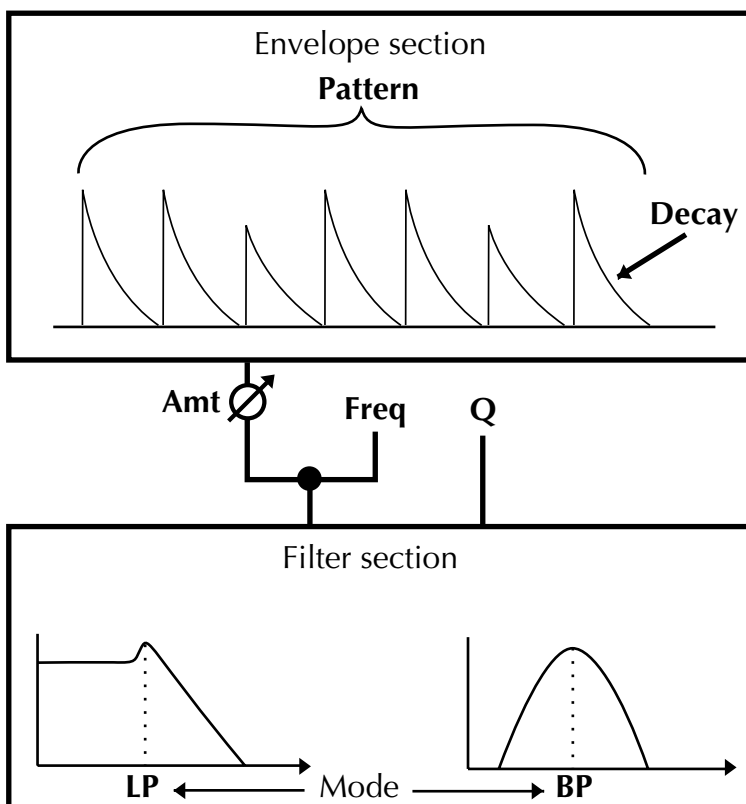
Block diagram of the PCF.

About the Patterns

There are a large number of preset patterns that provide various rhythmic effects. They do this by controlling the following envelope parameters:

- **Retriggering**
  This is the most basic type of control. In Pattern 0 for example the envelope is retriggered (restarted) at each whole note, in pattern 1 on each half note etc.

- **Dynamic and Attack control.**
  In many of the Patterns, the envelope is triggered with different dynamics on different "beats". Some "beats" also have a different attack.

  The Patterns are preset, they can not be changed. Their length vary, most are one or two bars, but some have been created in odd time signatures (a full list can be found on page 179 and onwards).

Routing

To decide which section will use the Pattern Controlled Filter, you use the PCF switches in the Mixers.

- **The PCF comes after the Distortion, in the signal chain.**
  That is, if you activate both distortion and PCF for a section, it passes through the distortion first and then the PCF.

- **Only one section at a time can have PCF activated.**

- **You can of course turn the PCF off for all sections.**

This section has PCF activated.

Activating/Deactivating

Once you have decided which section will use the PCF effect, you need to activate the effect itself. This is done in the PCF section by clicking the on/off button.

- **When this is on, one of the sections will pass through the Pattern Controlled Filter.**

- **When this is deactivated, no sound will pass through the Pattern Controlled Filter (bypass).**

The PCF Settings

Pattern

The patterns are roughly divided into the following categories:

Pattern number	Description
0 to 5	Even rhythms, no dynamics.
6 to 11	Simple rhythms, no dynamics.
12 to 17	Simple sweeps, slow dynamics. Try these with long decay times!
18 to 21	Complex sweeps (more or less random).
22 to 33	Complex rhythms with dynamics and varying attacks.
34 to 45	32nd note patterns.

See for diagrams of the various patterns.

Mode (BP/LP)

This switches the filter between its two major modes, lowpass and bandpass.

- The lowpass filter (LP) is similar to the one used in the synth sections in ReBirth. It lets all harmonics below a certain frequency (the cutoff frequency) pass through.

- The bandpass filter (BP) only lets frequencies within a certain band (a range of frequencies) pass through.

Freq (Frequency)

This is the main frequency range the filter should operate in.

The Freq parameter is related to the Amount (Amt) parameter:

- If the Amount slider is set to zero, there will be no pattern effect at all. The filter can then be used as a fixed "tone control" by adjusting the Freq and Q parameters.

- If the Freq slider is all the way up, the Amt slider has no effect since the filter is already fully open.

Q

This is the same as the "Reso" control in the synth sections. Technically it routes the sound at the output of the filter back to the input, in a feedback loop. Soundwise it gives the sound a more hollow, pronounced character.

● Be careful when combining large Q values in the PCF with large Reso values in a synth, since this might lead to overloading the output of the PCF, causing distortion.

Amt (Amount)

This control determines the amount of effect the envelope has on the filter. For any Pattern effect at all, this must be set to some value above zero.

Dec

This adjusts the length of the envelope decay. This has a significant effect on the "feel" of the Pattern.

- At low values there will be a clear pumping effect.

- When the Decay is raised, the pattern effect will be "smeared". This can be used to good effect with Patterns 12 to 17 for smooth "LFO" effects.

- At very high values, the envelope will not be given a chance to decay very much until it is retriggered, giving a "stepping" effect (similar to the old synth effect "sample and hold"). This is most noticeable on patterns with dynamics (12 and above).

The picture below shows the same Pattern with three different envelope settings.

9
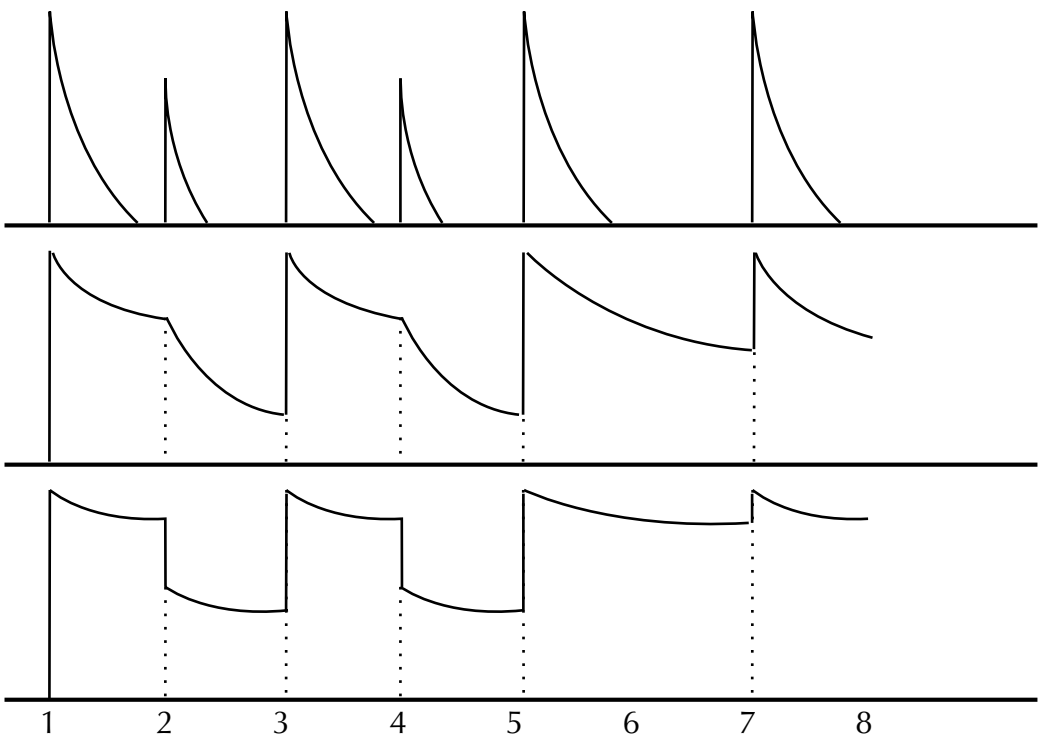
Creating and Playing Songs

Introduction

In Song mode you record series of Pattern changes and knob settings and movements, to create a complete Song. Practically all front panel control can be recorded. You can create automation of filter sweeps, level changes, effect controls, etc.

● The only controls that are not affected by automation are Tempo, the Mute buttons in the Mixer and the Master Level controls!

About the Song/Pattern Modes

The Song/Pattern mode switch.

The Song mode is drastically different from Pattern mode. Here are some of the differences you will encounter:

• **Knobs and buttons are always automated.**
In Song mode, settings and movement of panel controls are always under automation control. You can not move any controls when just playing a Song, you have to have Record activated to do this.

• **Pattern selection is automated.**
Again, what Patterns will play is determined by what is recorded in the Song, not any manual Pattern selections you make using the mouse or keyboard.

• **You normally don't perform Pattern editing in Song mode.**
You *can* re-program the currently playing Pattern. However, since the Song might switch to another Pattern during playback, be careful so that you don't re-program the wrong Pattern!

Playing Songs

When you open a Song, it will play back just as recorded, together with all Pattern changes, panel settings and automation.

The following possibilities are available:

- **You can use the Transport controls (see the printed documentation) to move to any position within the Song and start playback from there.**

- **The Song doesn't really have an end. All Songs can be up to 500 measures in Length and playback will continue up to that point, unless you stop it before.**

- **You can set up and use the Loop to repeat a section, infinitely. If you want the whole Song to repeat over and over, set up the Loop to encompass the whole piece.**

- **You can mute and unmute sections and adjust the master faders. These controls are not part of the Song automation.**

Preparations for Creating your own Songs

Pattern mode Preparations

1. **In Pattern mode, create all the Patterns you want to use in the Song.**
   There's actually nothing preventing you from switching back to Pattern mode at any time, to add and modify Patterns, but you probably want all the basic Patterns to be ready before you assemble the Song.

2. **Try out the basic Pattern changes, to make sure everything works alright.**
   A good way to do this is to use the computer keyboard for Pattern switching, see .

3. **Set up a basic mix including all the sounds for the Song, even including effects.**

4. **Save your Song so you can go back to this stage later.**

   You are now done with the Pattern mode work. Let's switch to Song mode.

Song Mode Preparations

1. **Switch to Song Mode.**

2. **Select "Initialize Song from Pattern mode" from the Edit menu.**

   This accomplishes two things:

- **The whole Song is completely cleared.**

- **The entire Song is set up so that it plays exactly like Pattern mode, just before you switched over to Song mode.**
  This includes the control (knob) settings.

Building a String of Patterns

When creating a Song you most likely will want to create the basic chain of Patterns first, and work on the levels, sounds and effects afterwards. To create the Pattern changes, proceed as follows:

Preparations

1. **Follow the preparation steps outlined above, so that you have an empty Song to start from.**

2. **Turn off the Loop.**
   While this is not required, Loop recording introduces some new concepts, described on page 74. Therefore, to get started with Song creation, turn the Loop off.

The Loop *deactivated*.

3. **Rewind to the first step of the Song (bar counter says "1").**

4. **Press the Record button so that it lights up.**

5. **Select the Patterns for the first bar, by clicking the corresponding Pattern selectors in the three sections.**
   From here on there are two ways to go: Step Mode writing and Real Time writing.

Real Time Writing of Pattern Changes

1. **With Record mode still activated, activate Play.**

2. **Change Patterns as the Song plays back.**
   You can make changes in just one section, or in several, it doesn't matter. Some people will feel confident using the mouse to create the changes for just one section at a time, others will use the keyboard to arrange the whole song on the fly, it's all a matter of personal taste.

● Please check the special notes for creating an end for the Song, see below.

3. **When you are done, hit Stop.**

4. **Rewind and play back to check.**
   If you made any mistakes, you can correct them now or later, as described below. For now we will assume everything is OK, and that you will want to add Pattern changes for the other sections now.

5. Rewind to the beginning of the Song.

6. Activate Record and Play and perform the changes for the next section.

7. Repeat as needed.

Step Mode Writing of Pattern Changes

If you prefer to "punch in a list" of the Pattern changes, without activating playback, proceed as follows:

1. Follow the steps under Preparations, above. Record mode should be activated.

2. While you are still at the first bar of the Song, make sure the correct Patterns are selected for this step. If they're not, select them.

3. Click on the up arrow in the Bar section, to advance to the next Bar.

The arrow buttons allow you to step through the bars in the Song, one bar at a time.

4. Select the Patterns that should play at this bar.
You only need to select actual Pattern *changes*. If a section should play the same Pattern as in the last measure, you don't need to make any Pattern changes for this section.

5. Advance to the next Bar and select Patterns for this.

6. Repeat steps 4 and 5 as needed.

● Please check the special notes for creating an end for the Song, see below.

7. When you are done, hit Stop.

8. Rewind and play back to check.
If you made any mistakes, you can correct them now or later, see below.

Creating an "End" for the Song

A song is actually always 500 bars, it has no real end before that. Playback always continues up until bar 500, unless you stop it. Furthermore, all measures in the Song always play *something*. This has the effect that you must make sure that there are enough silent measures at the end of the Song, for your purposes. If you only add, say, four measures of silence at the end of a Song, and playback continues past those four measures, the Song will play back any Pattern combination that happened to be stored at the remaining measures. To avoid this, add a healthy number of silent measure after your Song end:

1. **Set the start of the Loop to the position of the first bar that should be silent.**

2. **Set the Length of the Loop to maximum value.**

3. **Activate Recording.**

4. **Either select silent Patterns or deactivate Pattern playback completely, in the Pattern sections.**

A deactivated Pattern section.

● Do not use the level faders in the mixers for this purpose, it might lead to confusing results, unless you are absolutely sure of what you are doing.

5. **Select "Copy touched controls to Loop" from the Edit menu.**

6. **Deactivate Recording.**

Correcting Mistakes and Making changes to the Pattern Order

Starting Over

If you realize you would rather start over completely, you can always use the "Initialize Song from Pattern mode" command at any time, to clear the Song completely.

Making Changes to some Part of the Song – "Punching In and Out"

If some Pattern change is not as you'd like it to be, proceed as follows:

1. **Move to the position of the first bar where you want to change Patterns.**

2. **Activate Recording.**
   You can make changes in Step or Real Time (Play) mode, technically it doesn't matter. However, since in Play mode it can be tricky to deactivate recording at exactly the right point in, you might want to perform changes like this in step mode.

3. **Proceed in Step mode or Real Time (Play) mode and select Patterns for all the relevant measures.**

● As soon as you make Pattern selections in one section, that section is considered "punched in" and will show and play the currently selected Pattern, not the Pattern changes previously recorded! Also, don't touch any other controls than the Pattern selectors, or you will have "punched in" on those too!

4. **When you are at the last bar where you want to make any changes, make those changes and then deactivate recording.**

5. **Rewind and check.**

Recording Control (knob) Changes

Once you have your Pattern changes down, it is time to record all the front panel controls. Use this to "mix" the Song (volumes, panning and effects) and to set the sound for the synth and rhythm sections (any sound parameter).

Real Time Recording

1. **Make sure you are in Song mode. You will probably also want to make sure that all Pattern changes are as you want them.**

2. **Turn off the Loop.**
   While this is not required, Loop recording introduces some new concepts, described on page 74. Therefore, to get started with control recording, turn the Loop off.

3. **Rewind so that you are sure you are at the first step of the Song (bar counter says "1").**

4. **Press the Record button so that it lights up.**

5. **Activate Play.**

6. **Move the controls as the Song plays back.**
   You can make changes to just one control, or to several, it doesn't matter. Also note that you can move the controls via MIDI, as described on page 104.

7. **When you are done, hit Stop.**

8. **Rewind and play back to check.**
   If you made any mistakes, you can correct them now or later, as described below. For now we will assume everything is OK, and that you will want to add changes for other controls now.

9. **Rewind to the beginning of the Song.**

10. **Activate Record and Play and perform the changes for the next control(s).**

11. **Repeat steps 9 and 10, as needed.**

Recording in Stop Mode

You *can* record control changes in Stop mode. However, the settings you make when recording is activated in stop mode will only appear for a very short time, just at the beginning of that measure. For the remaining part of the measure, the Song will play whatever control changes were recorded in real time.

Correcting Mistakes and Making Changes to Control (knob) Recordings

Punching In and Out – Making Changes to some Part of the Song

If some control recording is not as you'd like it to be, proceed as follows:

1. **Move to a position one or a few bars before the mistake.**

2. **Activate Recording and playback.**
   Nothing gets recorded until you actually "touch" a control.

3. **When you are at the right position, press the mouse button with the pointer over the control you want to record, and start moving it. Perform the recording.**

● As soon as you "touch" a control in this way, that control is considered "punched in" and will from now on be showing and playing it's current setting, rather than the settings recorded in the Song. However, this happens individually for each control, controls that you haven't touched during this recording pass are not affected in any way.

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4. **When you reach the Song position where you want to return to the previously recorded changes, hit Stop or deactivate Recording (by clicking the Record button or by pressing [*] on the numeric key pad).**

5. **Rewind and check.**

6. **Repeat steps 1 to 4, as desired.**

Filling Measures with "Static" Control Settings

There might be situations where you want to make a "static" change to a number of bars. You might for example want to lower the volume for the first synth between bars 13 and 21, or make sure the dist Amount is constant throughout the entire Song. Proceed as follows:

1. **If you want to perform this action for just a section of the Song, set up the Loop to encompass that section.**

2. **Activate Recording.**

3. **If you want to, also activate playback.**
   It is often convenient to make a change in playback mode, since you will then hear what you are doing! However, note that when you touch a control in this mode, you will also record that action. Then again, this might not matter since you will in a short while fill the measures in the Loop or in the whole Song, with new settings for the control you just touched!

4. When you have the setting right, select "Copy touched controls to Loop/Song" from the Edit menu.

5. Now, the current setting for the controls you have touched during this recording pass, will be copied to all measures in the Loop/Song.

6. Deactivate Recording.

Using "Initialize Loop from Pattern Mode"

This item, on the Edit menu, is used for "initializing" the measures inside the Loop. This can be used as a convenient way to use the settings currently in Pattern mode, as initial settings for some measures in the Song you are building.

● Please note that this command clears all the Pattern changes and knob recordings currently inside the Loop!

Proceed as follows:

1. Switch to Pattern mode and select the correct Patterns and set up all controls as you want them to be inside the Loop.

2. Switch back to Song mode and set up the Loop to encompass the measures you want to change.

3. Select "Initialize Loop from Pattern Mode" from the Edit menu,
All measures inside the Loop are filled with the settings currently made in Pattern mode. That is, the three Patterns selected in Pattern mode will be used, as well as all knob and other control settings.

Recording while Looping

A loop between bar 17 and 33.

All of the text above has assumed the Loop has been turned off. However, you can also record in Loop mode. Basically this is the same as when you record with looping off, except for one situation: when you reach the position where the Loop starts over.

As described above, as soon as you touch a control, this is considered as "punched-in" for this recording pass, and will show and play the settings you give it now, not the ones previously recorded in the Song.

However, when you reach the loop end, all controls will be "punched out", so that on the next lap, they will instead play back movements recorded on the previous lap.

● Please note that if the mouse button is still down when the Song reaches the end of the loop, it will be considered as "punched-in" again. That is, you will again be recording that control, which means you erase any actions performed on previous laps.

To avoid this, release the mouse button just before you reach the Loop end.

About Recording Pattern changes vs. Control Changes

Actually there is no technical difference between recording Pattern changes and controls.

The only reason we have described a working order of first creating the Pattern changes and then the control recordings, is because that is the way most people seem to prefer to work.

If you like, you can do things in any order. Record some Pattern changes, then some controls, then re-record the Pattern changes, for example. Whatever control recordings you have made will now affect the new Patterns instead!

You can even start by recording the controls and then make the Pattern changes!

Making Modifications to Patterns

First, to make modifications to the actual Patterns, we recommend that you switch over to Pattern mode.

Secondly, you should be aware that any changes you make to Patterns will immediately be reflected in the Song. The Song always plays back the Patterns just as they play in Pattern mode. In other words, what you record in the Song are switches between Pattern numbers, not the actual Patterns themselves.

Moving, Removing and Repeating Measures in the Song

Removing Measures

You may want to completely Remove some measures from the Song:

1. Set up the Loop to encompass the measures you want to remove.

2. Select Cut Loop from the Edit menu.
The measures are removed.

Cutting and Pasting Measures

If you want to move or duplicate some measures, proceed as follows:

1. Set up the Loop to encompass the measures you want to move/duplicate.

2. Select Cut Loop or Copy Loop from the Edit menu.
If you select Cut, the measures inside the Loop are removed and copied to the Clipboard, an "invisible" memory location from where they later can be Pasted. If you select Copy, the measures are only copied to the Clipboard.

3. Move the Song Position to the place where you want to Paste In the measures you just Cut/Copied.

4. Select Paste at Song Position or Paste Replace at Song Position.

The Difference between Paste and Paste Replace

- **When you use "plain Paste", the measures are *inserted* into the Song, so that is *lengthened*.**
  If you for example have Cut four bars, and use "Paste at Song Position", at Song Position 13, you will get four new measures between measure 13 and 16. These contain the pasted material. Whatever was at bar 13 *before* the operation, is now at bar 17.

- **When you use "Paste Replace", the Pasted material *replaces* whatever was at those measures before.**
  Again, if you Cut four bars, and use "Paste Replace at Song Position", at Song Position 13, the contents of measures 13, 14, 15 and 16 will be replaced by the measures on the Clipboard.

Repeating Measures

This is just a special case of Copy and Paste, as described above. If you are used to using Copy and Paste in for example a word processing program, you will see that this is the equivalent of that.

1. **Set up the Loop to encompass the measures you want to repeat.**

2. **Select Copy Loop from the Edit menu.**

3. **Select Paste at Song Position as many times as you want the Copied measures to appear, after each other, in a repeated fashion.**

How does the Repeat Procedure really work?

1. **When you Copy the measures inside the Loop, the Song position is automatically moved to the Start of the Loop.**

2. **When you Paste the first time, this means that what you Paste replaces the measures in the Loop with the measures on the Clipboard. However, since these are currently the same, you will notice no difference. But, when you Paste, the Song Position is automatically moved to the end of the Pasted section.**

3. **When you Paste again, the measures are inserted again, right after the previously Pasted section, and this goes on for as many times as you Paste without changing anything else in between.**

Using the Song Record Function in a "live" situation

In a live situation you might want to have "partial automation". That is, you might want Pattern switching to be automatic, but control changes to be manual, or vice versa.

To a achieve this, proceed as follows:

1. **Create a Song that only contains the automation you want, for example only the Pattern switching.**

2. **Make sure the Song starts in the right way with all the correct Pattern and initial control settings.**

3. **Save the Song. Make a duplicate of the file for safety.**

4. **In the live situation, load up the Song, position to the beginning and activate Recording.**

5. **Hit Play and perform any Pattern switching or control changes you want to do live.**

6. **When the Song is finished, stop.**

7. **Close the file *without* saving.**

10

Using ReBirth RB-338 with Cubase

Why use ReBirth RB-338 with Cubase?

While ReBirth RB-338 is a complete music tool in its own right, you might want to add other elements to the music, such as:

- Other synthesizers (controlled via MIDI).

- Samples and loops (via a sampler connected via MIDI).

- Vocals.

- Instrumental recordings.

And what better way to do it than to use ReBirth together with Steinberg's 'state of the art' audio sequencer, Cubase! Using this as a companion allows you to expand and integrate your ReBirth Songs with any other type of music, MIDI and acoustic recordings. By recording ReBirth onto audio Tracks in Cubase you can also add more synth lines than is possible when using ReBirth by itself! For more info on this, see page 101.

There are two ways to integrate the two programs: Synchronization (making the two programs play at the same tempo) and audio sharing (using audio from both applications on one computer).

For more background information on the concepts of synchronization see page 89. For more details about audio sharing, see page 100.

Synchronization

Cubase VST for Macintosh

● Before you create any serious projects that require sync, try out the features described below and check out "Synchronization Considerations" on page 84.

ReBirth synchronizes to Cubase VST for Macintosh via OMS, the Open MIDI System.

Setting Up Cubase

1. Install OMS on your computer.
OMS is included both with Cubase and ReBirth. Use whichever is the latest version.

2. When you install OMS, make sure that IAC gets installed properly.
This might require you to use the Custom install option. To verify, check the OMS folder in your System Folder, after installation. It should contain a file called "OMS IAC Driver".

3. Make sure you have an IAC symbol in your OMS Setup document.
If not, create a new Studio Setup, and when you're asked whether you want to use IAC, activate that option.

4. Open the OMS MIDI Setup dialog in OMS Setup and make sure that "Run MIDI In Background" is enabled.

5. Quit OMS Setup.

6. In Cubase VST, pull down the File menu and select Preferences.

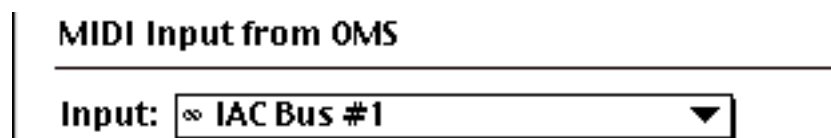**7. In this dialog, select "IN & OUT" from the OMS Compatibility menu.**
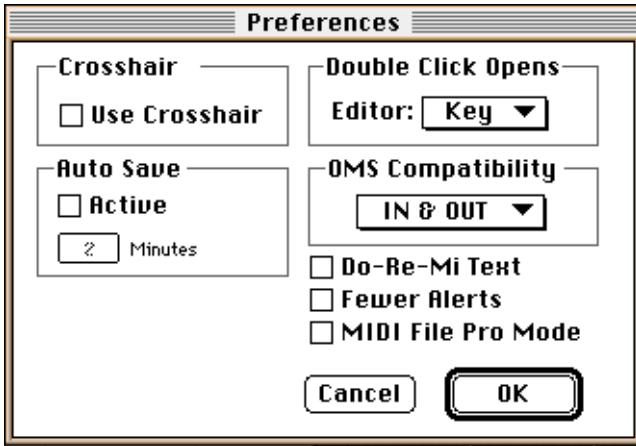
Cubase set up to use OMS.

8. Quit Cubase and restart it.

9. On the Options menu, make sure "Play in Background" is activated.
If it isn't, and you want it to *always* be, you should consider modifying your Autoload Song, see the section about Customizing in the Cubase manual for details.

10.Open the Synchronization dialog in Cubase.

11.In the Sync Out section, locate the MIDI Clock pop-up. Pull down the menu and select "∞ IAC Bus #1".
This routes the MIDI Clock Signals out to OMS from where ReBirth RB-338 can receive them.

Cubase set up to transmit MIDI Clock to the IAC port.

Setting Up ReBirth

1. In ReBirth, pull down the Edit menu and open the Preferences dialog.

2. In this dialog, pull down the Sync Input menu and select "∞ IAC Bus #1".
Now, ReBirth will receive MIDI Clock from Cubase, via OMS.

MIDI Input from OMS

Input: ∞ IAC Bus #1 ▼

ReBirth set up to receive MIDI Clock from the OMS IAC port.

3. Close the dialog.

4. Activate Sync to MIDI Clock from the Options menu in ReBirth.

5. Activate playback in Cubase VST.
ReBirth will start playing 'in sync' with it and the Sync LED on the Transport will indicate the beats.

● Note that this makes the two programs play at the same time, that is, they both "run" when you "hit play". It does not means they can both play *audio* at the same time. See page 86 for details about "sharing audio".

"Live Sync"

Cubase for Windows

● Before you create any serious projects that require sync, try out the features described below and check out "Synchronization Considerations" on page 84.

ReBirth synchronizes to Cubase for Windows via a utility called "Hubi's Loopback Device". This utility is included on the ReBirth RB-338 CD-ROM, in the folder "Hld" (Hubi's Loopback Device).

Installing

1. **Insert the ReBirth RB-338 CD-ROM into your computer.**

2. **Locate the folder "Hld" on the CD-ROM.**

3. **Find the file "How to Install HLD" in this folder, and double click on it.**

4. **Follow the instructions on screen.**

Setting Up Cubase

1. **In Cubase, pull down the Options menu, and make sure "Play in Background" is activated.**
   If it isn't, and you want it to *always* be, you should consider modifying your DEF.ALL song, see the section about Customizing in the Cubase manual, for details.

2. **Open the Synchronization dialog in Cubase.**

3. **In the Sync Out section, locate the MIDI Clock pop-up. Pull down the menu and select the desired output ("LB1" if you haven't renamed the MIDI "ports" in Hubi's Loopback Device).**
   This routes the MIDI Clock Signals out to Hubi's Loopback Device, from where ReBirth RB-338 can receive them.

Cubase set up to transmit MIDI Clock to the "LB1" port.

Setting Up ReBirth

1. In ReBirth, pull down the Edit menu and open the Preferences dialog.

2. In this dialog, pull down the Input menu in the MIDI Input section, and select the corresponding Input (possibly "LB1").
Now, ReBirth will receive MIDI Clock signals from Cubase, via Hubi's Loop-back Device.
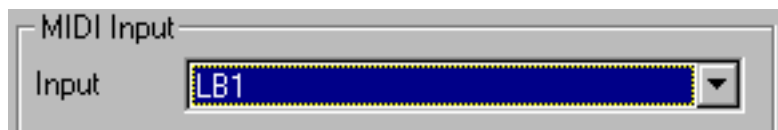
ReBirth set up to receive MIDI Clock from the "LB1" port.

3. Close the dialog.

4. Activate Sync to MIDI Clock from the Options menu in ReBirth.

5. Activate playback in Cubase.
ReBirth will start playing 'in sync' with it and the Sync LED on the Transport will indicate the beats.

● Note that this makes the two programs play at the same time, that is, they both "run" when you "hit play". It does not means they can both play audio at the same time. See page 86 for details about "sharing audio".

"Live Sync"

See page 97 for more information on how to make the most out of ReBirth's "Live Sync" feature.

Synchronization Considerations

Adjusting the Sync Delay

☑ Sync to MIDI Clock   Adjust Sync: 0ms   ⬆⬇

Sync Delay (Mac version)

Because of the latency problem described on page 155, you might need to adjust ReBirth RB-338's playback in relation to Cubase, so that they are in perfect time. The tempo will not differ between the two, but ReBirth might play ahead or behind Cubase.

You might need to adjust this. However, this is something you only need to do once. The setting is stored with your other preferences, which means there's no need to adjust this setting again. Proceed as follows:

1. **Set up Cubase so that it generates a solid click, on for example quarter or eighth notes, preferably with a special sound on the downbeat.**
   This click can either come from the internal metronome or from a MIDI source. If you use a MIDI source, make sure you pick one that has solid MIDI timing.

2. **Set up ReBirth so that it plays a rhythm similar to the other application.**
   Use distinct sounds that are similar to the metronome in the other application, for example CB and CL.

3. **Start the two applications in sync.**

4. **Make sure you hear both applications at approximately equal level.**

5. **Open the Preferences dialog in ReBirth.**

6. **Trim the "Adjust Sync" setting until the "clicks" from both sources sound at exactly the same time.**

7. **Close the Preferences dialog in ReBirth.**

About the beginning of the Song

Due to the latency phenomenon, described on page 155, ReBirth needs some time to correct it's playback speed when it first receives the Start command. This can be noted as a small glitch in the audio playback, when the program starts. If this is a problem, you need to insert a couple of empty measures at the beginning of the Song. Proceed as follows:

1. **Make sure you are in Song mode, in ReBirth.**

2. **Set up the Loop so that it starts at Bar 1 and is two Bars long.**

3. **Move to Bar 1, the beginning of the Song.**

4. **Select Copy from the Edit menu.**

5. **Select Paste from the Edit menu.**
   You now have two more measures at the beginning of the Song. Let's make them silent:

6. **Activate recording, but not playback.**

7. **Deactivate all three sections, in the Pattern selector.**

8. **Move the Song Position to Bar 2.**

9. **Deactivate Recording.**

10. **In Cubase, set up the Left Locator at the beginning of the Song and the Right Locator at bar 3 (3.1.0).**

11. **Make sure that all Tracks that you use in the Song are unmuted.**

12. **Pull down the Structure menu and select Global Insert.**
   You now have two empty bars at the beginning, both in Cubase and in Re-Birth.

About tempo readouts

If the other program/device also has a tempo display, you might note slight differences in tempo readout between ReBirth and the other device/application. This is normal, especially if the other is an external device, and does *not* mean the two application do not sync properly. MIDI Clock does not contain numeric information about which tempo to play in. Rather, the tempo has to be calculated by the receiving device, by measuring the pace the clock signals are coming in at. Just like with two watches, there will always be minor differences in their "speed".

About Tempo Changes

Again, due to the latency phenomenon, ReBirth RB-338 needs a bit of time to adjust to changes in tempo. If there are abrupt changes in the MIDI Clock, due to drastic tempo changes on the master, you will note that ReBirth RB-338 will require up to one measure to adjust itself to the change.

To minimize this problem, try to use gradual tempo changes rather than immediate ones.

Also note that drastic tempo changes might introduce slight "clicks" in the output from the Delay unit in ReBirth.

Audio Sharing

When you run ReBirth RB-338 together with Cubase, you might run into a situation where you have two applications playing audio at the same time. To make this work, read the following section.

If you only use Cubase for MIDI (if you never use audio Tracks) this situation might not be a problem for you, but you still need to make sure ReBirth has access to the audio on the computer, see below.

Cubase VST for Macintosh

If you only use Cubase for MIDI

If you never use any audio Tracks in Cubase VST, you only need to make sure that VST does not "steal" the audio on your computer.

1. **Launch Cubase VST.**

2. **Select System from the Audio menu.**

3. **Make sure the program uses the "Apple Sound Manager" ASIO driver.**

4. **Close the dialog.**

If you run Cubase with the Sound Manager

If you use the internal audio on your computer, Cubase VST gives you the option of accessing these via the "Apple DAV" and via the Sound Manager. While the "Apple DAV" method is more efficient for VST, it is not available on all computers. The "Apple DAV" method is also a 'single user' system; once VST is using the audio on the computer ReBirth RB-338 can't access it too.

To run the two programs at the same time and have both playing audio, you *must* select the Apple Sound Manager driver in VST, as described above.

If you run Cubase with an audio card for which there is an ASIO driver

Cubase VST can also access a number of audio cards "directly" (as opposed to via the Sound Manager) via ASIO drivers. Examples of such cards are the Digidesign Audiomedia III and Korg 1212.

If you use such a card, you can still play audio from both applications at the same time. ReBirth uses the Sound Manager (the audio appears on the standard Macintosh outputs) and the other application uses the sound card.

1. **Make sure that no Sound Manager driver is installed for the card.**
   Such a driver might have been included with the card and is in that case located in your System Folder. Please remove it and restart your computer.

2. **Set up VST to access the card via an ASIO driver.**

3. **Launch ReBirth.**
   It will use the internal audio outputs on your Macintosh.

Cubase for Windows

If you only use Cubase for MIDI

If you never use any audio Tracks in Cubase, you only need to make sure that Cubase does not "steal" the audio on your computer.

- **To ensure ReBirth has access to the audio on your computer, always launch ReBirth first.**

If you have two audio cards and want to use audio in both programs

If you have two audio cards, Cubase can use one and ReBirth one:

1. **In Cubase, open the Hardware Setup dialog and select the other audio card from the Record and Playback menus.**

2. **Launch ReBirth, open the Preferences dialog and select one of the audio cards from the Audio Card driver menu.**

If you only have one audio card and want to use audio in both programs

Well, then you're in a bit of a fix, because the current version of Cubase (as of this writing) will "grab" the audio card it is using, which means ReBirth will stop sounding.

There are exceptions to this rule, however. Some advanced audio cards, such as the Terratec EWS-64, can "fool" the computer into thinking there is more than one card installed. If you have such a card, follow the instructions for use of two cards, above.

You're only other solution in this case is to use Export Audio, as described on .

11

Using ReBirth RB-338 with Other Equipment and Programs

Synchronization

● Synchronization on the Macintosh computer requires you to have OMS installed.

What is Synchronization and MIDI Clock?

Synchronization, in this context, is when you make ReBirth play at the same tempo as another device; where both start, stop and can locate to certain positions, together. This is done by transmitting MIDI Clock signals between ReBirth and the other device. MIDI Clock is a very fast "metronome" that can be transmitted in a MIDI Cable. As part of the MIDI Clock concept there are also instructions for Start, Stop and locating to sixteenth note positions.

You can set up synchronization between ReBirth and hardware devices (tape recorders, drum machines, stand alone sequencers, workstations etc) and other computer programs running on the same or another computer.

Master/Slave

In a synchronized system there is always one master and one or more slaves. In our case, the master is the one that controls the tempo. In other words, it is only the tempo setting on the master device that is of any relevance, since the slaves slavishly follow the master's tempo.

• **ReBirth always acts as a slave. That is it receives MIDI Clocks, it never transmits them.**

● Before you create any serious projects that require sync, try out the features described below and check out

Slaving ReBirth RB-338 to an External Device

This example assumes you have an external device, such as a drum machine, hardware sequencer, another computer, tape recorder etc, that transmits MIDI Clocks that you want to synchronize ReBirth to.

1. **Connect a MIDI Cable from the MIDI Out on the other device to a MIDI In on the computer running ReBirth.**

2. **Set up the other device so that it *transmits* MIDI Clock signals to the MIDI Out you just connected to the computer running ReBirth.**

3. **In ReBirth, pull down the Edit menu and open the Preferences dialog.**

4. **In this dialog, pull down the Input menu in the MIDI Input section and select the MIDI Input to which you connected the MIDI cable from the other device.**
   On the Macintosh, if you do not understand which Input this is, or if that MIDI input doesn't appear in the list, consult your OMS documentation for information on MIDI interfaces, MIDI ports and naming.

MIDI Input from OMS

Input: Studio 4–Printer ▼

ReBirth Mac set up to sync to MIDI Clock coming in via the Printer port on an Opcode Studio 4 interface.

Under Windows, if you can't find the MIDI Input you want to use, there is either something wrong with the installation of the interface, or some other program is holding on to it. Consult the documentation for the MIDI interface, the other program and Windows, for more information.

MIDI Input

Input   SB16 MIDI-In [330] ▼

ReBirth Windows set up to sync to MIDI Clock coming in via the MIDI interface on a Sound Blaster card.

5. **Close the dialog.**

6. **Activate Sync to MIDI Clock from the Options menu in ReBirth.**

7. **Activate playback on the other device.**
   ReBirth will start playing 'in sync' with it and the Sync LED on the Transport will indicate the beats.

Macintosh Platform – Slaving ReBirth RB-338 to Another Program on the Same Computer, using OMS

ReBirth supports the OMS IAC (Inter Application Communication) system, which allows you to run MIDI Clock signals from another program to ReBirth.

1. **Install OMS, and make sure that IAC gets installed properly.**
   This might require you to use the Custom install option. To verify, check the OMs folder in your System Folder, after installation. It should contain a file called "OMS IAC Driver".

2. **Make sure you have an IAC symbol in your OMS Setup document.**
   If not, create a new Studio Setup, and when you're asked whether you want to use IAC, activate that option.

3. **Open the OMS MIDI Setup dialog in OMS Setup and make sure that "Run MIDI In Background" is enabled.**

4. **Quit OMS Setup.**

5. **Set up the other program, so that it *transmits* MIDI Clock to one of its dedicated "program ports" or to the OMS IAC port.**
   It doesn't matter which you choose. If you feel unsure about which port to use, select IAC. If you want use a "program port" make sure you launch the other application before you launch ReBirth.

6. **In ReBirth, pull down the Edit menu and open the Preferences dialog.**

7. **In this dialog, pull down the Input menu in the MIDI Input section and select the MIDI Port you selected for Output in the other application.**
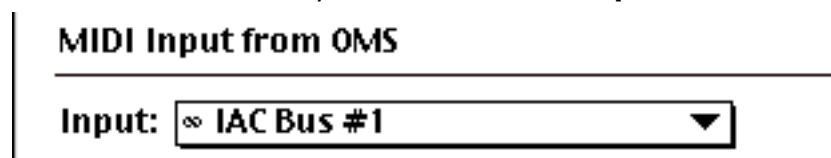
ReBirth Mac set up to sync to MIDI Clock coming in via an OMS IAC port.

8. **Close the dialog.**

9. **Activate Sync to MIDI Clock from the Options menu in ReBirth.**

10. **Activate playback on the other device.**
    ReBirth will start playing 'in sync' with it and the Sync LED on the Transport will indicate the beats.

Macintosh platform – Slaving ReBirth RB-338 to a non-OMS Program on the Same Computer

If the MIDI program you use does not support the professional standard for MIDI on Macintosh computers, OMS, you can still set up synchronization, but this requires two MIDI interfaces, each connected to one of the serial ports on your computer.

1. **Set up OMS so that it uses only one of the MIDI interfaces installed.**

2. **Set up the other application so that it uses the other MIDI interface.**

3. **Connect a MIDI cable from an output on the "other application" interface to an input on the OMS-controlled interface.**

4. **Set up the other application so that it transmits MIDI Clock signals to the output you connected the cable to.**

5. **In ReBirth, pull down the Edit menu and open the Preferences dialog.**

6. **In this dialog, pull down the Input menu in the MIDI Input section and select the MIDI Port you connected the cable to.**
   If you do not understand which Input this is, or if that MIDI input doesn't appear in the list, consult your OMS documentation for information on MIDI interfaces, MIDI ports and naming.

7. **Close the dialog.**

8. **Activate Sync to MIDI Clock from the Options menu in ReBirth.**

9. **Activate playback on the other device.**
   ReBirth will start playing 'in sync' with it and the Sync LED on the Transport will indicate the beats.

Windows platform – Slaving ReBirth RB-338 to an Another Program on the Same Computer

ReBirth synchronizes to other programs on the same computer via a utility called "Hubi's Loopback Device". This utility is included on the ReBirth RB-338 CD-ROM, in the folder "Hld" (Hubi's Loopback Device).

Installing

1. **Insert the ReBirth RB-338 CD-ROM into your computer.**

2. **Locate the folder "Hld" on the CD-ROM.**

3. **Find the file "How to Install HLD" in this folder, and double click on it.**

4. **Follow the instructions on screen.**

Setting up the applications

With the "Hubi's Loopback Device" utility installed, you will find a number of new MIDI Inputs and Outputs in your MIDI applications. These are "invisible MIDI cables" that run between the MIDI programs on your computer.

1. **In the other application, set things up so that it transmits MIDI Clock signals to the desired output ("LB1" if you haven't renamed the MIDI "ports" in Hubi's Loopback Device).**

2. **In ReBirth, pull down the Edit menu and open the Preferences dialog.**

3. **In this dialog, pull down the Input menu in the MIDI Input section, and select the corresponding Input (possibly "LB1").**
   Now, ReBirth will receive MIDI Clock signals from the other application, via Hubi's Loopback Device.

ReBirth set up to sync to MIDI Clock coming in via "LB1".

4. **Close the dialog.**

5. **Activate Sync to MIDI Clock from the Options menu in ReBirth.**

6. **Activate playback on the other device.**
   ReBirth will start playing 'in sync' with it and the Sync LED on the Transport will indicate the beats.

● Note that this makes the two programs play at the same time, that is, they both "run" when you "hit play". It does not means they can both play audio at the same time. See page 100 for details about "sharing audio".

Synchronization Considerations

Adjusting the Sync Delay

☑ Sync to MIDI Clock　　　　**Adjust Sync:**　　**0ms**

Sync Delay (Mac version)

Because of the latency problem described on , you might need to adjust ReBirth RB-338's playback in relation to the sync master, so that they are in perfect time. The tempo will not differ between the two, but ReBirth might play ahead or behind the other application. You might need to adjust this. However, this is something you only need to do once. The setting is stored with your other preferences, so you don't need to adjust it again.

Proceed as follows:

1. **Set up the other application so that it generates a solid click, on for example quarter or eighth notes, preferably with a special sound on the downbeat.**
This click can either come from an internal metronome or from a MIDI source. If you use a MIDI source, make sure you pick one that has solid MIDI timing.

2. **Set up ReBirth so that it plays a similar rhythm as the other application.**
You might for example use the CB and CL sounds.

3. **Start the two applications in sync.**

4. **Make sure you hear both applications at approximately equal level.**

5. **Open the Preferences dialog in ReBirth.**

6. **Trim the "Adjust Sync" setting until the "clicks" from the both sources sound at exactly the same time.**

7. **Close the Preferences dialog in ReBirth.**

About the beginning of the Song

Due to the latency phenomenon, described on page 155, ReBirth needs some time to correct it's playback speed when it first receives the Start command. This can be noted as a small glitch in the audio playback, when the program starts. If this is a problem, you need to insert a couple of empty measures at the beginning of the Song. Proceed as follows:

1. **Make sure you are in Song mode, in ReBirth.**

2. **Set up the Loop so that it starts at Bar 1 and is two Bars long.**

3. **Move to Bar 1, the beginning of the Song.**

4. **Select Copy from the Edit menu.**

5. **Select Paste from the Edit menu.**
   You now have two more measures at the beginning of the Song. Let's make them silent:

6. **Activate recording, but not playback.**

7. **Deactivate all three sections, in the Pattern selector.**

8. **Move the Song Position to Bar 2.**

9. **Deactivate Recording.**

10. **Set up the other device/application, so that it also plays two empty bars at the beginning.**

About MIDI Song Position Pointers

MIDI Clock actually consists of five type of messages: The actual clock (the metronome that establishes the tempo), Start, Stop and Continue commands and Song Position Pointers. This last type of message contains information about positions, so that a program for example "knows" where in a Song to start playback from.

Normally, this ensures that you can locate to any position and activate playback from there. In older devices, Song Position Pointers might not be implemented. This means that you will be able to synchronize properly only if you start both devices from the absolute beginning of the song.

About Tempo readouts

If the other program/device also has a tempo display, you might note slight differences in tempo readout between ReBirth and the other device/application. This is normal, especially if the other is an external device, and does *not* mean the two do not sync properly. MIDI Clock does not contain numeric information about which tempo to play in. Rather, the tempo has to be calculated by the receiving device, by measuring the pace the clock signals are coming in at. Just like with two watches, there will always be minor differences in their "speed".

About Tempo Changes

Again, due to the latency phenomenon, ReBirth RB-338 needs a bit of time to adjust to changes in tempo. If there are abrupt changes in the MIDI Clock, due to drastic tempo changes on the master, you will note that ReBirth RB-338 will require up to one measure to adjust itself to the change. How long this actually takes also depends on the precision of the incoming MIDI Clock. The more precise it is, the faster ReBirth can adjust to it.

If this adjustment is a problem, try to use gradual tempo changes rather than immediate ones.

Also note that drastic tempo changes might introduce "clicks" in the output from the Delay unit in ReBirth.

Using "Live Sync"

Background Information

What is commonly referred to as "MIDI Clock" is actually four different types of MIDI messages:

- Start and Stop
  These are the messages sent out when you Start and Stop your sync master.

- Song Position pointers
  These are messages used for sending out positions, so that a slave can determine where in a Song to start from. If you for example fast forward your master to bar 80 and hit play, ReBirth will also start from bar 80.

- The actual clock messages.
  Once playback is going, the only messages that are sent are the actual clock messages, that allow the slave to play in the same tempo as the master.

  ReBirth RB-338 responds correctly to all these messages. Understanding the difference between them will help you make the most out of the live sync feature in the program, see later in this chapter.

The Sync and MIDI LEDs

The MIDI LED

The MIDI LED indicates the program is receiving MIDI data.

The MIDI LED on the front panel lights up on all types of MIDI messages, including MIDI Clock. This means that if this is lit, MIDI clock messages are actually coming in on the MIDI port specified in the Preferences dialog. This can be used for determining whether the MIDI ports are set up correctly and whether the master is actually set to transmit MIDI Clock messages.

● Most devices (but not all) transmit MIDI Clock messages even when in Stop mode. This means that if the Master is set to transmit MIDI Clock, the MIDI LED on the ReBirth transport panel might be lit constantly, regardless of whether the master is playing or not. This is completely normal!

The Sync LED

The Sync LED indicates the program is in sync with another program or device.

The Sync LED shows the status of the incoming sync and provides a visual indication of the bar position. It blinks red on the downbeat and green on all other beats.

This LED is only operational when the master has been started. This is an indication that ReBirth is in sync mode. Again, this can be used for troubleshooting: If you get an indication on the Sync LED but still have no sync, there can only be two reasons:

• Sync to MIDI Clock is not activated on the Options menu, (or in the Preferences dialog), or...

• You have hit Stop on the ReBirth transport panel. Hit Play again.

Stopping, Starting, and Opening Songs in Sync mode

When ReBirth RB-338 has received a Start message it is by definition "in sync" until it receives a Stop message from the master.

You can hit Stop on the ReBirth transport panel, but the program will keep counting clocks "in the background". This allows you to:

• **Hit Stop, wind the Song Position to any position in the Song and hit Play again.**
Playback will start again on the next downbeat.

• **Switch to another Song window, move the Song position to any position and hit Play.**
Playback will stop immediately in the Song that is now playing, and will resume in the current Song document, at the next downbeat.

• **Open a Song document, move the Song position to any position and hit Play.**
Opening another document does not affect playback. Not until you hit Play does the newly opened document actually start playing (at the next downbeat).

● Windows 95 users might experience short audio playback glitches while Song documents are being loaded from disk. The risk of this happening depends on a number of factors; among others the speed of your computer and hard disk and the size of the audio buffers as set in the ReBirth Preferences dialog (the larger the safer). If this is a problem, open all Songs you intend to play back, before you start your "syncing session".

Repositioning the Master

As described above, you can Start and Stop ReBirth RB-338 as much as you like during playback. This will naturally introduce a difference between the Song positions in the master and in ReBirth. For example, when the master indicates bar 80, ReBirth might be playing bar 12 or 257, all depending on your use of the ReBirth transport panel.

However, if you change the Song position on the master, for example by winding or rewinding, it will most likely send out a Song Position Pointer message to ReBirth, which will adjust itself so that the two program play the same measure.

When the Master Device is in Stop mode

If you Stop the Master, you can still activate Playback in ReBirth RB-338. It will then play in the tempo set on the Transport bar, not necessarily the same tempo as the master is set to.

Running multiple Audio Applications on one Computer

You might want to run ReBirth RB-338 together with another audio application, at the same time. Since ReBirth synchronizes, you might for example want to run it "in tandem" with an audio sequencer. Exactly how to do this depends on your computer configuration and the platform you are on.

Windows

Under Windows, two applications normally do not share an audio card. If you launch two applications, one of them will "grab" the audio card, which means the other will stop sounding.

How can I make ReBirth RB-338 and another application play audio at the same time?

There are three ways:

- **Use two audio cards. You can then assign one to ReBirth (see the installation instructions) and one to the other audio application.**
  However, this assumes the other application does not "grab" all the audio cards in your computer. Please refer to that program's documentation for details.

- **A few audio cards can mix the audio from several applications. An example of such an audio card is Terratec EWS-64. This card "fools" Windows into thinking there is more than one card installed into the system. If you have such a card, you can set up both applications to use it.**

- **If all applications are compatible with DirectX 3 or later and support the "secondary buffer feature" in DirectX (see page 156), they can all "share" one audio card.**
  ReBirth of course fulfils both these DirectX requirements.

A note about background playback

If you access the audio card via DirectX version 2, ReBirth will not be able to play in the background. That is, as soon as you switch to another application, ReBirth will stop sounding.

Macintosh

ReBirth RB-338 plays audio via the standard audio procedures on the Macintosh, called the Sound Manager. The Sound Manager has the ability to mix audio from several applications. This means that if you run ReBirth together with another standard audio application, the audio from both will automatically be mixed and will appear at the stereo outputs on the computer.

If the other application uses special audio routines, that "grab" the sound on the computer, ReBirth will not be able to play. An example of such an application is Steinberg Cubase VST, when set to the "Apple DAV" audio output alternative (Cubase does this for good reason, to maximize the resources of the computer when playing back audio from hard disk).

If you need to have ReBirth and Cubase VST playing audio at the same time, you must switch Cubase VST to its Sound Manager compatible audio output alternative.

Some audio applications that use audio cards installed into the computer, access these cards directly (as opposed to using the Sound Manager). An example of such a setup would be Cubase VST with an audio card accessed via an ASIO driver. If you run such an application, you can still play audio from both applications at the same time. ReBirth uses the Sound Manager (the audio appears on the standard Macintosh outputs) and the other application uses the sound card.

Using "Export Loop as AIFF/Wave" to Overcome the "One Audio Card Only" Problem.

If you only have one audio card, or for other reasons can not get ReBirth RB-338 to play at the same time as another audio program, there are still ways to integrate the audio from the two applications:

1. **Create a Song in ReBirth.**
   You can do this either without running any other application at the same time, or while being synchronized with another application, only utilizing its MIDI capabilities, so that ReBirth has access to the audio on your computer.

2. **Export the ReBirth Song as an audio file (see page 119).**

3. **Quit ReBirth.**

4. **Import the audio file into the other application, as a stereo audio track.**

5. **Continue working on the Song in the other program. If you need to make changes in the ReBirth material, either use the editing capabilities of the other program, or go back into ReBirth, make the necessary change, export the file and re-import into the other program, replacing the previous ReBirth track.**

About differences in tempo between applications

Computer applications handle tempo in different ways. Some drive their tempo from the clocking of the digital audio (ReBirth RB-338 uses this method) while other programs use other types of timing methods. This means that when you set two applications to 120 BPM (without any synchronization between them) and start them at the same time, they might tick away at slightly different speeds, even if they run on the same computer.

For this reason, an audio file generated in ReBirth at a certain tempo, might not play back in perfect time with the material in the other program, even if they play at the same tempo.

To get around this, use the other application's tempo adjustment methods to match the material already present in the other program to the audio file.

12

Remote MIDI Control

Introduction

This feature allows you to control practically all parameters on the ReBirth panel, via MIDI. This can be used either as a way of playing ReBirth RB-338 "live" or when you want to control it via a MIDI sequencer, rather than using ReBirth's built-in automation.

Standard Mapping vs Quick Mapping

There are two major modes for Remote MIDI control, which you can select between from ReBirth's Preferences dialog:

Standard Mapping

This is the preferred mode for those with advanced MIDI setups, for example programmable fader panels etc.

Quick Mapping

This is the preferred mode if you want to control the most common parameters, for example from your keyboard synth's wheels and pedals.

More on these modes later in this text.

About MIDI Channels and Inputs

The MIDI Input and Channel settings in the Preferences dialog are used to determine which external device should be used for Remote MIDI control.

● ReBirth RB-338 only receives MIDI messages, it does not transmit any MIDI.

Setting up Remote MIDI Control from External MIDI Hardware

If you have some MIDI device connected to your computer that you want to use for controlling ReBirth RB-338, proceed as follows:

1. **Set things up so that the device you want to use for transmitting MIDI messages is connected to the desired MIDI input.**
   Please note that if you want to synchronize ReBirth at the same time as using Remote MIDI Control, you must set things up so that the synchronization messages come in on the same MIDI input as the controller messages.

2. **If you are running ReBirth on a Macintosh computer, create a device in OMS setup that corresponds to your external MIDI device and save your setup.**
   See the OMS documentation for details.

3. **Launch ReBirth.**
   If you run ReBirth on a Macintosh it is important that you launch ReBirth *after* making changes to OMS, or the changes you have made will not be available in ReBirth.

4. **In ReBirth, open the Preferences dialog.**

   MIDI Input from OMS

   Input: ∞ IAC Bus #1 ▼

   ☐ Sync to MIDI Clock   Adjust Sync: 54ms ⬍

   ☑ Remote MIDI Control   MIDI Channel: 1 ▼
      ○ Use ReBirth's Standard Mapping
      ◉ Use Quick Mapping: Edit...
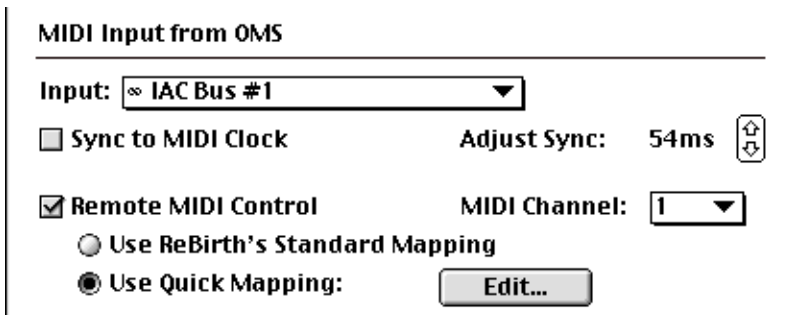
   The MIDI section of the Preferences dialog (Macintosh version shown here).

5. **Activate Remote MIDI Control.**

6. **Select the MIDI Input port and MIDI channel that your controller is transmitting on.**

7. **Choose Standard or Quick Mapping, and if required, click the Edit button to set up the Quick mapping.**
   The details on these modes and the Quick Remote MIDI Mapping dialog are described on and onwards.

Setting up Remote MIDI Control from another Program

If you have another program running on the same computer, that you want to use for controlling ReBirth RB-338, proceed as follows:

1. **Set up the other program so that the Tracks you want to use for controlling ReBirth transmit to a MIDI port and MIDI channel that ReBirth can receive on.**
If you are running ReBirth RB-338 on the PC this will probably be one of the ports added to your system by HLD (Hubi's Loopback Device – see page 93). If you are using a Macintosh, this will be an OMS IAC port (page 91).

2. **Launch ReBirth.**

3. **In ReBirth, open the Preferences dialog.**

4. **Activate Remote MIDI Control.**

5. **Select the MIDI Input port and MIDI channel that the other program is transmitting on.**

6. **Choose Standard or Quick Mapping, and if required, click the Edit button to set up the Quick mapping.**
The details on these modes and the Quick Remote MIDI Mapping dialog are described below.

Standard Mapping vs Quick Mapping

Standard Mapping

In the Standard Mapping mode practically all controls can be accessed. However, this mode more or less assumes you have access to a special hardware or software control panel, where the controls can be programmed to send arbitrary MIDI messages. Since there is such a multitude of controls available in Standard Mapping mode, accessing them from for example a normal synth keyboard or master keyboard, with only a few sliders, becomes ergonomically difficult.

The MIDI implementation used in Standard mode can be found on page 170 and onwards.

Quick Mapping

Quick Mapping, on the other hand, is perfect for those with limited MIDI equipment. Even if you only have access to a modulation wheel on your synth, it can be put to good use when recording knob movements in Song mode or when playing live.

How to set up the relation between your controller devices and ReBirth's functions is described in the next paragraph.

Setting up Quick Mapping

1. Setup Remote MIDI Control as described earlier in this chapter.

2. Open the Preferences dialog and make sure Quick Mapping is selected.

3. Click the Quick Mapping Edit button.

The Quick Mapping dialog.

Manual Setup

1. Select a function you want to use, from the set of pop-up menus.

2. Click in the field to the right of the pop-up and type in the number of the controller message you want to use.

Using Learn

1. Select a function that you want to use, from the set of pop-up menus.

2. Move the controller you want to use for this function.
The field at the bottom of the dialog shows the number for this controller. If it doesn't, this is an indication your MIDI connection is not set up correctly. See Checking Your Setup, below.

3. Click the Learn button associated with the function you want to use.
This controller number is entered in the corresponding value field.

Checking your Setup

There are a few techniques you can use to check that your setup is done correctly:

• **Use the MIDI LED on the Transport panel.**

This responds to on *all* MIDI messages except System Exclusive. If it lights up, this means *some* type of MIDI data on *some* MIDI Channel is coming in on the MIDI port selected in the Preferences dialog. If this doesn't light up, check your other device, your MIDI interface and your MIDI port setup (Macintosh users should check OMS Setup).

The MIDI LED indicates incoming MIDI data.

• **Changes that you make in the Quick Mapping dialog are effective immediately, even while the dialog is up on screen.**
This means you can have playback going while you set up the Quick Mapping dialog. Make sure you are in Pattern mode and check your mapping as you go along.

• **The controls move on the screen when they receive MIDI messages, even when the dialog is up on screen.**
This can be used as visual feedback. If a control moves, it is mapped correctly.

Using Remote MIDI Control

Once your Remote MIDI Control connection is up and working it can be used in numerous ways:

- **To run the program "live", in Pattern or Song mode.**
  See the tips on live usage on .

- **To record your Song automation in a more natural way than when using the mouse.**
  This is convenient even if you only have a couple of MIDI controllers to use at a time. After each recording pass you can open the Quick Mapping Edit dialog and map those controllers to other functions in the program.

- **As a way of completely controlling ReBirth from an external hardware device.**
  This assumes you have a very advanced hardware controller with many buttons, knobs and faders.

- **To record parts of, or all of your Song automation in another program.**
  You would then remain in Pattern mode but send Pattern changes and control messages from the other program. Essentially, you then move all of the Song mode functionality over to the other program.

Important Notes about MIDI Control

- **There is only one MIDI input port to the whole program.**
  If you want to synchronize and control knobs, etc – all at the same time – you have to make sure both the MIDI clock signals and the controller data is supplied on the MIDI Input selected in the Preferences dialog. Use the MIDI LED on the transport bar to check whether any MIDI data is coming in via the selected port.

- **Only one MIDI Channel is used at a time.**
  All Controller data must be transmitted on the same MIDI Channel, the one selected in the Preferences dialog.

- **Only MIDI Control Change messages are received in Quick Mapping mode.**
  Do not confuse Control Change messages with other, similar types of MIDI messages, such as pitch bend, aftertouch, key pressure etc.

- **ReBirth only reads OMS ports on startup.**
  Macintosh users should be aware that your OMS configuration is only checked when you launch ReBirth. Any changes made to your OMS Setup will not take effect until you Quit ReBirth RB-338 and launch it again.

- **Minimize Latency!**
  As described in the main ReBirth manual, there is a short delay between the moment when you move a control with the mouse and when this takes effect on the sound output. This is called *latency*. Exactly the same delay affects Remote MIDI control. Make sure the sound buffer settings in the Preferences dialog are adjusted to the lowest possible values, as described in the main ReBirth manual.

13

File and Song Window Handling

New Songs – Changing the Default Settings

To create a new "blank" Song, select New from the File menu.

New songs can either use default settings for Patterns and controls, or you can customize the settings so that New Songs appear just as you want them.

Customizing

1. Set up a Song so that it is exactly as you want New Songs to be.

2. Open the Preferences dialog.

3. Click the "Use Current Song" button at the bottom of the dialog.

4. Close the dialog.

The Default Song plays a number of "factory Patterns" intended to get you started with the program. To "silence" a Pattern, click the Clear button in the relevant synth section.

When you get better acquainted with the program you might want to customize it as described above. One quick way of doing this is to load one of two Song files located in the ReBirth folder, and then use the "Use Current Song" feature described above:

• "ReBirth 1.0 Default Song". This makes the program behave as in version 1.0. New Songs play silent rhythm Patterns and repeating 16th note synth Patterns.

• "Silent Default Song". This contains all silent Patterns.

Saving Songs

When you save your Song, using the Save and Save As commands, you save all the Patterns, all settings in Pattern mode and the entire Song, all in one file.

The file dialog used for saving is the standard Windows/Macintosh one. For details about saving, hard disks, floppy and other media, see the manual that came with your computer and storage devices.

The Song Information Feature

If you like you can enter information about your Song. This is useful for example if you intend to distribute your files via Internet and want to make people aware of who the creator is.

Filling in the Dialog

1. **Select Song Information from the File menu.**

2. **Fill in the three fields:**

- Text in Window Title will always appear in the Song window title.

- "More Information" and "Creator's web page" will appear in the Information dialog and in the "splash screen" that appears when you load the Song (if Show Information…" is activated, see below").

3. **If you like, activate "Show Information on Song Open".**
   This ensures everybody will see the information when they load the Song.

Linking to the Song creator's web page

If the Song creator has entered a URL to a web page, you can launch your preferred web browser and display the page. Proceed as follows:

1. **Open the Song Information dialog.**

2. **Click on the Browse button.**
   On the PC, your default browser launches directly. On the Macintosh you have to select a browser in a dialog. In either case, the browser takes you to the specified web page.

Opening Songs

- **Using the Open Dialog**
  You can of course open saved Song files using a regular Open dialog.

- **Using Drag and Drop**
  ReBirth supports standard Drag and Drop features on each platform.

- **Using The Recent Documents Menu Items**
  There is a "recent documents" section on the File menu. This lists the four most recently opened Song files. Selecting one re-opens that file.

Macintosh Memory Note

If you can't open as many Songs as you'd like, this is probably because you haven't assigned enough memory to the program. Proceed as follows:

1. Quit ReBirth.

2. Locate the ReBirth RB-338 icon in the Finder and select it.

3. Select Get Info from the File menu.

4. In the dialog that appears, assign more memory to the program.
For exact details on this dialog, see your Macintosh manuals. Exactly how much memory you can assign to the program depends on the amount of memory installed in your Macintosh.

● Avoid assigning the program so much memory that none is left for the system once ReBirth RB-338 and other programs are running. The Sound Manager (the routines in the Macintosh that handle audio) require that some system memory is left unused after all applications have been launched.

Switching between Windows

You can have as many Song documents open as you like, or as memory permits. However, only one of them can play back at a time.

You can switch between windows by clicking on them, or by using the Windows menu. This does not affect which window is playing back. Not until you click the Play button in the active Song window does that Song start playing.

Switching to Other Programs

As described on , ReBirth RB-338 can play "in the background", if some basic criteria are met. This means that the current Song will keep playing even if you switch to another program.

Stay on Top (Windows only)

The Windows version of ReBirth RB-338 has an item on the Windows menu, called "Stay on Top". When this is activated, the ReBirth window will always stay on top of other program's windows. This is intended mainly for when you sync ReBirth to another music program. Since the other program is always the Master, you will use its transport panel for playing and stopping. Activating this function ensures you can do this without having your ReBirth windows hidden behind other windows.

Copying and Moving Patterns between Songs

Since there is no Pattern file format, only the Song format, it might not be obvious how to Copy and move Patterns between Songs. This is done using Cut, Copy and Paste, as described on .

Moving ReBirth Song files between Macintosh and PC Computers

Moving ReBirth RB-338 Song files between Mac and PC platforms is easy. As with any file, getting it from the Mac to the PC or vice versa, requires some kind of portable media (DOS-formatted floppies for example) or a network. However, once the file is on the desired computer disk, the following applies for loading it into ReBirth RB-338:

Loading Mac files on the PC

On the PC, the file extension must be ".rbs". This allows you to double click the file to open it, and it will have the right file icon.

Loading PC files on the Mac

On the Mac the file must meet at least one of two criteria:

- **File Type "TSSQ" and Creator "ReBi".**
  This ensures the file has the right icon. However, changing the File Type and Creator requires special software, see below. Ask your computer dealer if in doubt.

- **File extensions ".rbs".**
  This will allow you to open the file, but it will probably not have the right icon in the Finder.

Opening the file

- **Regardless of whether the file has the right icon or not, you can always open it using the Open dialog in ReBirth or by using Drag and Drop.**

- **However, if the file doesn't have the right icon you can *not* open the file by double clicking it in the Finder.**

When you re-save a file it automatically gets the correct File Type and Creator.

Setting the File Type and Creator

There are numerous ways of setting the File Type and Creator of files brought from a PC to the Mac. Let us just mention two:

- **Using PC Exchange.**
  This utility is included with every Macintosh computer. It allows you to set up "mapping", so that when a DOS formatted floppy disk (and some other types of media) is inserted, files with a certain extension are automatically given the correct File Type and Creator.

- **Using ZipIt.**
  This shareware program can be used for unpacking files archived in the common PC format, "Zip". ZipIt can be set up so that when a file with a certain extension is extracted from an archive, it automatically gets the desired File Type and Creator.

Exporting Songs and Patterns as Audio (AIFF/Wave) files

You can save your entire Song, or parts of it, as an audio file. This file can be in AIFF (Audio Interchange File Format – the standard audio file format on the Macintosh) or Wave ("WAV" – the standard audio file format on the PC). Proceed as follows:

1. **Make sure you are in Song mode.**

2. **Set up the Loop so that it encompasses the part of the Song you want to convert.**
   This can be a Loop of any Length, from a one bar Pattern to the whole Song. If you want to export the whole Song, remember to include some extra bars at the end, so that any repeats from the Delay section get included.

3. **Select "Export Loop as Audio File" (PC) or "Export Loop as AIFF/Wave file" (Mac) from the File menu.**

4. **Specify a name and location for your file.**
   On the PC platform, select a file format (AIFF or Wave), from the pop-up at the bottom of the dialog.

5. **Click Save.**

● Audio files are relatively big! For example, a three minute Song will occupy over 30 MBytes of hard disk space.

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Reference

Transport Panel

Shows MIDI In activity

Tempo control and display

Switches between Song and Pattern mode

Displays the Song Position and allows you to move in steps of one bar

Song Loop On/Off


```
MIDI          Pattern mode  ●● Song mode                    —— Loop ——
         Tempo                                        Bar     Start      Length
Sync     140 ▲▼   ▶  ■  ◀◀  ▶▶  ●                    888 ▲▼   888 ▲▼   884 ▲▼
```

Indicates that ReBirth is in Sync with another device.

Play   Stop

Moves the Song Position ten bars forward

Define where the Song Loop Starts and Ends

Moves the Song Position ten bars back

Record - for recording Pattern changes and controls in Song mode

Song Mode/Pattern Mode

This switches ReBirth RB-338 between its two major modes: Pattern mode and Song mode. The two modes have major differences. Below we will list the properties for each one, in list form:

Pattern Mode

• **Allows you to program the synths and rhythm sections.**

• **You can switch Patterns at any time.**

• **Allows you to manually set all knobs as you like them at any time.**

• **The Fast Forward and Rewind controls are not used.**

• **Always loops the selected Patterns.**

• **The Record button isn't used.**

Song Mode

• **Allows you to build a complete Song by recording Pattern changes and knob movements.**

• **Requires recording to be activated to be able to use controls and select Patterns.**

• **Introduces the loop feature which allows you to repeat any section of the Song infinitely.**

MIDI Indicator

This "LED" lights up to indicate incoming MIDI messages. It reacts on all MIDI messages except System Exclusive. Use this as a visual indication that your MIDI setup is done correctly.

Sync Indicator

This "LED" indicates incoming MIDI sync. It blinks red on the downbeat and green on all other beats. Use this as an indication that the master device (the one transmitting the MIDI Clock messages) is actually started and the MIDI setup is done correctly.

This indicator is also used in conjunction with the "Live Sync" feature, which allows you to start and stop ReBirth and even switch between Song documents, without losing sync. See for details.

Tempo

Here you can set the tempo for your Song in "bpm" (beats per minute). The range is 20 to 500 bpm (80 to 160 is a "normal" range of tempos).

When ReBirth is synchronized to another device, this setting is of no importance, since ReBirth will play in the tempo of the other device.

Bar Display

This shows the current position in bars (measures). Only relevant in Song mode. If you click one of the arrow buttons the Song Position is moved one measure back/forward. If you keep the mouse button down, it scrolls continuously.

Play

This activates playback. If you are in Song mode, this should be thought of as "continue play", that is it will start playback from the current position.

Stop

- **When you click this during playback, the program stops.**

- **If the program is already stopped, the Song Position moves to the Loop Start.**
  There's an exception to this: If the Song Position is already at an earlier position than the Left Locator, it moves to the beginning of the Song.

- **If you click one more time, the Song Position moves to the beginning of the Song.**
  In other words, clicking three times always moves you to the beginning of the Song.

Rewind

Every click on this button moves the Song position ten bars back. If you keep the mouse button pressed, it rewinds continuously.

Fast Forward

Every click on this button moves the Song position ten bars forward. If you keep the mouse button pressed, it fast forwards continuously.

Record

This button is used for recording Pattern changes and knob movements in Song mode. It has no function in Pattern mode.

Loop On/Off

When this is activated, the section specified by the Start and Length settings is Looped.

Loop Start and Length

The Loop start is the bar where you want looping to start.

The Length setting is the number of bars you want looped.

Pattern Section

Used for deactivating the section. Essentially the same as an empty Pattern

Selects between the eight Patterns in a Bank

Selects between the four Banks of eight Patterns

Allows you to set the Length of the Pattern, in 16th note steps

Bank and Pattern Selectors

These are used for selecting between the 32 Patterns available for each section in each Song.

- **To select another Pattern, in the same Bank, simply click one of the Pattern buttons.**

- **To switch to another Pattern in another Bank, first select the Bank, then the Pattern.**

No Pattern gets selected until you click one of the Pattern buttons 1 to 8.

You can also switch Patterns from the computer keyboard, see page 18 and page 194.

Step Display and Setting

This is used for setting the length of the Pattern, in steps of 16th notes. This can be done at any time and affects playback immediately.

You can even have different Pattern lengths for different sections. Each one loops independently. Different Patterns can have different lengths.

Rhythm Section

The red knobs set the levels of the individual sounds

The white knobs are used for adjusting the various sound parameters

The colored step buttons are used for programming the selected instrument into the Pattern

Click on the light instrument legends to select an instrument

The large knob is used for selecting instruments

Sound Selector

This knob is used for selecting between the main sounds.

For more info about selecting sounds, see .

For information about the "shared instruments", see .

Sounds

Legend	Name	Comment
AC	Accent	This is not a sound, but rather a way to control dynamics. The steps where Accent is activated will be louder. Exactly how much louder is determined by the Accent Level control. This control has equal effect on all sounds.
BD	Bass Drum	Has Tone and Decay controls.
SD	Snare Drum	Has Tune and Snappy controls.
LT	Low Tom	Has a tune control. "Shared" with Low Conga.
MT	Middle Tom	Has a tune control. "Shared" with Middle Conga.
HT	High Tom	Has a tune control. "Shared" with High Conga.
LC	Low Conga	Has a tune control. "Shared" with Low Tom.
MC	Middle Conga	Has a tune control. "Shared" with Middle Tom.
HC	High Conga	Has a tune control. "Shared" with High Tom.
RS	Rim Shot	"Shared" with Claves.
CL	Claves	"Shared" with Rim Shot.
CP	(Hand) Claps	"Shared" with Maracas.
MA	Maracas	"Shared" with Claps.
CB	Cowbell	No comment...
CY	Cymbal	Has a Tone and Decay Control.
OH	Open Hi-hat	Has a Decay Control. Is cut off by the Closed Hi-hat.
CH	Closed Hi-hat	Cuts off the Open Hi-hat. If you have both open and closed Hi-hat on one step, you will hear an open hi-hat with an extremely short decay.

Sound Switches – About the "Shared Instruments"

As stated in the table above, some instrument "slots" can only play one of two sounds. In these cases, there's a small switch that allows you to select which sound will be played by this instrument "slot". You can flick the switch any time. Whatever is programmed for this "instrument slot" will be played by the sound selected at that time.

Tone

This knob adjusts the "color" of the sound. Exactly in which way depends on the sound, but the higher the setting, the "brighter" the sound.

Decay

This adjusts the length of the sound. The higher the setting, the longer the sound.

Tune

This adjusts the pitch of the sound. On the Snare Drum it only affects the "tone" part of the sound, not the "noise" part.

Snappy

This is only available for the Snare Drum. It is actually a level control for the "snare" (noise) part of the sound. The higher the setting, the more of the "snare" you will hear.

Synth Section

Selects between two waveforms, Square and Sawtooth

These controls are used for adjusting the sound

This shows you which step in the Pattern you are programming

Pitch Mode On/Off

Clears the Pattern

Click these buttons to set the pitch for the step

Various buttons for programming a step (see below)

Pitch Mode

- **When this is activated, the sequencer will automatically advance to the next step as soon as you select a pitch, using the Pitch buttons.**

- **When this is deactivated, the sequencer never advances automatically to the next step.**

- **If you deactivate and then immediately activate Pitch mode, you return to the first step in the Pattern.**

Clear

This Clears the Pattern completely. This means all steps are set as follows:

Function	Setting
Pitch	Low C
Note/Pause	Pause (no sound!)
Down	Off
Up	Off
Accent	Off
Slide	Off

Pitch buttons

These are used for specifying a Pitch for the selected step.

Down

This transposes the pitch of the selected step down, one octave.

Up

This transposes the pitch of the selected step up, one octave.

You can activate both Up and Down at the same time, if you wish. However, this is the same as activating none of them.

Accent (button)

This activates Accent for the selected step. For more information on what effect Accent has, see the Accent knob, page 131.

Slide

When this is activated, the selected step will be tied to the next (legato – no "retriggering") and the pitch will slide continuously to that of the next step. For a more thorough explanation of how Slide works, see page 39.

Note/Pause button and indicators

This is used for specifying whether the selected step will sound or not.

Back

This takes you to the previous step in the Pattern. When you are at the first step, this takes you to the last step in the Pattern.

Step

This takes you to the next step in the Pattern. When you are at the last step, this takes you to the first step in the Pattern.

Step display

This indicates which step you are currently at, when entering notes. This changes when you press Next or Back or when you specify pitches in Pitch mode. It does not move on playback.

Waveform

This allows you to select between two waveforms for the synth oscillator:

Symbol:	Name:	Description:
⋀	Sawtooth	This is a full and rich waveform where all harmonics are included.
⊓⊔	Square	This waveform only contains odd harmonics, which gives the sound a more "hollow" quality.

Tune

This allows you to set the tuning of the synthesizer. The range is two octaves in steps of one semitone.

Cutoff

This sets the basic cutoff frequency for the filter. The higher this setting, the brighter the sound. This is the basic filter setting. The final filter curve is determined by other settings, like Env. Mod, Decay and Accent.

For a more thorough description of the filter section, see .

Reso

This also determines the character of the sound. The technical explanation is that it routes the output of the filter back into the input, in a "feedback" loop. This knob determines the amount of feedback. The higher the sound, the more of the typical hollow character you will get.

Env. Mod

This determines the amount of effect the filter envelope has on the filter setting.

- In its lowest position, the envelope has little effect on the sound.
- At higher values, the envelope makes the filter open further, that is the sound will be brighter.

Decay

The higher this setting, the longer it will take for the notes to decay.

Accent (knob)

This determines the amount of change to those steps that have the Accent switch activated.

- **Steps with Accent will be perceived as shorter, louder and with a slightly different tonal character than other steps, when this setting is increased.**

- **When this knob is all the way down, steps with Accent will only be shorter.**

For more information on the relationship between Accent and other parameters, see page 43.

Mixers

Mute/unmute. Not part
of the Song automation!

Pan

Volume fader

Output meter

PCF on/off

Distortion on/off

Delay amount for
this section
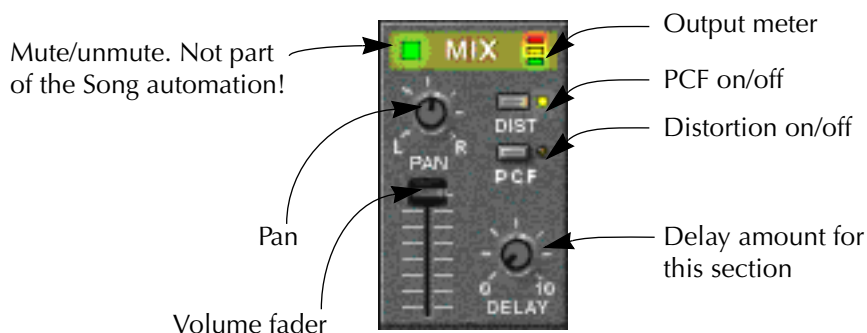
On/Off switch

This turns the output of the relevant section on/off.

Meter

This shows the output level from the section. Use this as a diagnostic tool if the level from a section is very low or if you don't hear it at all. If this meter shows any indication at all, the section *is* playing.

Volume fader

This determines the level of the output from the relevant section. Use this to balance the relative levels between the synths and the rhythm section.

● Please note that as you increase levels you might run into distortion. To compensate for this, use the Master fader. See for more details about levels and "clipping".

Pan

This determines the section's position in the stereo image.

The range of the parameter is fully left (L), through centre ("twelve o'clock") to fully right (R).

Delay

This determines the amount of delay (echo) to be added to this section. The final amount of delay is determined by a number of other settings in the actual Delay section. See for details on how to use the delay.

Dist

This is a switch which routes the output of this section through the Distortion (Dist) unit. For more information on how to use the Distortion effect, see page 53.

PCF

This is a switch that routes the output of this section through the PCF (Pattern Controlled Filter) unit.

PCF

- PCF on/off
- Pattern selection
- Filter type select
- Envelope Amount
- Frequency (cutoff)
- Envelope Decay
- Q (Resonance)
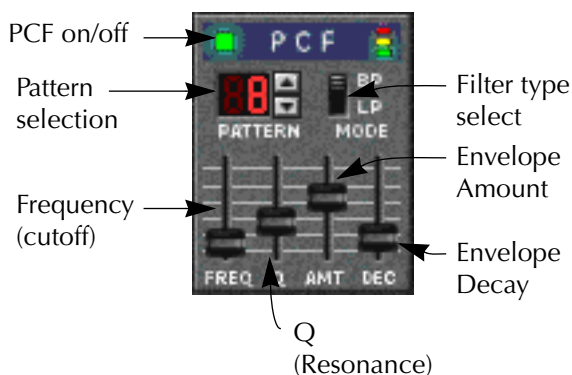
The PCF effect is basically a filter with an envelope, just like there are filters with envelopes in the synth sections. You route the output of one of the sections through the PCF and thereby shape the tonal character of the sound.

The main difference between the PCF and the synth filters is that this filter is "pattern controlled". There are a number of preset patterns that allow the filter to "superimpose" pumping effects, slow sweeps and rhythmic phrasing onto the sound.

On/Off switch

This turns the PCF effect on/off. When turned off, sound will pass through the effect without any filtering. This button is very similar to a Bypass button on a regular effect unit.

Meter

This shows the input level to the PCF. Use this as a diagnostic tool if you are unsure whether any signal appears at the input of the PCF section. If this meter shows any indication at all, some signal is coming in.

Pattern

There are a large number of preset patterns that provide various rhythmic effects. They do this by controlling the following envelope parameters:

- **Retriggering.**
  This is the most basic type of control. For example, in Pattern 0 the envelope is retriggered (restarted) at each whole note, in pattern 1 on each half note etc.

- **Dynamic and Attack control.**
  In many of the Patterns, the envelope is triggered with different dynamics on different "beats". Some "beats" also have a slightly different attack.

The Patterns are preset, they can not be changed. Their length varies, most are 16 or 32 steps (one or two bars), but some have been created in odd time signatures.

See page 179 for a list of all Patterns.

Mode (BP/LP)

This switches the filter between its two major modes, lowpass and bandpass.

- The lowpass filter (LP) is similar to the one used in the synth sections in ReBirth. It lets all harmonics below a certain frequency (the cutoff frequency) pass through.

- The bandpass filter (BP) only lets frequencies within a certain band (a range of frequencies) pass through.

Freq (Frequency)

This is the main frequency range the filter should operate in.

The Freq parameter is related to the Amount (Amt) parameter: If the Amount slider is set to zero, there will be no pattern effect at all. The filter can then be used as a fixed "tone control" by adjusting the Freq and Q parameters. If the Freq slider is all the way up, the Amt slider has no effect since the filter is already fully open.

Q

This is the same as the "Reso" control in the synth sections. Technically it routes the sound at the output of the filter back to the input, in a feedback loop. Soundwise it gives the sound a more hollow, pronounced character.

● Be careful when combining large Q values in the PCF with large Reso values in a synth, since this might lead to overloading the output of the PCF, causing distortion.

Amt (Amount)

This control determines the amount of effect the envelope has on the filter. For any Pattern effect at all, this must be set to some value above zero.

Decay

This adjusts the length of the envelope decay. This has a significant effect on the "feel" of the Pattern.

- At low values there will be a clear pumping effect.

- When the Decay is raised, the pattern effect will be "smeared". This can be used to good effect with Patterns 12 to 17 for smooth "LFO" effects.

- At very high values, the envelope will not be given a chance to decay very much until it is retriggered, giving a "stepping" effect (similar to the old synth effect "sample and hold"). This is most noticeable on patterns with dynamics (12 and above).

Dist (Distortion)

Distortion
on/off —————→

Distortion
Amount

Distortion is an effect which makes the sound "dirtier". One section at a time can be routed to the Distortion effect, using the Dist switches in the mixers.

For more detailed information on how to use the Distortion effect, please see page 53.

On/Off switch

This turns the Distortion effect on/off. When the Distortion is turned off, any sound will pass through the effect without being distorted. This button is very similar to a Bypass button on a regular effect unit.

Meter

This shows the input level to the dist. Use this as a diagnostic tool if you are unsure whether any signal appears at the input of the Dist section. If this meter shows any indication at all, some signal *is* coming in.

Amount

This determines the amount of distortion. The higher the setting, the dirtier the sound.

Delay

Delay on/off →

Delay Length (sixteenths or eighth note triplets) →

Sixteenth note/eighth note triplet switch

Feedback (number of repeats)

The panning of the output from the delay →

Delay is an effect which adds repeats or echo to the sound.

This is a "send effect", which means that any and all sections can be routed to this effect, by variable amounts.

For more detailed information on how to use the Delay effect, please see .

On/Off switch

This turns the Delay effect on/off. When turned off, any sound will pass through the effect without any delay added. This button is very similar to a Bypass button on a regular effect unit.

Meter

This shows the input level to the Delay. Use this as a diagnostic tool if you are unsure whether any signal appears at the input of the Delay section. If this meter shows any indication at all, some signal *is* coming in.

Step and Straight/Triplet switch

These two controls determine the length of the Delay.

- **If the Straight/Triplet switch is set to straight 16th notes, Steps is used for setting the length in 16th note steps.**

- **If the Straight/Triplet switch is set to triplets, Steps is used for setting the length in steps of 8th note triplets.**

F.Back

To get more than one echo, you can route the output of the Delay unit back to its input. This is often referred to as Feedback. The F.Back knob on the ReBirth delay does exactly this.

● Please be careful when raising this knob to high values. At full value, the echo repeats infinitely. While this can be used to good effect, it is something to be aware of.

Pan

This determines the position of the delay output, in the stereo image.

The range of the parameter is fully left (L), through centre ("twelve o'clock") to fully right (R).

Master

The Master level and faders.

Meters

These show the Output level from the entire program. Adjust this with the fader, so that the meters show as high levels as possible during loud passages, without ever hitting the red top segment. For more information see page 21.

Fader

This is used for adjusting the overall output level from the program. Use this together with the meters to retain maximum level without clipping.

Menus and Dialogs

Apple menu (Mac only)

About ReBirth RB-338...

This menu item opens up a dialog that informs you about the version of the program and the people behind it.

File menu

New

This creates a new ReBirth panel. Use this when you want to start on a Song from scratch. The settings and Patterns in this window are determined by the Preference setting "Pattern and knob settings for new songs", see .

Open...

This menu item is used for opening saved Song documents. It brings up a regular file dialog where you can locate a Song file on disk and open it.

Close

This menu item closes the currently active window. If it is a document window, and you have made any changes since you saved it last (or not saved the document at all) you will be asked whether you want to save those changes before closing the window.

Save

This menu item allows you to save any changes you have made to the currently active document (the one you're working on, or playing). If you have not yet saved the document, selecting this is the same as selecting Save As, see below.

Save As...

This is used for saving a document the first time, or to save an existing document under a new name or at a new location. A regular file dialog allows you to specify a name and location for the file.

Windows users might want to note that ReBirth RB-338 songs have the document extension ".rbs".

Song Information

This allows you to enter some information about your Song. This is useful for example if you intend to distribute your files via Internet and want to make people aware of who the creator is.

Item:	Description:
Text in Window Title	This text always appears in the Song window title.
More Information	This text will appear in the Information dialog and in the "splash screen" that appears when you load the Song (if Show Information..." is activated, see below")
Creator's Web Page	Same as above.
Show information on Song open	If this is activated, "More Information" and "Creator's Web Page" will appear in a window when the Song opens.
Browser	When you click this, you will be taken to the web page specified in the dialog.

Export Loop As AIFF/Wave File (Mac)/Export Loop As Audio File (PC)

This menu item allows you to export the current Song (or a section of it) as an audio file. This file can later be played back from any program that can read audio files in the specified format.

Only the area inside the Loop is saved. This allows you to specify any section of the Song to be saved, down to a single measure.

Page Setup...

This standard Macintosh/Windows item opens up a dialog box that allows you to make settings for the printer you plan to use. See the documentation that came with your Macintosh/Windows computer and printer, for more details.

Recent Documents

In this section of the menu you will find up to four of your most recently opened Song documents. Selecting one of these opens it.

Quit

This will quit the program. If any documents have unsaved changes you will be asked if you want to save those changes before quitting.

Edit menu (Pattern mode)

The content of the Edit menu varies with the "mode" of the program. Below follows the items available when you are in Pattern mode:

About the "focus"

All the Pattern operations below act on the Pattern that currently has the "focus". This means the Pattern with the focus bar. See for details.

Undo

This is not used in ReBirth RB-338.

Cut Pattern

This function is mainly used together with Paste to *move* Patterns between Pattern locations.

It will copy the contents of the Pattern into the Clipboard, from where it can later be Pasted in to another Pattern location. In addition the Pattern will be Cleared, see below.

Copy Pattern

This function is used together with Paste to *copy* Patterns between Pattern locations. It will copy the contents of the Pattern into the Clipboard, from where it can later be Pasted in to another Pattern location.

Paste Pattern

This will paste the Pattern currently on the Clipboard, into the selected Pattern location. The Pasted Pattern will replace whatever was previously at that location.

Clear Pattern

This empties the selected Pattern.

For synth Patterns this means that all steps are set as follows:

Function	Setting
Pitch	Low C
Note/Pause	Pause (no sound!)
Down	Off
Up	Off
Accent	Off
Slide	Off

Shift Pattern/Drum Left/Right

This shifts the contents of the Pattern one sixteenth note in either direction. For example, if you shift right, what was on the first step will be on the second, what was on the second will be on the third, and so on. In the same example, whatever was on the last step will be on the first.

• **When the focus is on a synth section, only Shift Pattern Left/Right is available. This shifts the entire content of the Pattern one step in the selected direction.**

• **When the focus is on a rhythm section, you have the option of shifting the whole Pattern or just the selected drum sound.**

Random Pattern/Pitches/Accents etc./Drum

This creates random synth and drum Patterns. This can be used as an inspirational tool (create a Pattern and modify the parts you don't like) or for completely computer generated music.

The exact options available depend on the focus (synth section or rhythm section). See page 47.

Alter Pattern/Pitches/Accents etc./Drum

This randomly shuffles the synth and rhythm Patterns, using the already programmed material as a basis for a new Pattern. See page 48.

Transpose...
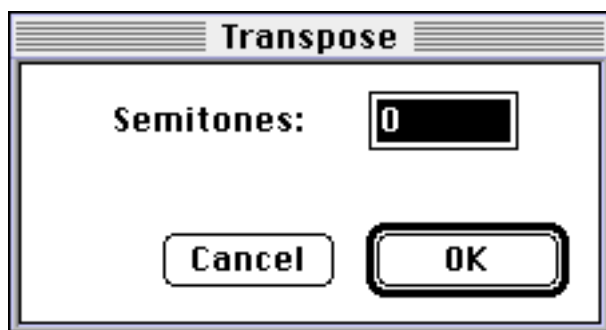
The Transpose dialog (Macintosh version).

This only applies to synth Patterns. It allows you to transpose the Pattern to another key. See page 48.

Preferences...

This dialog contains a number of overall settings and options for the program:
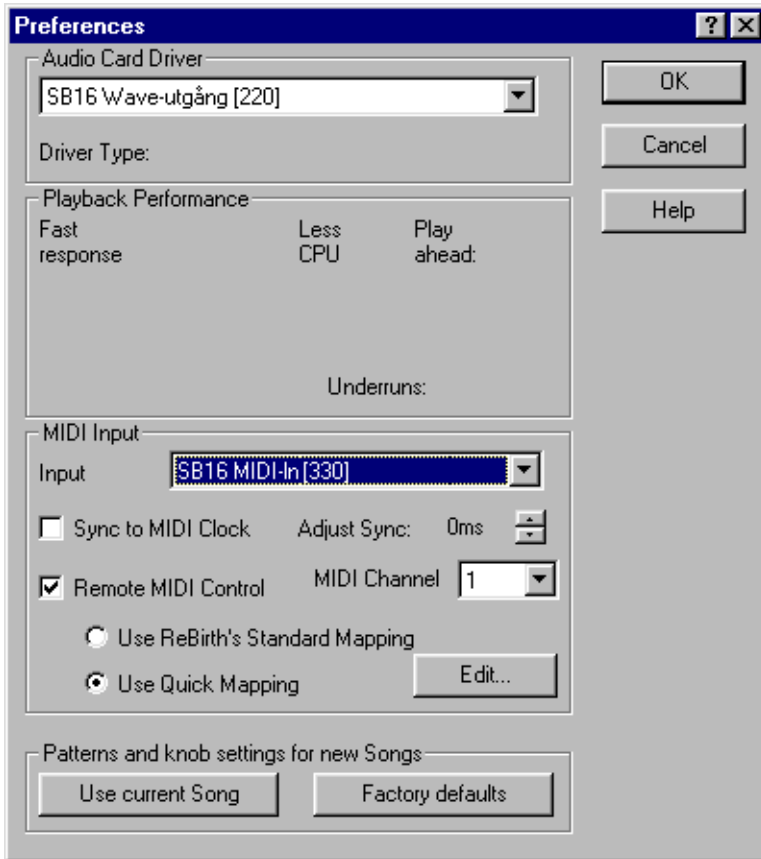
The Windows Preferences dialog.
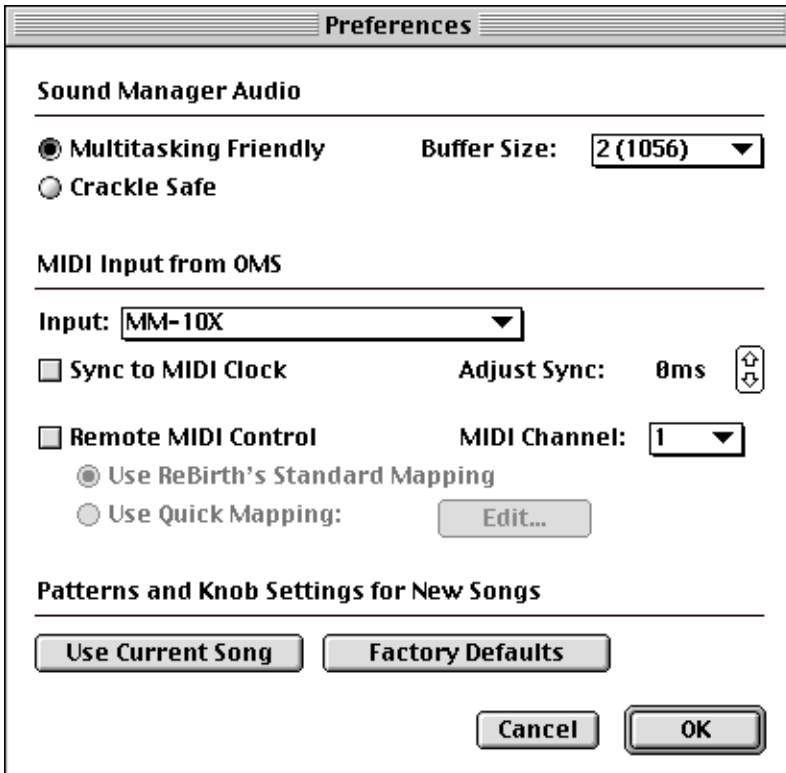
The Mac Preferences dialog.

Control:	Description:
Audio Card Driver (PC only)	Use this to select one of the card drivers in your system. See page 8 for more details about the available options.
Playback Performance slider (PC only)	This is used for setting the size of the buffers associated with audio playback. The smaller this number, the faster ReBirth will react to changes on the front panel. On the other hand, smaller settings require a faster audio card driver and computer. Again see the on-line help and page 156 for details.
Play Ahead (PC only)	This indicates the size of the audio playback buffer, as adjusted with the slider.
Underruns (PC only)	This shows the number of instances that the playback buffers have been "too small" with the current setting. If you get underruns, you need to raise the size of the buffer.
Multitasking friendly/Crackle safe (Macintosh only)	This allows you to select between two modes for creating audio on your computer. See page 9 for details.
Buffer size (Macintosh only)	This should be set to the lowest possible value that provides glitch free audio play-back.
MIDI Input	This is used for selecting a MIDI Input for synchronization and remote control, see page 79, page 89 and page 103.
MIDI Clock Sync Enable	This is a double up of the setting "Sync to MIDI Clock", on the Options menu, See page 79 and page 89.
Adjust Sync Setting	This setting is used for trimming the syn-chronization, so that ReBirth RB-338 "locks in" with the master. See page 84 and page 94.
Remote MIDI Control	This is used for turning Remote MIDI Con-trol on/off. When this is activated, ReBirth can be controlled via MIDI as set up in this dialog (and possibly also in the Quick Map-ping dialog).
MIDI Channel	This is used for specifying a MIDI channel for remote control messages.
Use ReBirth's Standard Mapping	When this is selected, practically all con-trols on the front panel can be accessed via MIDI. However, the "mapping" between MIDI messages and front panel control is fixed, you can not modify it. See page 107 for details.

Control:	Description:
Use Quick Mapping	When this is activated, only a selection of front panel controls can be accessed via MIDI Controller messages. However, by clicking the Edit button you can set up exactly which, and how.
Edit	Clicking this button opens the Quick Setup dialog.
Patterns and knob settings for new Songs	The two options here are used for setting whether new Songs should have default Patterns and knob settings or if they should "inherit" Patterns and settings from the current Song. This is used for "customizing" the contents of New Songs. See page 113.

Quick Setup

ReBirth Knob:	MIDI Control ID:		ReBirth Knob:	MIDI Control ID:	
Synth 1 Cutoff ▼	1	Learn	Mix Level 1 ▼	20	Learn
Synth 1 Reso ▼	2	Learn	Mix Level 2 ▼	21	Learn
Synth 2 Cutoff ▼	3	Learn	Mix Level 3 ▼	22	Learn
Synth 2 Reso ▼	4	Learn	Delay Amount 1 ▼	23	Learn
Drum BD Level ▼	5	Learn	Delay Amount 2 ▼	24	Learn
Drum SD Level ▼	6	Learn	PCF Freq ▼	80	Learn
Off ▼	0	Learn	PCF Q ▼	81	Learn
Off ▼	0	Learn	Off ▼	0	Learn
Off ▼	0	Learn	Off ▼	0	Learn
Off ▼	0	Learn	Off ▼	0	Learn

Received MIDI Control to Learn: 1   [Cancel] [OK]

This dialog is used for "mapping" incoming MIDI Controller messages to controls on the ReBirth front panel, in Quick Setup mode.

Manual setup

1. **Select a function you want to use, from the set of pop-up menus.**

2. **Click in the field to the right of the pop-up and type in the number of the controller message you want to use.**

Using Learn

1. **Select a function that you want to use, from the set of pop-up menus.**

2. **Move the controller you want to use for this function.**
   The field at the bottom of the dialog shows the number for this controller. If it doesn't, this is an indication that your MIDI connection is not set up correctly.

3. **Click the Learn button associated with the function you want to use.**
   This controller number will then appear in the corresponding value field.

Control:	Description:
ReBirth knob pop-ups	Use this to select a knob on the ReBirth front panel that you want to control via MIDI.
MIDI Control ID fields	Use this to type in the MIDI Controller number you want to use for controlling the knob selected in the pop-up.
Learn buttons	When you click a Learn button, the last received MIDI Controller number (as displayed in the "Received MIDI Control ID to Learn" field) is automatically entered in the box just to the left. Use this as quick way of mapping controls on your synth, fader panel or similar, to knobs on the ReBirth front panel.
Received MIDI Control ID to Learn	This field shows the number of the last received MIDI Controller message. Use this as verification of incoming MIDI and in conjunction with the Learn buttons.

Edit menu (Song mode)

The contents of the Edit menu varies with the "mode" of the program. Below follows the items available when you are in Song mode:

Undo

This is not used in ReBirth RB-338.

Cut Loop

This menu item removes measures from the Song and puts them in the Clipboard. More specifically, Cut removes all measures inside the Loop. This can be used for two purposes:

- **When you want to make the Song shorter.**
- **Together with Paste, to move measures from one section of the Song to another.**

Copy Loop

This menu item copies all the measures inside the Loop and puts them in the Clipboard from where they can be pasted in.

Paste at Song Position

Adds the Cut/Copied measures to the Song, beginning at the Song Position. The measures are *inserted* into the Song, so that is *lengthened*.

If you for example have Cut four bars and use "Paste at Song Position", at Song Position 13, you will get four new measures between measure 13 and 16. These contain the pasted material. Whatever was at bar 13 *before* the operation is now at bar 17.

Paste Replace at Song Position

Similar to Paste at Song Position, but when this option is selected, the Pasted material *overwrites* the material currently in those measures.

Again, if you Cut four bars, and use "Paste Replace at Song Position", at Song Position 13, the contents of measures 13, 14, 15 and 16 will be replaced by the measures on the Clipboard.

Initialize Loop from Pattern Mode

This "initializes" the measures inside the Loop. This can be a convenient way to use the settings currently in Pattern mode, as initial settings for some measures in the Song you are building.

● Please note that this command clears all the Pattern changes and knob recordings currently inside the Loop!

When you use "Initialize Loop from Pattern Mode", all measures inside the Loop are filled with the settings currently made in Pattern mode. That is, the three Patterns selected in Pattern mode will be used, as well as all knob and other control settings.

Initialize Song from Pattern mode

This is used for initializing the Song, to start over from scratch. It also allows you to use the settings currently in Pattern mode as your initial settings for the Song you are about to build.

● Please note that this command clears all the Pattern changes and knob recordings currently in the Song!

When you use "Initialize Song from Pattern Mode", all measures in the Song are filled with the settings currently made in Pattern mode. That is, the three Patterns selected in Pattern mode will be used, as well as all knob and other control settings.

Copy touched controls to Loop/Song

This menu item allows you to insert "static" settings for any control, for a number of bars. For example, you might want to turn on the Delay and make sure that it is turned on for the whole Song, or you might want to adjust some level control, for a specific number of bars.

A full explanation of this function can be found on .

Preferences...

See .

Options menu

Sync to MIDI Clock

When this is activated, ReBirth RB-338 will synchronize its playback to incoming MIDI Clock.

When synchronized to MIDI Clock, the tempo is determined by the other device or application – the tempo on the ReBirth transport bar is of no relevance.

You do not need to activate Play in ReBirth. As soon as it senses that the other device/application starts, it will start automatically.

To determine which MIDI source to synchronize to, open the Preferences dialog and change the Sync Input setting.

For more information about external sync, see page 79 and page 89.

Program Synth from Keyboard

When this is activated, the computer keyboard is used for programming the synthesizer that currently has the focus (see page 19 for more info about focus). To learn how to program the synthesizer from the keyboard, see page 37.

Select Patterns from Keyboard

When this is activated, the computer keyboard is used for selecting Patterns. For more information see page 18 and page 194.

Windows menu

Stay on Top (Windows only)

When this is activated, the ReBirth window will always stay on top of other program's windows.

Window List

This lists all the open Song documents. Selecting one makes it the active window.

Contacts/Help menu

Help... (Windows only)

This menu item open up the Topic window for the Windows on-line help system.

About the Internet menu alternatives

Regardless of which of the four Internet options you select, you will be connected to the Internet using your preferred browser (on the PC this happens directly, on the Macintosh you have to select a browser in a dialog). The browser will then take you to the page specified in the dialog.

If you prefer, you can of course note down the web address in the dialog and connect manually instead.

Order ReBirth RB-338...

This directs you to the ReBirth Ordering pages.

Get Free Songs...

This takes you to our archives of song files that you can download and use, even with the demo version. You can also contribute with your own creations!

Get Tech Support...

Got a problem? This will take you to the ReBirth technical support pages.

Contact Steinberg...

If you are interested in more info from ReBirth's music retailer distributor, use this option.

About ReBirth RB-338... (Windows only)

This menu item opens up a dialog that informs you about the version of the program and the people behind it.

Appendix A

About Audio on Computers

General Information

Audio Quality

The general audio quality in a computer based synthesizer system depends on two things:

- **The quality of the software calculating the audio.**
  In our case, this is the ReBirth DSP (Digital Signal Processing) code. And what can we say? We have invested all our expertise and an enormous amount of time to make ReBirth RB-338 sound as good as possible. All calculations are made at the highest possible resolution throughout the signal chain. The 44.1kHz sampling frequency is maintained at all times. A number of digital audio techniques are implemented that reduce the risk of "aliasing", background noise, unwanted distortion and "zipper noise". OK, we'll say it straight out: ReBirth sounds awesome.

- **The quality of the hardware playing back the sound.**
  In a PC this is the sound card. In the Mac it is the built in audio circuitry or any audio card you have installed. Don't be fooled by the "16 bit, 44.1kHz, CD quality" tags. How good some audio hardware actually sounds depends on a number of things, its frequency range and frequency response curve, the signal to noise ratio, the distortion under various circumstances, etc. Furthermore, some designs are more prone to disturbance from the other electronics in the computer, than other. Such disturbance might add hum or high pitched noise to the signal.

  As you probably understand by now, this is a big subject and there's no way we can help you find the right solution in this manual. There are a number of text books and magazines covering this subject and any music dealer specializing in computers will happily help you out. The only advice we can give you is that if you are serious about sound, choose your audio hardware carefully!

● PC users, please read the paragraphs about DirectX on , it might have an impact on your choice of audio hardware.

About Latency

On any personal computer system, there is a delay between the moment you "ask" the hardware to play a sound and when it actually does it. This delay is referred to as the "latency" of the design. This imposes a problem for any system where you want real time user input to affect the sound.

What is acceptable?

As a comparison, consider a hardware synthesizer. Here, you normally wouldn't accept a latency (between key down and sound out) of more than 3 to 7 ms (milliseconds – thousands of a second), if the instrument is to be used "professionally".

On a regular PC or Mac, the latency is anywhere from 25 to 300ms! This is just an effect of the fact that a computer was built for many purposes, not just playing back audio. For multimedia and games, this is perfectly acceptable, but for playing a musical instrument it is not!

For this reason, you can not play the sounds in ReBirth RB-338 via MIDI. It would feel just awful.

ReBirth's built in sequencer is not affected by latency!

However, when the sound is played back via a built in sequencer, such as in ReBirth RB-338, the timing between notes is perfect! Once playback of a ReBirth Pattern or Song is up and running, latency isn't a consideration at all. The computer clocks the audio between the steps and does this with perfect quartz accuracy! The timing is immaculate!

Still, latency rears it ugly head in another part of the program:

- **When you move controls on the front panel, the time it actually takes before these movements affect the sound depends on the latency.**

- **The timing accuracy of the meters on the front panel is determined by latency.**

For these two reasons, ReBirth has a buffer size setting in the Preferences dialog. This allows you to minimize the latency as much as possible. How much you will be able to reduce the buffer sizes depends on your sound driver and your computer. The faster it is, the smaller the buffers required.

Reducing latency

Having said this, there are general methods for reducing latency. The problem is that most of them are based on non-standard solutions that require special hardware to be installed in your system. For a software developer they also impose problems, since special routines have to be written for each hardware solution.

On the Macintosh, it is the Sound Manager routines (part of the Mac OS) and the audio hardware in the computer that are responsible for the latency.

On the PC, it is the Windows routines and the audio card that introduce latencies. However, you do have some control over this via the choice of using MME or DirectX drivers for your audio card, see below.

PC Specific Information

About DirectX, MME and the Sound Buffer setting

There are two ways for Windows to access an audio card:

Via an MME (MultiMedia Extensions) driver

This system has been around since Windows 3.0, and it is this type of driver that is normally installed in the Control Panel and via Plug'n'Play. Most regular sound playback (like when Windows goes "bing" on startup) happens via MME.

- Practically all cards come with an MME driver. If your card appears in the System part of the Control Panel, you have an MME driver installed.
- Using a card via an MME driver gives you relatively long latency (see page 155), especially under Windows 95.
- Only one program at a time can use a card accessed via MME.
- If you use MME, ReBirth RB-338 can play in the background.
- The latency is around 160 milliseconds when using MME under Windows 95.

Via a DirectX driver

DirectX is a later system developed by Microsoft to provide developers with more efficient routines to access audio. As of this writing, DirectX version 2 is included with Windows 95 and Windows NT. However, version 3 was the latest and can be obtained from Microsoft. However, this does not mean you should always use DirectX on your system, read on.

- As of this writing, not all cards come with DirectX drivers. Drivers for some cards are included with DirectX itself.
- Using a card via a DirectX driver gives you a pretty short latency, between 40 and 90 milliseconds under Windows 95 (see page 155).
- If you use DirectX 3 or later, all programs that access the card via DirectX and make use of the DirectX "secondary buffer" feature can use it at the same time and ReBirth RB-338 can play in the background.
These are the only two differences between DirectX 2 and 3 that concern ReBirth.

Questions and Answers about DirectX

● This text is by no means a complete guide to DirectX! For more information, please point your web browser to: http://www.microsoft.com/DirectX/default.asp (the "DirectX Pavilion" at Microsoft).

Should I access my card via DirectX or MME?

ReBirth RB-338 can use DirectX or MME, the program will work fine with either system. However, if, and *only* if, you have a card for which there is a real DirectX driver, and this driver is installed correctly, you *should* use DirectX. This will allow you to reduce the latency (see) which makes the program more responsive. It will *not* make it sound better or give it any other additional features, but twisting knobs and moving controls will "feel better".

How do I know if I have DirectX installed at all on my computer?

1. **Launch ReBirth.**

2. **Pull down the Edit menu and select Preferences.**

3. **Pull down the Audio Card Driver menu in the dialog that appears And select the *last* driver on the list.**
   Check the text just below the pop-up. If it says "Driver Type: Direct X", then you have DirectX installed.

How do I know if I have a real driver (as opposed to an "emulated driver") installed for my card?

Select the various alternatives on the Audio Card Driver menu described above, one at a time. The text that appears below tells you if the driver is "emulated".

● If you have a DirectX driver not indicated as emulated, use it! On the other hand, if you only have emulated DirectX drivers, don't use DirectX. Instead use one of the MME alternatives on the menu!

How do I know which version of DirectX I have installed?

You can't, at least not really. However, you can tell if you have version 3 or later:

1. **Start ReBirth so that it's playing.**

2. **Switch over to another program, for example the Desktop.**
   If ReBirth keeps playing, you have DirectX 3 or later installed. If it stops you have an earlier version.

If I don't have DirectX installed, should I install it?

There are two situations where we recommend you to install DirectX, if you don't have it already:

- **If the card vendor can supply you with a DirectX driver.**

- **If your card is one of the few for which a driver is included with Microsoft's DirectX package.**
  The list of included drivers changes constantly. Again, please visit the "DirectX Pavilion" at the Microsoft web pages.

If I have DirectX version 2, should I install a later version?

The major difference between version 2 and later is that the later versions allow several applications to share one audio card, whereas version 2 does not.

If you're the type that always want to keep your computer system up to date with the latest version of any software, install a later version. If you're the type that rather stays with what you have, because you know and understand it, don't.

Where do I get hold of DirectX?

Version 5 of DirectX is included on the ReBirth CD. For later versions, please visit the "DirectX Pavilion" at the Microsoft web pages, http://www.microsoft.com/DirectX/default.asp.

Where do I get hold of a "certified" DirectX driver for my audio card?

There are two ways:

- A driver might be included with DirectX.

- Contact the card vendor or the dealer where you purchased the audio card and ask for a DirectX driver.

Cyrix vs. Intel

As of this writing, the two major processor manufacturers are Intel and Cyrix. Both have their advantages and disadvantages, but actually, for ReBirth RB-338, an Intel processor is the best choice. Why?

This has to do with *floating point* calculations (counting with decimal numbers rather than with non-decimal numbers, *integers*.). Using floating point arithmetics ensures high audio quality. You can get high audio quality on an integer system too, but floating point is effective and accurate when it is available.

Intel Pentium processors are *much* faster at floating point mathematics than Cyrix 586 and 686 chips. This means that much more of your computer's processing power will be used up when running ReBirth RB-338 on a Cyrix processor than on an Intel. This has the following effects:

- **On a Cyrix processor you need to use larger buffer sizes (the buffer size is set in the Preferences dialog), to prevent the sound from "breaking up".**
  Larger buffers makes the program less responsive to control changes, see .

- **The updating of the graphics will be slower.**
  This can be noted when moving windows, pulling down menus etc.

- **Other programs running at the same time, will not perform as fast as they otherwise do.**

● Provided the buffering is OK, the speed of the processor has no effect on the sound quality. ReBirth RB-338 will sound just as good on an Intel processor as on a Cyrix or other brand!

Macintosh Specific Information

What the Sound Manager does/is

The Sound Manager is a set of software routines in the Mac OS. These routines take care of everything related to sound.

The Sound Manager is built into the system. If you have the latest version of Mac OS, you probably don't need to install any special Sound Manager files. However, if you run an older OS version, you can install the Sound Manager included with ReBirth, or any even more recent version you can get hold of (for example from Apple's Internet pages: www.apple.com).

One specific character of the Sound Manager is its ability to mix audio from several applications. This means that even when you run ReBirth, you can run other Sound Manager compatible applications at the same time, and they will all sound.

Mac Audio cards

Even though all Macintosh computers have built in sound, there are Mac audio cards which add capabilities to your system. Such capabilities can be additional in- and outputs, digital connections, better sound quality, etc.

- If you have an audio card for which there is a well written Sound Manager driver (a piece of software that allows the Sound Manager to play via the card) you can use the card with ReBirth RB-338.

- If you use the card with some special software (such as a hard disk recording system) that does not use the Sound Manager, you can still use that software and run ReBirth at the same time. ReBirth will use the built in sound connectors on your Macintosh and the other software will use the card.

Installing a Macintosh audio card for use with ReBirth

If you have an audio card for which there is a Sound Manager driver, you can use it with ReBirth RB-338. Proceed as follows.

1. **Quit ReBirth if it's running.**

2. **Install the card as described by the manufacturer.**

3. **Install the Sound Manager driver for the card, as described by the manufacturer.**

4. **Open the Monitors and Sound control panel.**

5. **Click on the Sound button.**

6. **Select the card from the list of audio outputs.**

7. **Set up the levels and sound quality options as desired.**

8. **Switch to the warnings display and click on the sounds to check that they now play back via the audio card.**

9. **Close the dialog.**

10. **Launch ReBirth.**
   It will now play back via the audio card rather then via the computer's built in audio outputs.

Appendix B

Troubleshooting

Introduction

The intent of this chapter is to help you get as effective technical support as possible. Please read through the following before you contact technical support.

Where can I get Support?

This depends on where you bought the program:

- If you bought ReBirth RB-338 directly from Propellerhead Software, support is available via the Internet. See below for details.

- If you bought ReBirth from Steinberg Soft- & Hardware there are two ways to get support: via the Internet (see below) or by contacting your local distributor. If in doubt, examine your package for details on how to contact the distributor, or contact the dealer where you bought the program.

What you need to do before Contacting Tech Support

First of all, do you need help with some functionality in the program or do you suspect something doesn't work as intended? Read through the following points:

If the Program isn't Behaving as Expected

Is the problem really with ReBirth RB-338?

Technical support personnel can unfortunately not help you with general problems with your computer and peripherals. Furthermore, the operation manual and technical support facilities assume you have a basic understanding of how your computer works. If not, please go back and study the documentation that came with the computer and related equipment.

"It worked before..."

Often, when a program stops working it is because you have installed something new or changed your configuration in some way. If possible, revert to the old setup and check if things work then.

When you have done so, install the new components one at a time and check ReBirth in between each one. This will help you pinpoint exactly what it is that causes the problem.

Do other programs behave normally?

Sometimes when you have problems with general things like audio playback, MIDI or file handling, it can help using other programs to perform similar operations. For example, if none of your programs can play back audio, the problem might be with the audio card or its installation, rather than with the programs.

Is everything installed properly? Did you really follow the installation instructions?

Installing hardware and software can be a daunting task. The instructions that come with the devices and program are there for a reason. Even if you consider yourself a seasoned expert, and even if the manufacturer boasts "Plug'n'Play" support, please read the instructions and ReadMe files, there might be something there you missed!

Is there a system conflict?

Sometimes, problems that appear to be related to a certain program or device are actually caused by something entirely different. Try the following:

- **Disable any system extensions and additions not required for running Re-Birth RB-338.**
- **Remove any background ("memory resident") programs that you have installed.**
- **Quit all other programs.**
- **Try with a simple computer configuration.**
- **Un-install any special hardware that might interfere with your system.**
- **Now, run ReBirth RB-338 again and see if the problem persists.**

If there is Something you don't understand

Did you really read the manual thoroughly?

We have to say this: a lot of time and effort was put into providing as accurate and complete documentation for ReBirth RB-338 as possible. Chances are that the information you are looking for is somewhere in this manual:

- **Use the Table Of Contents for finding overall procedures.**
- **Use the Index to find descriptions related to certain terminology.**
- **Use the Find feature to search for keywords.**
- **Read the ReadMe files included with the program. These often contain last minute notes and information about special situations.**

Reduce the number of pitfalls

When you try to come to grips with a certain procedure or function, try it on something simple. Create some simple material that you can use as "workbench". Disable all unrelated functions and features, hold your breath, and try again. Often, when minimizing unrelated options, it is easier to see what is going on within the program.

What you need to have at hand

So, you tried all of the above, and you still have problems. This is what you need to have at hand before you contact technical support:

Serial number and registration information

You must be prepared to state the program serial number of the program and other registration information. This is found somewhere on the package or on a separate registration card.

Version number

This is very important. The version of the program can be found in the About box.

System details

We will need to know many things about your system, like:

• Computer brand and specifications (RAM, hard disk, installed cards etc).
• Graphic and audio card details (driver versions etc.).
• Windows/Mac OS versions.
• Details about other programs you have installed.

A description of the problem

The importance of this can not be underestimated. A description like "it sometimes crashes" doesn't do much good. We need to know:

• The exact series of events that cause a problem.
• Reports about exactly where in the series of events the problem occurs.
• Detailed information about any error messages or alert boxes that appear.

How to Contact Tech Support

If you bought the program directly from Propellerhead Software

• **Pull down the Contacts/Help menu and select "Get Technical Support", or...**
• **Fire up your Internet browser and point it to www.propellerheads.se/ techsupport/.**

If you bought the program from Steinberg Soft- & Hardware

• **Contact your local distributor in the way they instruct you, or...**
• **Point your Internet browser to www.steinberg.net.**

Appendix C

Glossary

This chapter explains some of the technical terms used in ReBirth and its documentation:

Accent	In this context, a way to control the dynamics of a sound. A note played with accent is louder or more emphasized than other notes.
AIFF (.AIF)	Abbreviation for Audio Interchange File Format. The standard audio file format on Macintosh computers.
Audio Card	A card in your computer that provides it with audio inputs and/or outputs. When you hear the Windows 95 startup sound on your PC, you're hearing audio from the audio card. On a Macintosh, audio connectors are built in, which means adding an audio card is an option.
Audio File	A file that contains digitized audio. Any audio recording you make on your computer is stored in an audio file.
Bank	A set of Patterns. In each Section in ReBirth there are four Banks labelled A to D. Each Bank contains eight Patterns.
Bank Selectors	The buttons used for selecting Banks.
Buffer	A memory area used for storing data temporarily. For example, when ReBirth RB-338 plays audio, it stores the audio in a buffer where the audio card can read it before converting it to an audio signal.
Cubase	Steinberg Soft- & Hardware's state of the art audio and MIDI sequencer.
Cutoff	A control on a Filter. In the case of ReBirth, it controls the "brightness" of the sound.
Decay	A control that determines the length of a sound.
Delay	In a musical context, this is an effect that creates echoes and "repeats".
Digitized	When some type of data is converted into numbers. When you record audio on a computer, the audio is digitized so that it can be stored in the computer's memory, manipulated (edited), shown on screen etc.
DirectX	System routines for Windows 95 and Windows NT, for playing back audio, video and other media components. Also see Multimedia Extensions.
Dist	An abbreviation for Distortion.
Distortion	When a sound sounds "dirty" it is distorted. This can either be a deliberate effect (as when you add distortion to an electric guitar sound) or unintentional as when you record a signal on a tape recorder, with too high a level.
Dynamics	The difference between weak and strong levels.
Envelope	A device on a synthesizer used for controlling the "shape" of a sound. An envelope usually has parameters like Attack and Decay.

Feedback	When an output signal is routed back to the input, in various amounts. In this case, it is a setting in a Delay, that is used for creating repeating echoes.
Filter	In this case a device used for introducing timbral changes to a sound.
Focus	In this case, the section with "the focus" will be the target for some operation. For example, when you Paste, the Pasted material will appear in the section with the focus.
Focus bar	A visual display in ReBirth RB-338 (an orange bar) that shows you which Section has the Focus (see above).
Instrument	In this case, a drum sound or rhythm sound in ReBirth's Rhythm Section.
Latency	In this case, the inherent delay in the audio part of a computer system. See page 155.
MIDI	A system for transmitting musical performance data (not audio!) between musical instruments, computers and related devices. MIDI is an acronym for Musical Instrument Digital Interface.
MIDI Clock	A part of MIDI used for synchronizing playback devices to each other so that they all play at the same tempo.
Mixer	In this case, a device that is used formixing sounds together and to control basic aspects of sound such as volume, panning and timbre.
MME	Abbreviation for Multimedia Extensions.
Multimedia Extensions	A set of system routines introduced with Windows 3.x, used for standardizing audio and other media handling under Windows. Also See DirectX.
OMS	Open Music System. A system for standardized handling of MIDI on Macintosh and PC computers. Developed by Steinberg Soft- & Hardware GmbH and Opcode Systems Inc. Only the Macintosh version of ReBirth RB-338 uses OMS.
Pattern	In this context, a short snippet of music, a synth or rhythm phrase.
Pattern Selector	Buttons for selecting Patterns.
Resonance	In this case, a Filter control. Used for giving the sound a more prominent character and "hollow" quality.
Rhythm Instrument	In this case, one of the sounds available in the Rhythm Section in ReBirth RB-338.
Rhythm Section	The part of ReBirth that provides the rhythm and drum sounds.
Section	ReBirth has six sections (machines, devices, parts): one Rhythm section, two Synth sections , one Delay section, one Distortion section and one Master section..
Section focus	See Focus.

Sequencer	A device that records and plays back a musical performance.
Shared Instrument	Some rhythm sounds in ReBirth RB-338 are mutually exclusive, that is only one of them can play at a time. These are called shared instruments.
Sound selector	A: The large knob in the ReBirth rhythm section used for selecting sounds. B: the sound legends on the rhythm section front panel, also used for selecting sounds.
Step	Patterns are divided into steps. Each step plays a rhythm/synth sound. One step represents a sixteenth note.
Sync	Abbreviation for Synchronization.
Synchronization	In this context: when two or more devices are "locked to each other" in some way, so that they play together, for example at the same tempo.
Synth Section	In ReBirth RB-338, the two synth sections provide all the synthesizer sounds.
Tuning	Controlling the pitch of a sound.
Underruns	When data is output from a Buffer at a faster pace than it is coming in. As you understand this is an impossible situation that normally causes glitches of some kind.
Wave (.WAV)	The standard audio file format on PC computers.
Waveform	The "shape" of a sound. On many synthesizers you select various waveforms to get a basic character for your sound, before shaping it with Envelopes, Filters etc.

Appendix D

Standard MIDI Mapping Tables

The tables in this appendix show all the MIDI messages used in the Standard MIDI Mapping mode.

Mixers

This table shows you which MIDI Controller messages are used for the various controls in the Mixers

Control:	Synth 1:	Synth 2:	Rhythm:
Level	11	14	17
Pan	12	15	18
Delay Amount	13	16	19

Controls in the Synths

This table shows you which MIDI Controller messages are used for the various controls in the two synth sections:

Control:	Synth 1:	Synth 2:
Waveform	20	27
Tune	21	28
Cutoff	22	29
Reso	23	30
Env Mod	24	31
Decay	25	32
Accent	26	33

Controls in the Rhythm Section

This table shows you which MIDI Controller messages are used for the various controls in the rhythm section:

Control:	MIDI Ctrl #:	Comment:
AC Level	34	
BD Level	35	
BD Tone	36	
BD Decay	37	
SD Level	38	
SD Tone	39	
SD Snappy	40	
LT Level	41	
LT Tune	42	
LT Switch	43	On/Off
MT Level	44	
MT Tune	45	
MT Switch	46	On/Off
HT Level	47	
HT Tune	48	
HT Switch	49	On/Off
RS Level	50	
RS Switch	51	On/Off
CP Level	52	
CP Switch	53	On/Off
CB Level	54	
CY Level	55	
CY Tone	56	
CY Decay	57	
OH Level	58	
OH Decay	59	
CH Level	60	
Instrument Selection	61	

Master and Effects Sections

This table shows you which MIDI Controller messages are used for the various controls in the Master and effect sections:

Section:	Control:	MIDI Ctrl. #:
Master	Level	7
PCF	Pattern	62
	Mode (LP/HP)	63
	Freq	64
	Q	65
	Amount	66
	Decay	67
Delay	Steps (1-32)	68
	Triplet mode	69
	Pan	70
	Feedback	71
Dist	Amount	72

Various Switches

This table shows which keys (MIDI Note messages) that can be used in all modes, for various functions on the panel:

Keyboard	MIDI Key	Note Number	Function
	G#4	80	Rhythm – PCF On/Off
	G4	79	Rhythm – Dist On/Off
	F#4	78	Rhythm – Mix On/Off
	F4	77	Synth 2 – PCF On/Off
	E4	76	Synth 2 – Dist On/Off
	D#4	75	Synth 2 – Mix On/Off
	D4	74	Synth 1 – PCF On/Off
	C#4	73	Synth 1 – Dist On/Off
	C4	72	Synth 1 – Mix On/Off
	B3	71	Dist – Enable
	A#3	70	Delay – Enable
	A3	69	PCF – Enable
	G#3	68	Transport – Bar +
	G3	67	Transport – Bar –
	F#3	66	Transport – Record
	F3	65	Transport – Stop
	E3	64	Transport – Play
	D#3	63	Focus to Rhythm
	D3	62	Focus to Synth 2
	C#3	61	Focus to Synth 1
	C3	60	Select Pattern/ Program Synth

Pattern Selection

When "Select Patterns from Keyboard" is activated on the Options menu, the following keys (MIDI Note numbers) can be used for select Patterns.

Keyboard	MIDI Key	Note Number	Function
	G#2	56	Rhythm – Pattern 8
	G2	55	Rhythm – Pattern 7
	F#2	54	Rhythm – Pattern 6
	F2	53	Rhythm – Pattern 5
	E2	52	Rhythm – Pattern 4
	D#2	51	Rhythm – Pattern 3
	D2	50	Rhythm – Pattern 2
	C#2	49	Rhythm – Pattern 1
	C2	48	Rhythm – Bank D
	B1	47	Rhythm – Bank C
	A#1	46	Rhythm – Bank B
	A1	45	Rhythm – Bank A
	G#1	44	Rhythm – Pattern On/Off
	G1	43	
	F#1	42	
	F1	41	
	E1	40	Synth 2 – Pattern 8
	D#1	39	Synth 2 – Pattern 7
	D1	38	Synth 2 – Pattern 6
	C#1	37	Synth 2 – Pattern 5
	C1	36	Synth 2 – Pattern 4
	B0	35	Synth 2 – Pattern 3
	A#0	34	Synth 2 – Pattern 2
	A0	33	Synth 2 – Pattern 1
	G#0	32	Synth 2 – Bank D
	G0	31	Synth 2 – Bank C
	F#0	30	Synth 2 – Bank B
	F0	29	Synth 2 – Bank A
	E0	28	Synth 2 - Pattern On/Off
	D#0	27	
	D0	26	
	C#0	25	
	C0	24	Synth 1 – Pattern 8
	B–1	23	Synth 1 – Pattern 7
	A#–1	22	Synth 1 – Pattern 6
	A–1	21	Synth 1 – Pattern 5
	G#–1	20	Synth 1 – Pattern 4
	G–1	19	Synth 1 – Pattern 3
	F#–1	18	Synth 1 – Pattern 2
	F–1	17	Synth 1 – Pattern 1
	E–1	16	Synth 1 – Bank D
	D#–1	15	Synth 1 – Bank C

Keyboard	MIDI Key	Note Number	Function
	D–1	14	Synth 1 – Bank B
	C#–1	13	Synth 1 – Bank A
	C–1	12	Synth 1 – Pattern On/Off

MIDI Key	Note Number	Function
D–1	14	Synth 1 – Bank B

Synth Section Switches

When "Program Synth from Keyboard" is activated on the Options menu, and the focus (see the main ReBirth manual) is set to one of the synths, the following functions can be activated via MIDI note messages:

Keyboard	MIDI Key	Note Number	Function
	G#0	32	Pitch Mode On/Off
	G0	31	Step
	F#0	30	Back
	F0	29	Note/Pause
	E0	28	Slide
	D#0	27	Accent
	D0	26	Octave Up
	C#0	25	Octave Down
	C0	24	Pitch C
	B–1	23	Pitch B
	A#–1	22	Pitch A#
	A–1	21	Pitch A
	G#–1	20	Pitch G#
	G–1	19	Pitch G
	F#–1	18	Pitch F#
	F–1	17	Pitch F
	E–1	16	Pitch E
	D#–1	15	Pitch D#
	D–1	14	Pitch D
	C#–1	13	Pitch C#
	C–1	12	Pitch C

Rhythm Section Switches

When "Program Synth from Keyboard" is activated on the Options menu, and the focus (see the main ReBirth manual) is set to the *Rhythm* section, the following functions can be activated via MIDI note messages:

Keyboard	MIDI Key	Note Number	Function
	D#1	39	Instrument – CH
	D1	38	Instrument – OH
	C#1	37	Instrument – CY
	C1	36	Instrument – CB
	B0	35	Instrument – CP
	A#0	34	Instrument – RS
	A0	33	Instrument – HT
	G#0	32	Instrument – MT
	G0	31	Instrument – LT
	F#0	30	Instrument – SD
	F0	29	Instrument – BD
	E0	28	Instrument – AC
	D#0	27	Step 16 - On/Off
	D0	26	Step 15 - On/Off
	C#0	25	Step 14 - On/Off
	C0	24	Step 13 - On/Off
	B–1	23	Step 12 - On/Off
	A#–1	22	Step 11 - On/Off
	A–1	21	Step 10 - On/Off
	G#–1	20	Step 9 - On/Off
	G–1	19	Step 8 - On/Off
	F#–1	18	Step 7 - On/Off
	F–1	17	Step 6 - On/Off
	E–1	16	Step 5 - On/Off
	D#–1	15	Step 4 - On/Off
	D–1	14	Step 3 - On/Off
	C#–1	13	Step 2 - On/Off
	C–1	12	Step 1 - On/Off

Appendix E

PCF Pattern Diagrams

The pictures on the following pages show the 34 PCF patterns (see).

The length of a Pattern is important since it determines the repetition. Let's use two examples to illustrate this:

- Pattern 4 is a sixteenth note pattern that is 12 steps long. This means it repeats itself after 12 sixteenth notes (three quarters of a measure, in 4/4).

- Pattern 41 is a thirtysecond note pattern that is 28 steps long, which means it repeats itself after 14 sixteenth notes.

The height of the bars show the dynamics of the pattern, that is, the "velocity" of the triggering of each step.

16th Note Patterns

In the first 34 Patterns, each step represents a sixteenth note. The total length varies, but the maximum length is 32 steps (two bars).

Pattern 0

Pattern 1

Pattern 2

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Pattern 3

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Pattern 4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Pattern 5

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
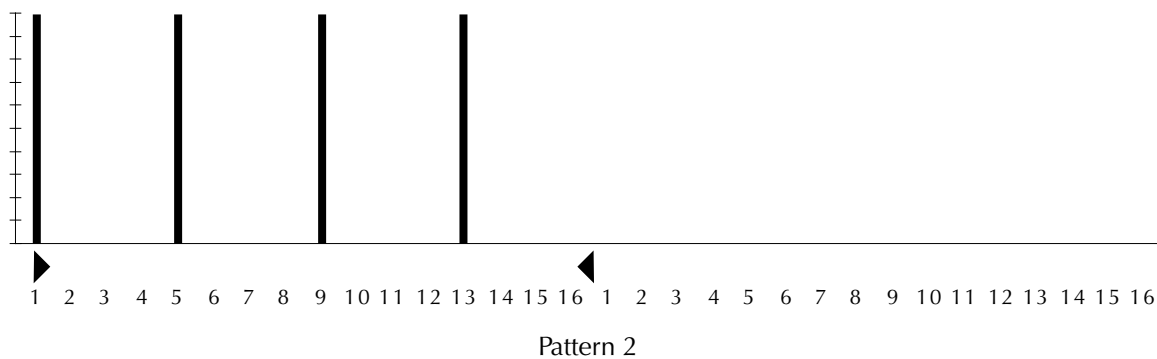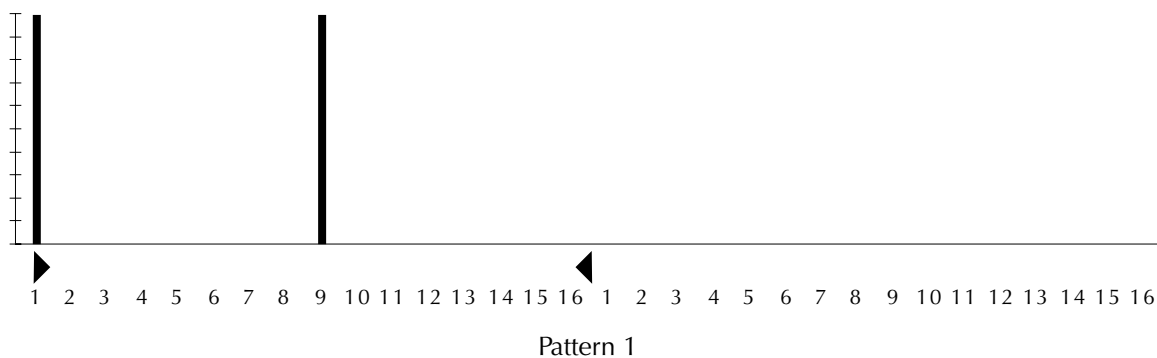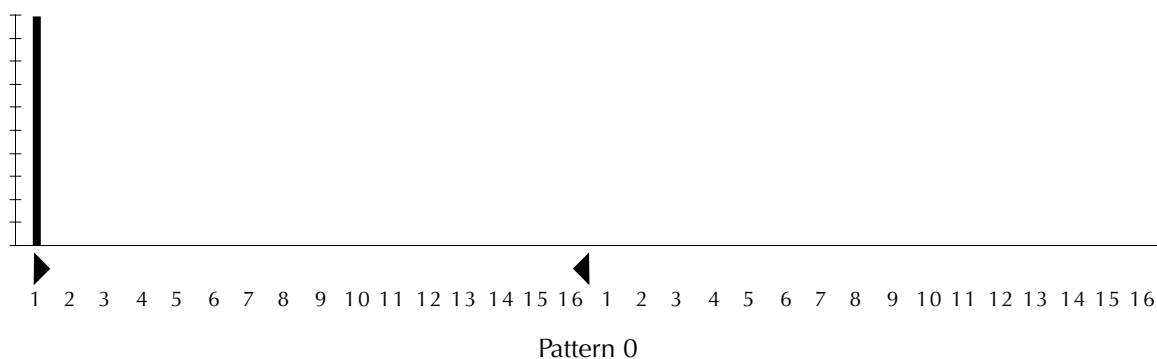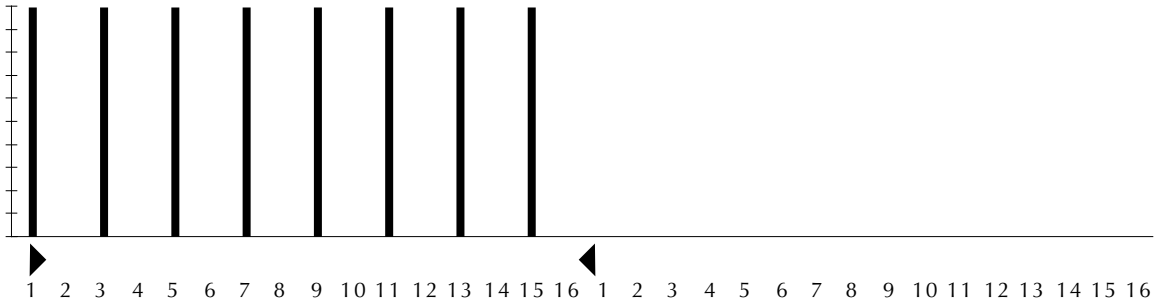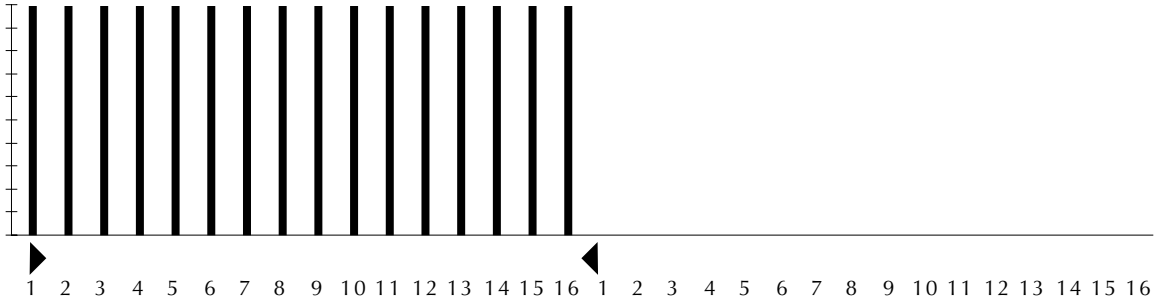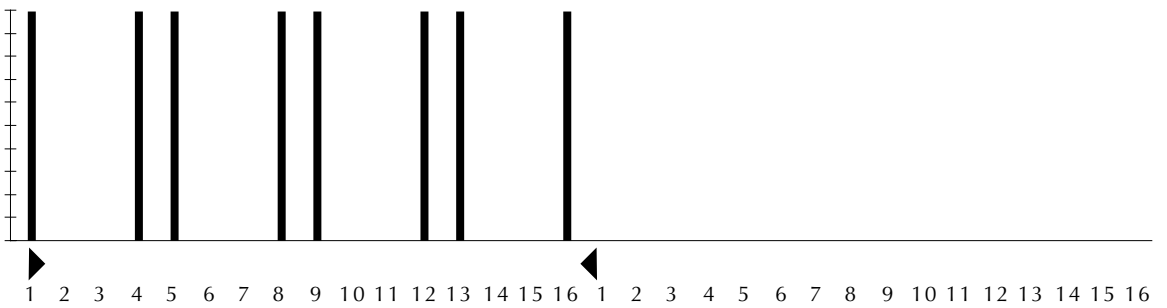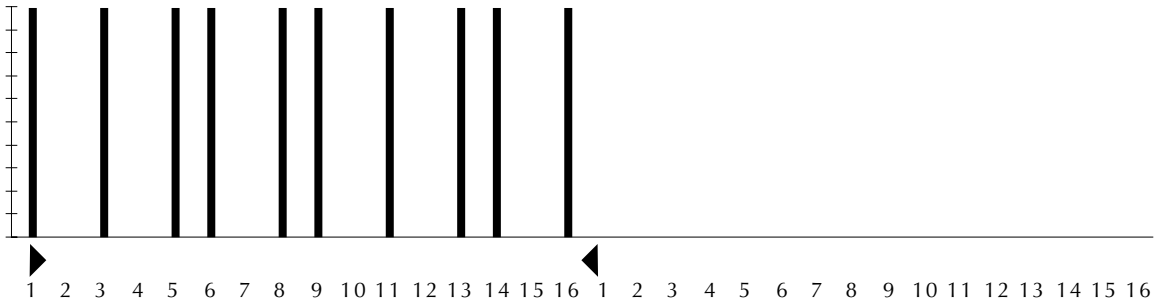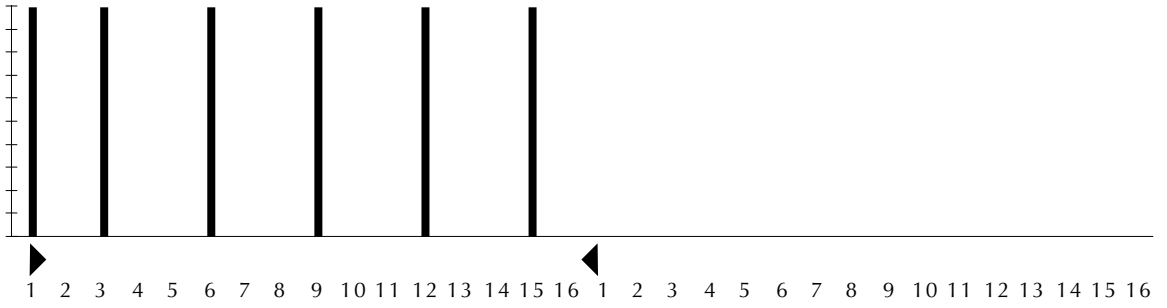
Pattern 6

Pattern 7

Pattern 8
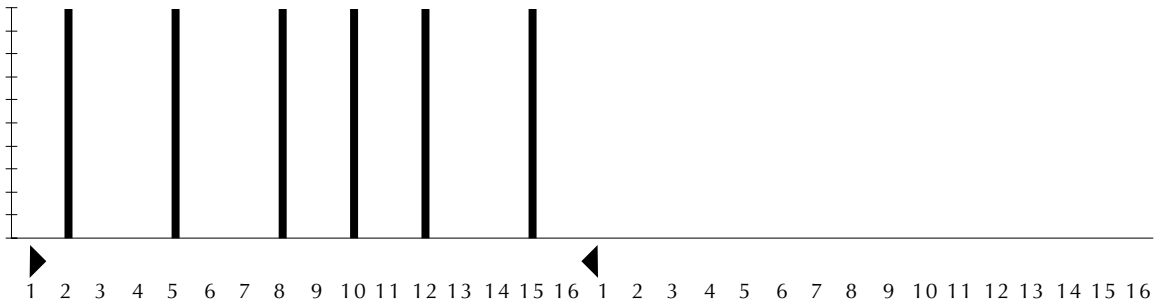
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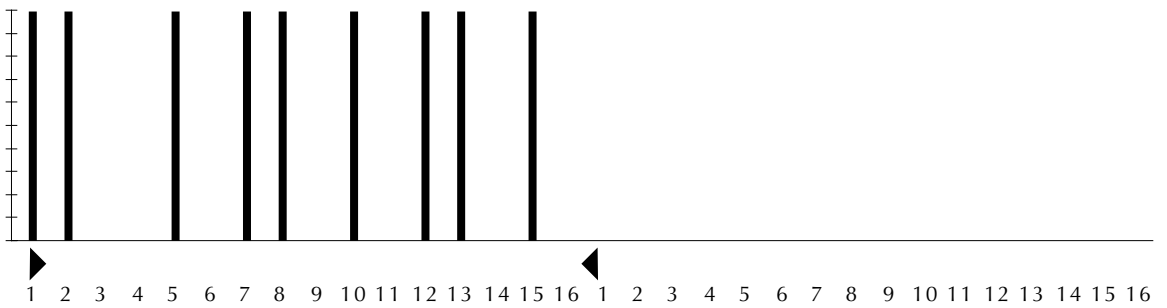
Pattern 10

Pattern 11
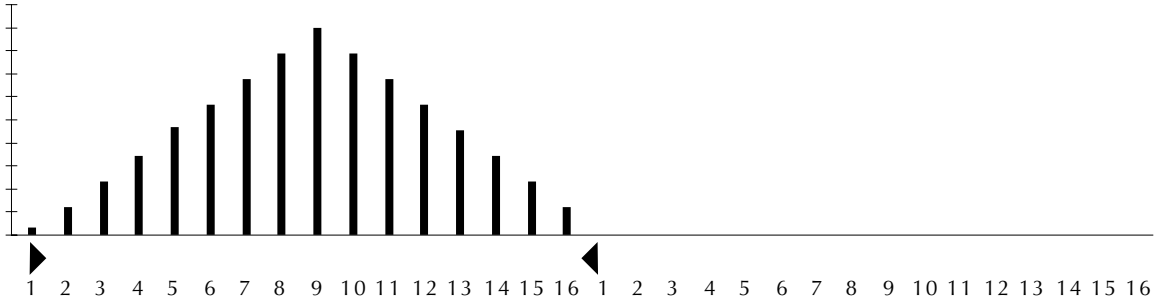
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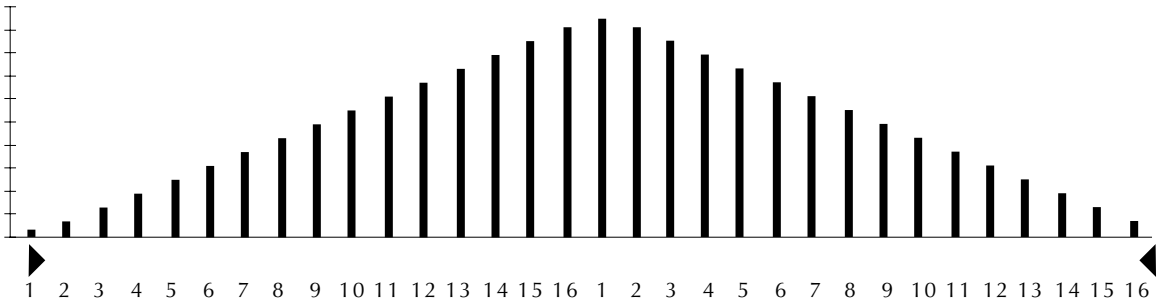
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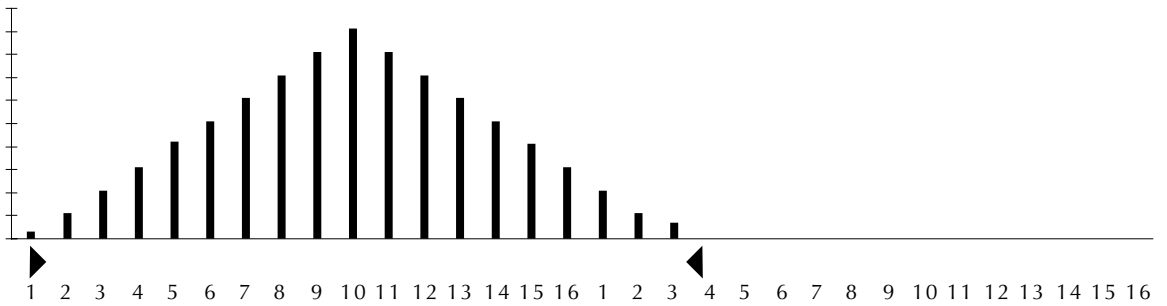
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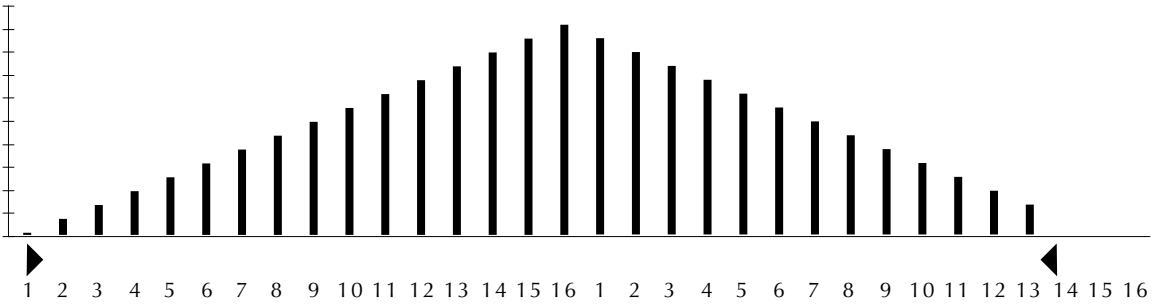
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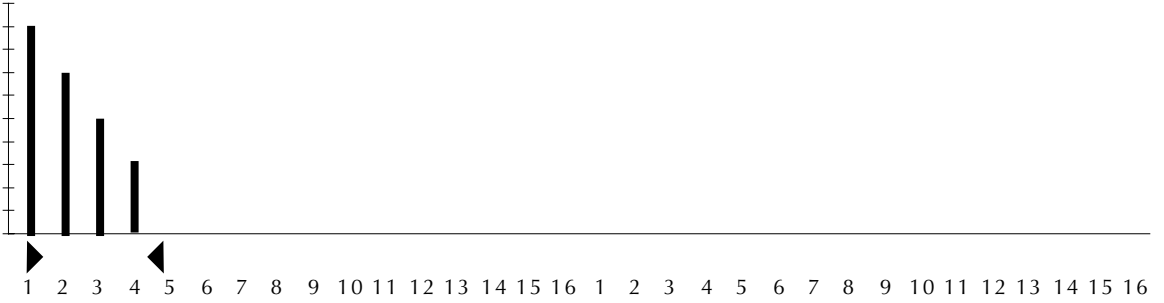
Pattern 16

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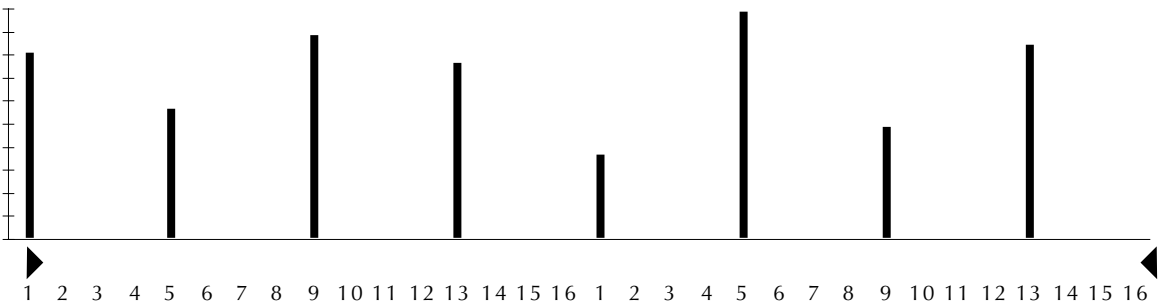
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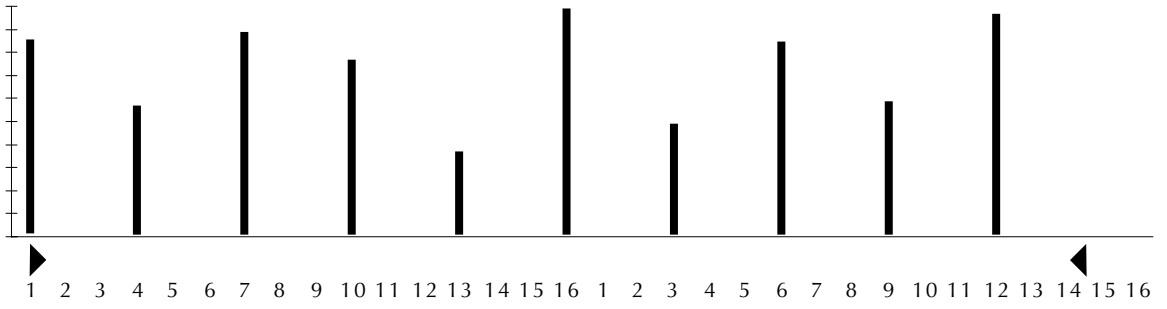
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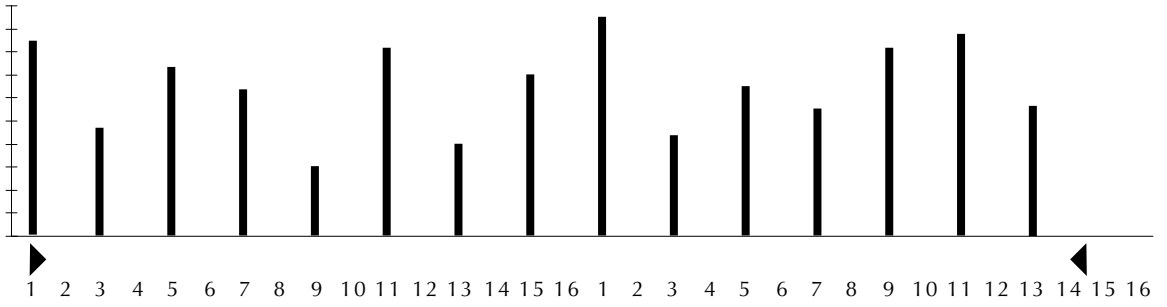
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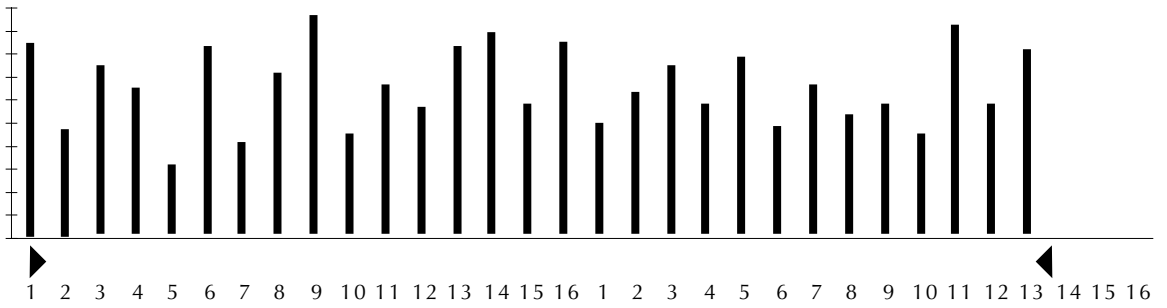
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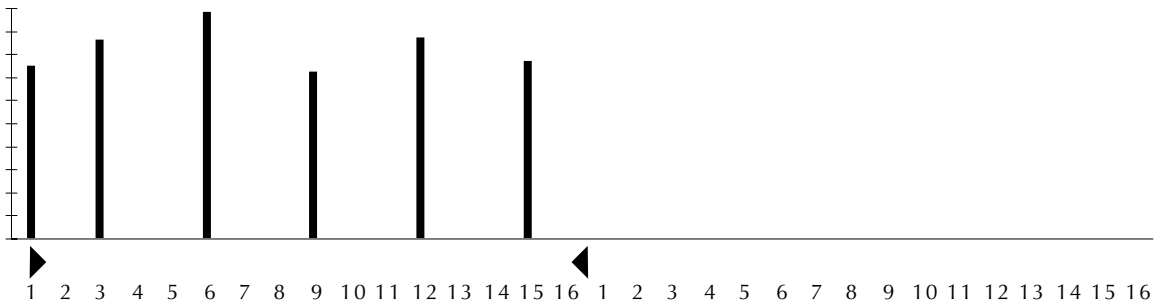
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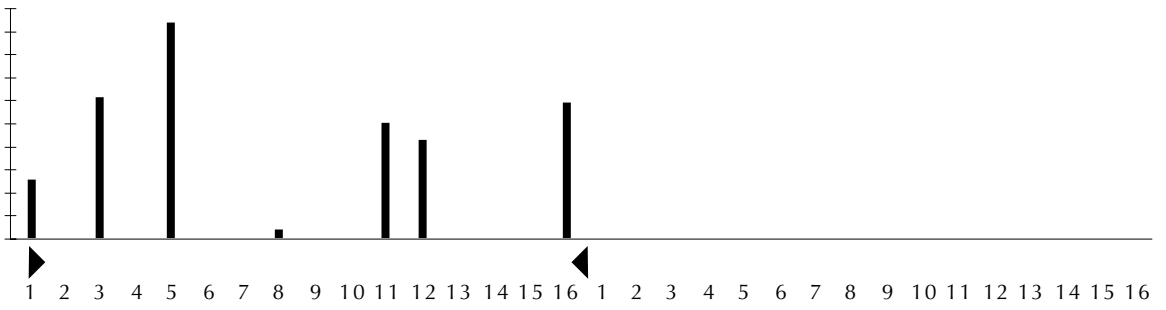
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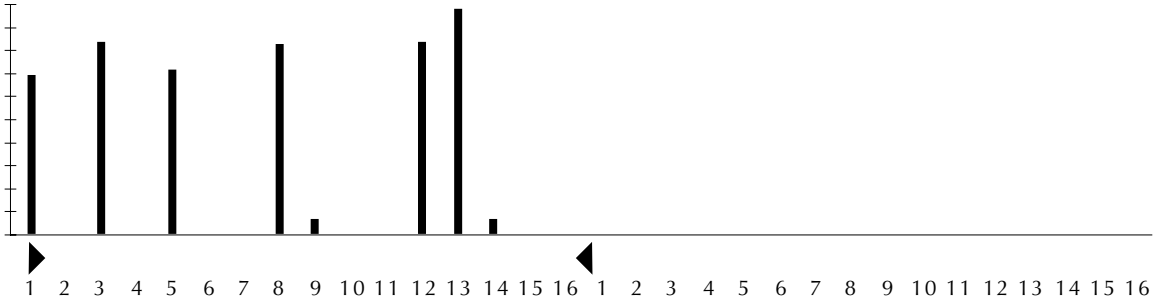
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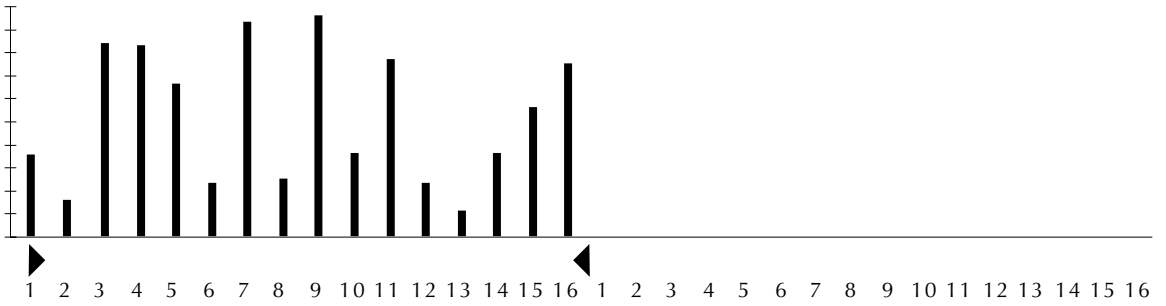
Pattern 25
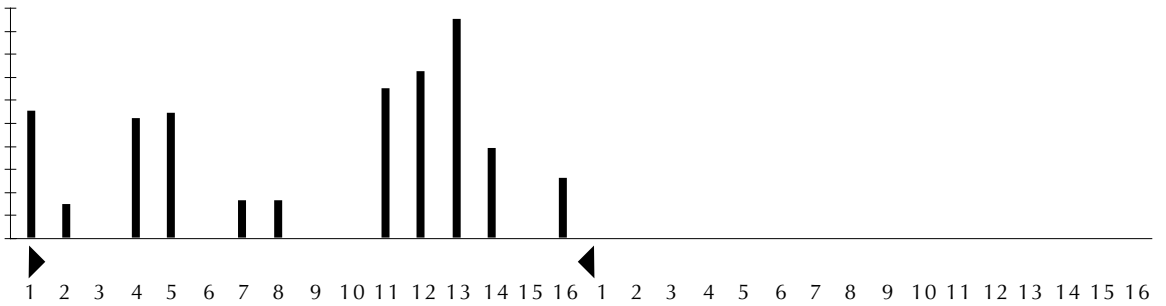
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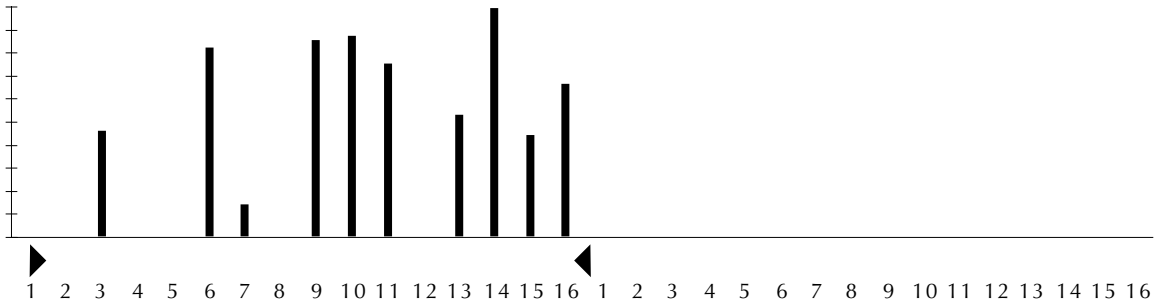
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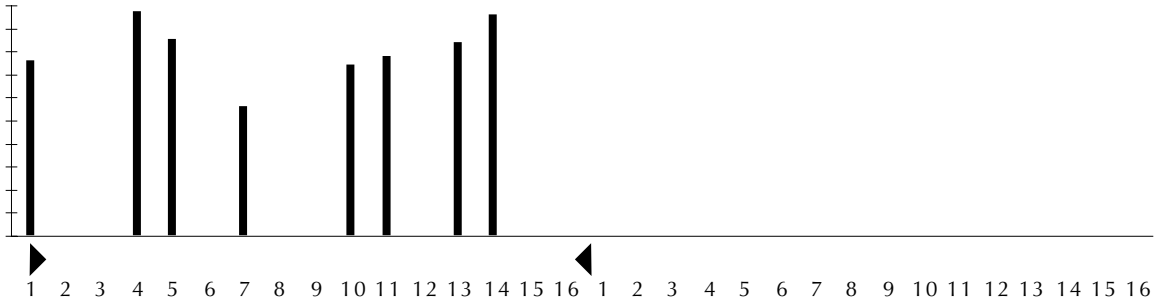
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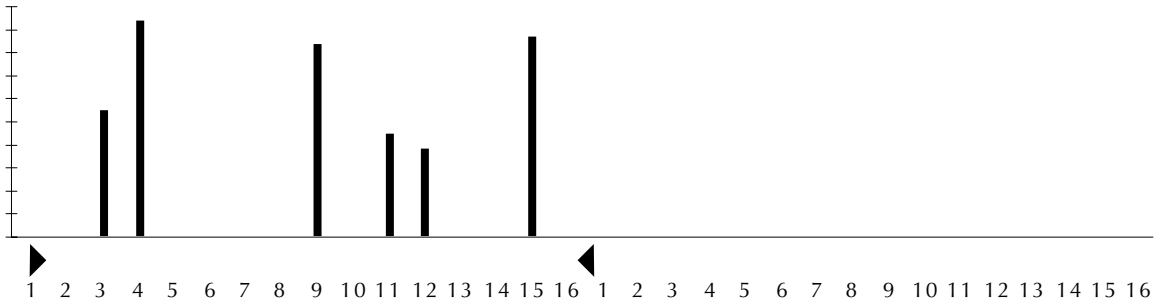
Pattern 29
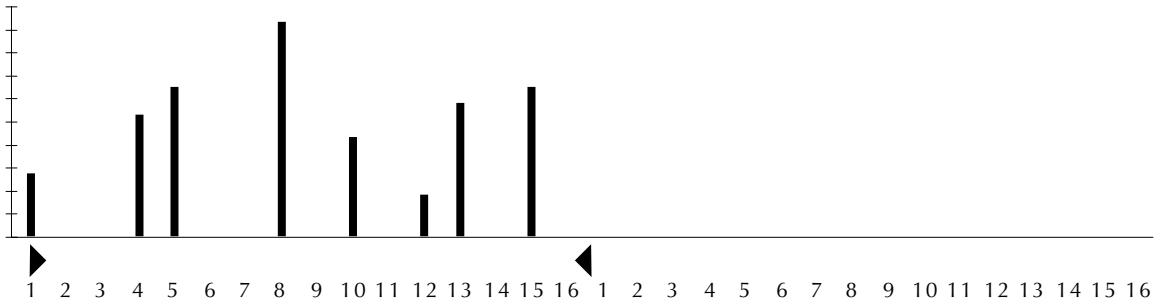
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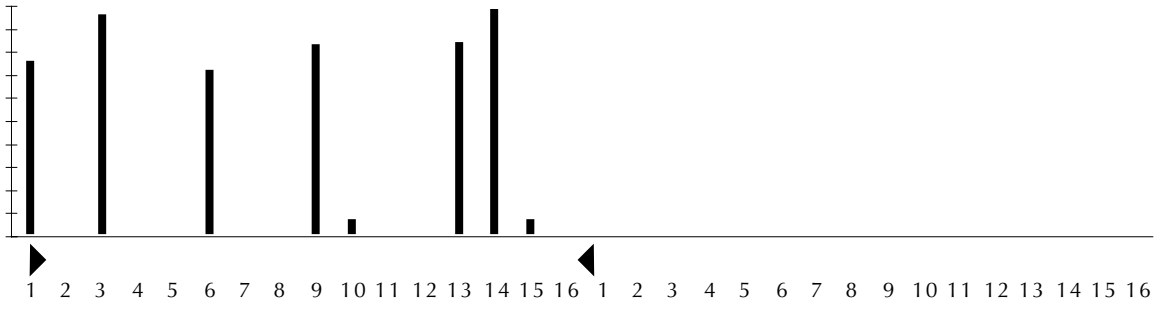
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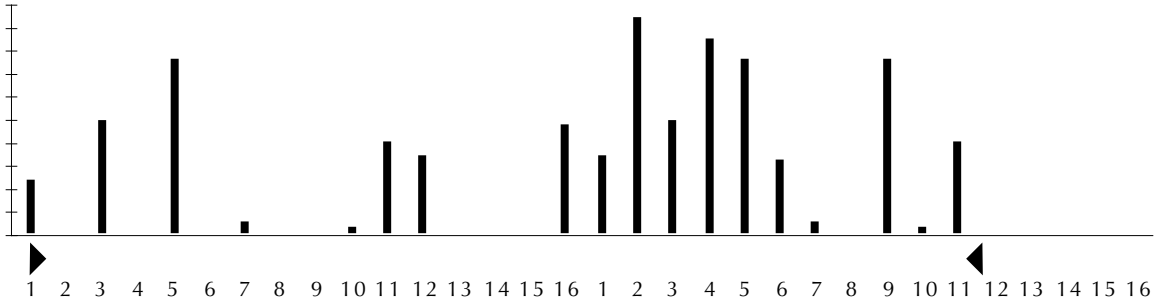
Pattern 32

Pattern 33

- 188 -

32nd Note Patterns

In Pattern 35 to 46, each step represents a thirtysecond note. Again, the length varies, but the maximum length is 32 steps (one bar).

Pattern 34

Pattern 35

Pattern 36

Pattern 37

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Pattern 38

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Pattern 39

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Pattern 40

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
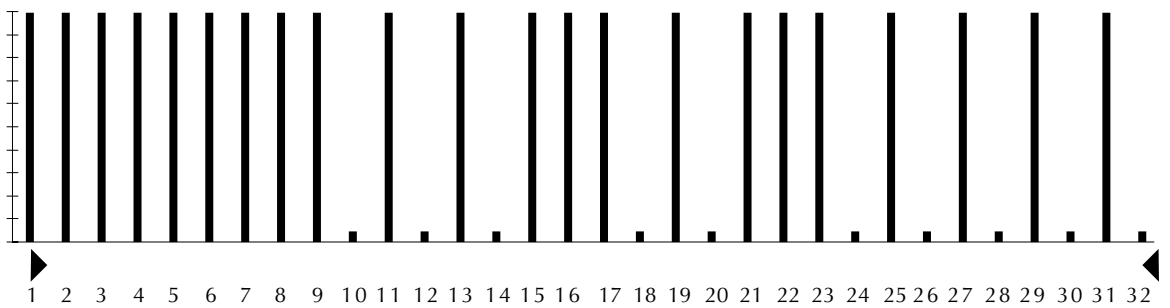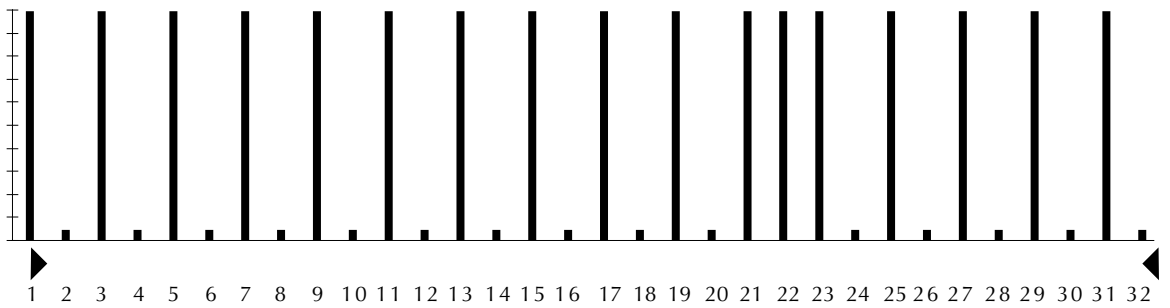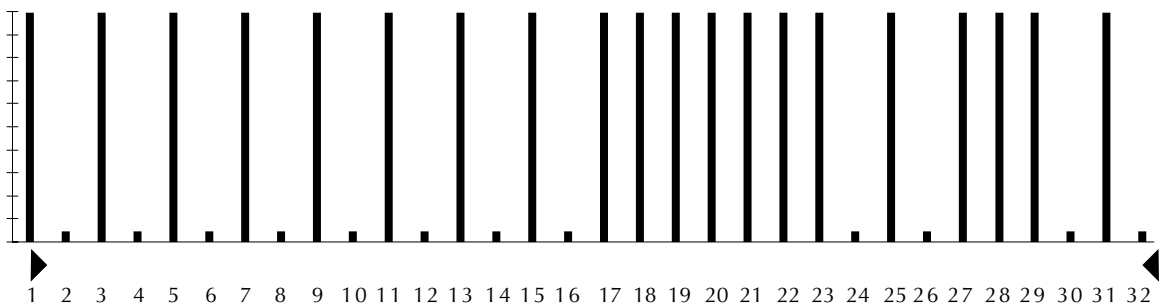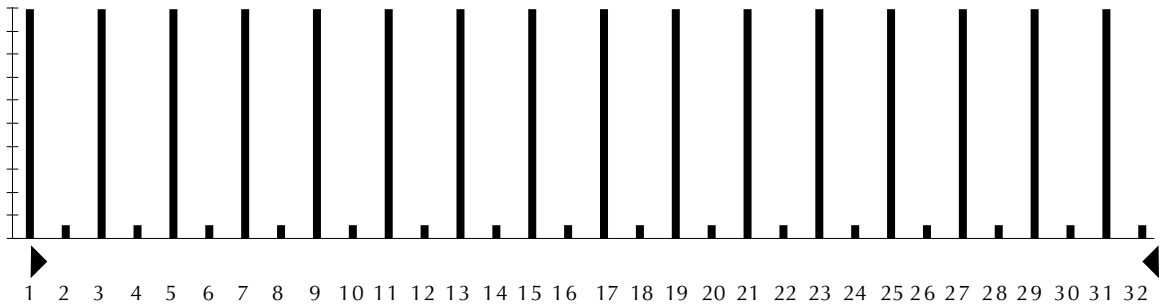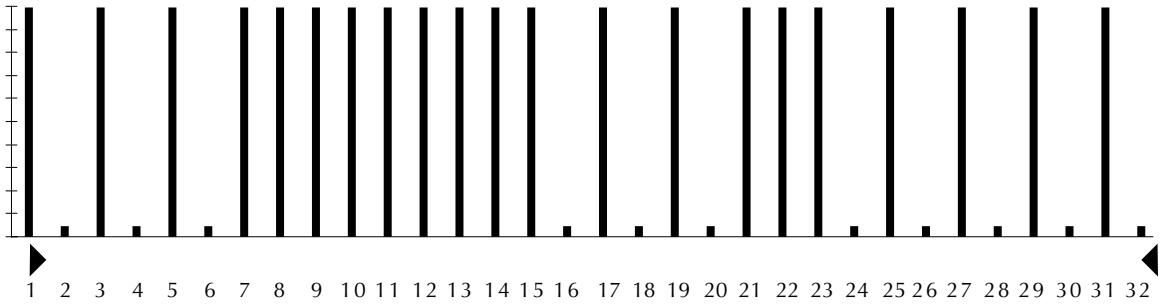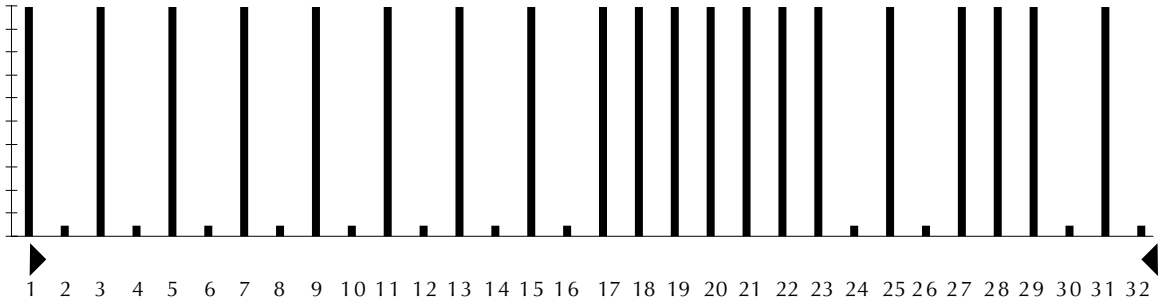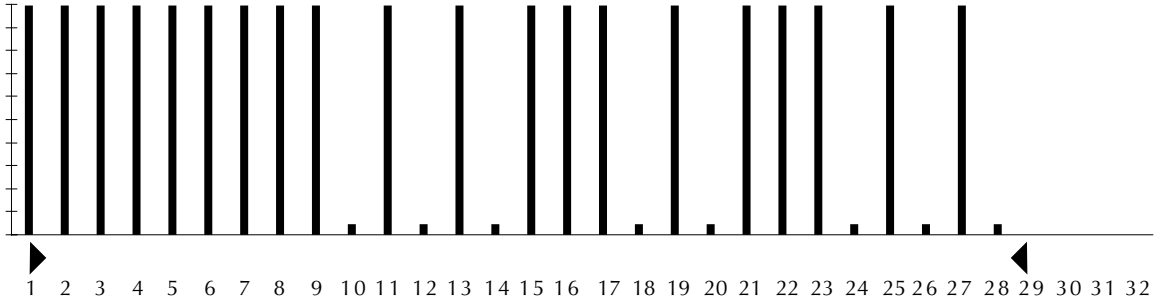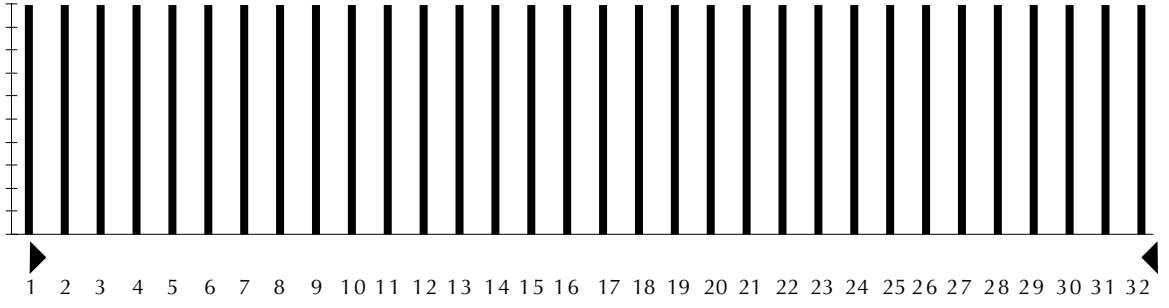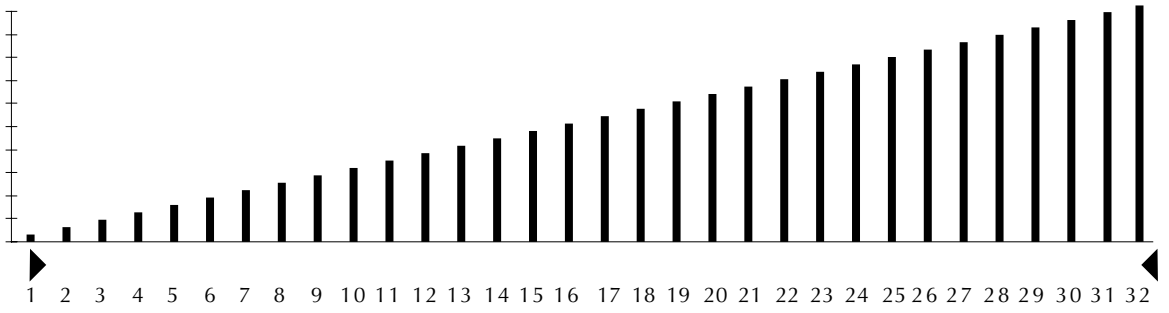
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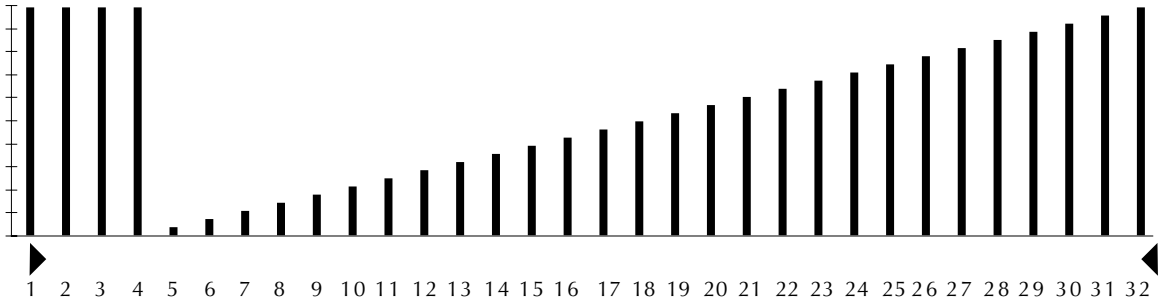
Pattern 42

Pattern 43
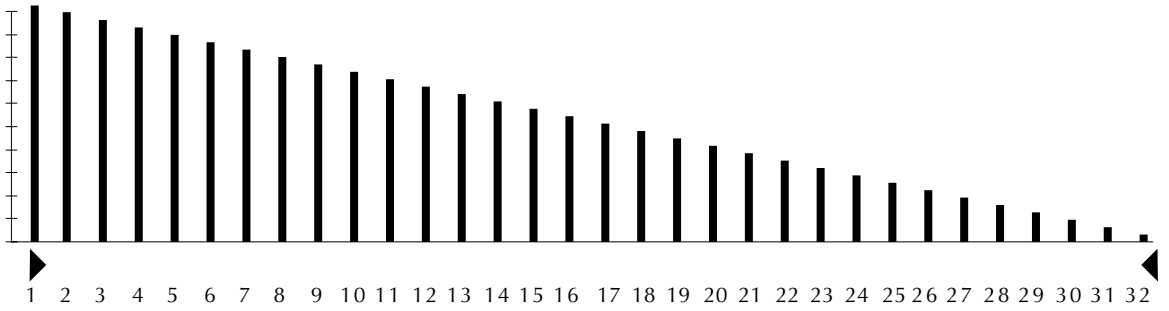
Pattern 44

Pattern 45

- 191 -
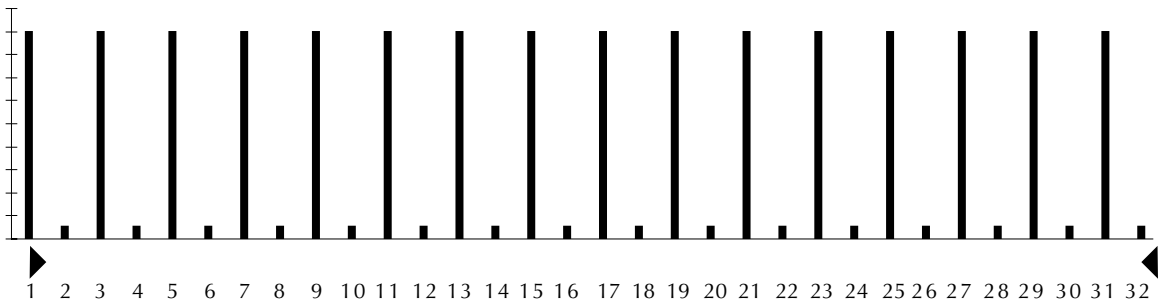
Appendix F

Keyboard Shortcuts

Menus

File menu

Command:	Mac:	PC:
New	[Command]-[N]	[Control]-[N]
Open	[Command]-[O]	[Control]-[O]
Close	[Command]-[W]	[Control]-[W]
Save	[Command]-[S]	[Control]-[S]
Song Information	[Command]-[I]	[Control]-[I]
Quit	[Command]-[Q]	[Control]-[Q]

Edit menu

Command:	Mac:	PC:
Cut	[Command]-[X]	[Control]-[X]
Copy	[Command]-[C]	[Control]-[C]
Paste	[Command]-[V]	[Control]-[V]
Random Accents etc.	[Command]-[R]	[Control]-[R]
Copy Touched Controls to Song	[Command]-[T]	[Control]-[T]

Transport Controls

The following transport commands can be executed from the numeric key pad, to the left on the computer keyboard:

Command:	Mac:	PC:
Stop	[0]	[0]
Play	[Enter]	[Enter]
Stop/Play	[space bar]	[space bar]
Record	[*]	[*]
Fast Forward	[=]	[Page Up]
Rewind	[Num Lock]	[Page Down]
Go to Loop Start	[1]	[1]
Go to Loop End	[2]	[2]
Next Bar	[8]	[8]
Previous Bar	[7]	[7]
Tempo Up	[+]	[+]
Tempo down	[–]	[–]

Pattern Selection

To select Patterns from the computer keyboard, make sure "Select Patterns from Keyboard" is selected on the Options menu. Use the typewriter part of the computer keyboard!

This assumes you are using an American keyboard. If not, check the illustration on instead. The keys are on absolute positions on the keyboard, not on certain character positions.

Pattern:	1	2	3	4	5	6	7	8
Synth 1:	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Synth 2:	[Q]	[W]	[E]	[R]	[T]	[Y]	[U]	[I]
Rhythm:	[A]	[S]	[D]	[F]	[G]	[H]	[J]	[K]

Synth Programming

To program the synth section from the computer keyboard, make sure "Program Synth from Keyboard" is selected on the Options menu.

This assumes you are using an American keyboard. If not, check the illustration on instead. The keys are on absolute positions on the keyboard, not on certain character positions.

Command:	Mac/PC:
Step	[Return]
Back	[Backspace]
C	[C]
C#	[F]
D	[V]
D#	[G]
E	[B]
F	[N]
F#	[J]
G	[M]
G#	[K]
A	[,] (comma)
A#	[L]
B	[.] (period)
C	[/]
Note/Pause	[–]
Accent	[P]
Slide	[[](left bracket)
Octave Down	[;](semicolon)
Octave Up	['] (apostrophe)
Tab	"Tap" Rhythm
Shift	Delete notes during playback

Rhythm Tap Programming

As described on page 26, you can "tap" the rhythm on the keyboard. This assumes you are using an American keyboard (see page 26).

Command:	Mac/PC:
–	AC
A	BD
S	SD
D	LT/LC
F	MT/MC
G	HT/HC
H	RS/CL
J	CP/MA
K	CB
L	CY
;	OH
'	CH
Shift	Delete notes during playback

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