Bass Bot™

operation manual

English Version 1.0, 2016

www.cyclone-analogic.com

Introduction

The Bass Bot™ electronic bass synth features a selectable monophonic analog VCO processed through a 4-pole analog cascading filter. It uses 21st century transistor technology to synthesize tones from super crisp self resonating leads to squelchy rhythms to deep bass grooves.

Creating dance music as simple or complex as you want with the Bass Bot is a breeze. Its ground-breaking artificially intelligent sequencer can be programmed in two methods: by a human user or by the computer controlled Bass Bot.

Humans may program musical patterns manually using traditional step entry with control over pitch, time, length, and special characteristics such as octave transpose, accent, slide, and other effects for each note.

Or let the Bot generate a pattern and use it immediately, tweak it to taste, or mutate it into a new pattern altogether at the touch of a button. The Bass Bot includes nine different personalities, each of which generates its own special style of musical patterns. No two Bots will produce the same patterns - each is as individual as the user. The possibilities are endless!

This manual will show you how to use your Bass Bot's most important functions. Read through the first few lessons and you'll be enjoying the sounds of your Bass Bot in just minutes.

We hope you love your Bass Bot as much as we loved bringing it to life.

Contents

Lesson 1 Overview

This lesson introduces some of the terms and notation used in this manual.

Button Notation

Throughout this manual, instructions for pressing buttons are presented with notation like **[BUTTON]**, which refers to a specific button on the front panel of your Bass Bot. Certain commands require multiple buttons to be pressed in a specific order, which are shown like this:

[FIRST BUTTON]+[SECOND BUTTON]

This means press **[FIRST BUTTON]** and continue to hold it while then pressing **[SECOND BUTTON]** momentarily.

The term *[#] button* refers to one of the 12 numbered buttons on the front panel.

The expression *([X] - [Y])* means press one button within the range of X to Y to make a selection.

The Sequencer

The *sequencer* is mentioned often in this manual. The sequencer is the software engine that plays basslines based on patterns stored in its memory. It is responsible for playing the desired patterns at the correct tempo and timing. The sequencer has two states: Running and Stopped.

Pattern

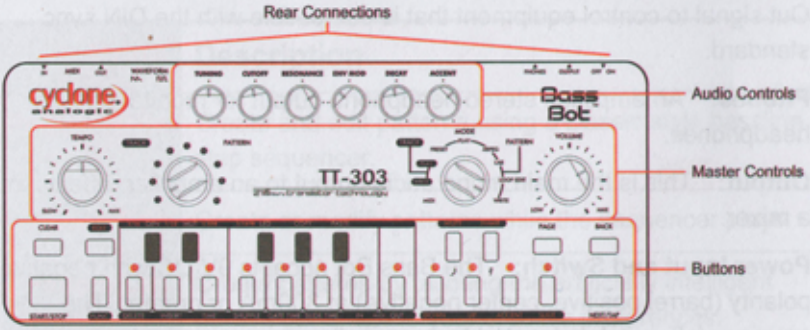
A *pattern* is a programmed bassline that is stored in memory. In this manual, patterns are referred to with a *P* prefix, such as P1 for Pattern 1.

Bar

In this manual, a *bar* refers to one complete playback cycle of a pattern regardless of its length.

Lesson 2 Orientation

This lesson will acquaint you with your Bass Bot's physical layout.



Rear Connections (left to right, top view)

MIDI In and **MIDI Out:** Accept standard 5-pin DIN type MIDI cables. Refer to Lesson 15 for details on the Bass Bot's MIDI implementations.

Waveform Switch: Selects the voltage controlled oscillator (VCO) waveform, either sawtooth or a square-like pulse waveform.

VCO Out Jack: Output of the Bass Bot's (VCO) for external processing or use by other gear. The output waveform is the one that is selected by the **Waveform** switch.

Filter In Jack: Accepts an audio signal (+4dBu nominal) for processing through the Bass Bot's filter and amplifier. Inserting a connector into this jack will disconnect the VCO signal to the voltage controlled filter (VCF) and the VCF will receive only the audio signal from the **Filter In** jack.

CV and Gate Out Jacks: Output of the Bass Bot's Control Voltage (CV) and Gate signals. These outputs can be used to control other analog synthesizers that accept a 1-volt per octave control voltage input.

Accent Out Jack: Outputs a digital pulse that is high whenever the Bass Bot is playing an accented note (see Lesson 7 to learn about accents). This output can be used to control other equipment, and is often used together with the CV and Gate Out signals.

Clock Out Jack: Outputs a digital pulse at the current tempo of the

Bass Bot's sequencer. The output is 24 PPQ (pulses per quarter note).

Run Out Jack: Outputs a digital signal that is high when the sequencer is running. This output can be used together with the Clock Out signal to control equipment that is compatible with the DIN sync standard.

Phones: An amplified stereo headphone output for monitoring with headphones.

Output: This is the main mono audio output to an amplifier, effects, or a mixer.

Power Input and Switch: The Bass Bot accepts 9V DC with negative polarity (barrel positive, center negative) at 300mA or greater. The power on/off switch is located here as well.

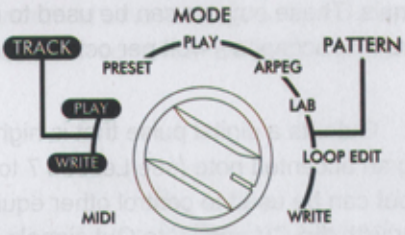
Tip! *It is best to turn off the unit when not in use. Your patterns and tracks are stored permanently whether or not power is applied.*

Master Controls (left to right)

Tempo: This sets the tempo of the sequencer. It is disabled when your Bass Bot is under the control of an external MIDI clock source (see Lesson 15). The center position corresponds to a tempo of approximately 120 beats per minute (BPM).

Track/Pattern Switch: Selects the Track, Pattern Bank, or pattern generator personality. The role of this switch depends on the position of the **Mode** switch (see below).

Mode Switch: Determines the operating mode for your Bass Bot. Your Bass Bot has nine unique operating modes which will be described in greater detail in later lessons in this manual.



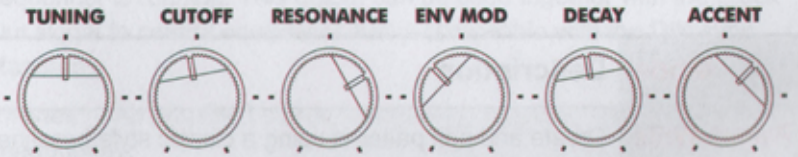
The Mode switch

The Bass Bot's operating modes are described in the table below:

Mode	Description
Pattern Write	Create and edit patterns using a classic style bassline step sequencer.
Loop Edit	Create or modify patterns while the sequencer plays.
Pattern Lab	Create patterns by tailoring the artificially intelligent pattern generator to your creative preferences.
Arpeggiator	A unique pattern-based arpeggiator.
Pattern Play	Play or perform your patterns without edit or save functions.
Preset	Generate and audition new patterns using the artificially intelligent pattern generator.
Track Play	Play your tracks. A *track* is a programmed sequence of your patterns.
Track Write	Create and edit tracks.
MIDI	Perform MIDI functions and certain system and utility functions. Your Bass Bot responds to received MIDI note data when in this mode.

Volume: Sets the overall output volume for the **Phones** and **Output** jacks.

Audio Controls (left to right)



Front panel audio controls

Tuning: Adjusts the tuning of the Bass Bot's VCO. This allows you to fine tune your Bass Bot to match other gear or dramatically change the tuning for experimentation.

Cutoff: Sets the cutoff frequency of the Bass Bot's resonant low pass filter.

Resonance: Sets the feedback level for the filter. A higher setting results in a resonant peak at the cutoff frequency producing 'wetter' or 'squelchy' sounds.

Env Mod: Controls how much the VCF envelope modulates the cutoff frequency.

Decay: This controls how quickly the VCF envelope falls away after the start of each note. The decay effect is more pronounced when the **Env Mod** control is set to a high value.

Accent: Notes played by the Bass Bot can be normal or accented. The Accent knob controls how much louder accented notes are played and how much the VCF envelope is emphasized during accented notes. The Accent modifier is described in Lesson 7.

Tip! *Accented and Muted steps will always have a short VCF envelope decay, regardless of the position of the* ***Decay*** *control. Take advantage of this behavior to add even more dynamic energy to your patterns.*

Buttons (left to right)

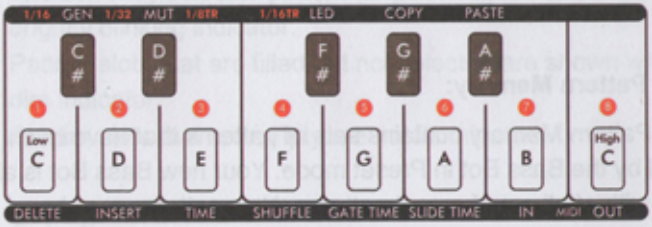
[CLEAR]: Clears the content of a pattern or clears a feature's setting within a menu.

[START/STOP]: Toggles the sequencer between the Running state and the Stopped state.

[EDIT]: Enters and exits various edit functions.

[FUNC]: Used to access various *function* and feature menus. Function menus are accessed by pressing and holding **[FUNC]** then pressing a second button.

Keyboard: Theses buttons comprise the one-octave musical keyboard portion of the interface. The pitches range from *low C* to *high C*. They are used to represent pitch properties. Several of these buttons also perform functions when used with **[FUNC]**.



The Keyboard section with pitches shown

Modifiers: The **[DOWN]**, **[UP]**, **[ACCENT]**, **[SLIDE]**, **[MUTE]**, and **[HAMR]** buttons control special modifiers that affect the way the sequencer plays the steps of a pattern.

[PAGE]: Cycles through pages in views that display multiple pages of information.

[BACK]: Moves the pattern step editor backward to the previous step.

[NEXT/TAP]: Moves the pattern step editor forward to the next step. This button also controls Tap Input Mode programming.

Some buttons on the Bass Bot's front panel are numbered 1 - 12. These numbers are used in pattern selection and track editing and are sometimes referred to as buttons **[1]** - **[12]**, or just *[#] buttons* in this manual.

Lesson 3 Pattern Storage and Selection

The Bass Bot is a pattern-based instrument, so it's important to understand how patterns are stored in memory.

The Bass Bot includes three distinct memory sections:

User Pattern Memory:

User Pattern Memory contains the core set of patterns for the instrument. These patterns can be edited (Lesson 8 and Lesson 12), processed with the arpeggiator (Lesson 13), and used to create tracks (Lesson 22). Patterns in User Pattern Memory are used when working in Pattern Write, Pattern Play, Loop Edit, Track Write, and Arpeggiator modes.

Preset Pattern Memory:

Preset Pattern Memory contains sets of patterns that have been created by the Bass Bot in Preset mode. Your new Bass Bot is already loaded with a full set of preset patterns. New patterns may be regenerated in Preset mode or copied and pasted to User Pattern Memory but cannot otherwise be modified.

Pattern Lab Memory:

Pattern Lab mode provides a separate set of pattern slots that are used only for experimenting with pattern generation in this mode. Patterns may be copied from Pattern Lab Memory and pasted into User Pattern Memory.

There are 9 *banks* of patterns within each memory. Select a pattern bank using the **Track/Pattern** switch. Within each bank, patterns are sometimes stored and displayed in *pages*. Each page contains memory slots for 12 patterns.

User Pattern Memory consists of 4 pages. Press **[PAGE]** to cycle through these pages of patterns. The color of the **[PAGE]** button indicates which page is being shown. The colors are:

Page 1	Page 2	Page 3	Page 4
Red	Yellow	Green	Blue

The other two memory sections have only one page. There are numbers below several of the buttons on the front panel. When viewing a page of patterns, buttons **[1]** through **[12]** will illuminate to show which pattern slots are filled and which are currently selected.

- The currently selected pattern (or patterns) is shown with a brightly blinking indicator.
- Pattern slots that are filled but not selected are shown with a dim indicator.
- Pattern slots that are empty are not illuminated.

Pattern Selection

You will often select one or more patterns in order to perform an action on them.

To select a pattern, press the **[#]** button that corresponds to the desired pattern. You'll see that the selected pattern is brightly lit while the other pattern slots are dimly lit or dark.

To select a range of patterns, press and hold the **[#]** button of the lowest pattern in the range then also press the **[#]** button of the highest pattern in the range. For example, to select patterns 5 through 8, you would press **[5]+[8]**.

Lesson 6 further explains how to select and manipulate pages and patterns.

Tip! *To quickly navigate to a specific page of patterns, press* **[PAGE]+[#]**, *where "#" is the number of the page you want to view.*

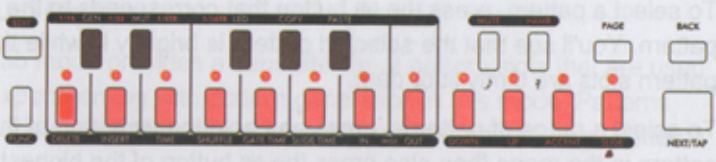
Lesson 4 Playing Preset Patterns

Let's listen to a Preset pattern. Follow the steps below to audition the pattern in Preset Memory Page 1, pattern P1.

1. Turn the **Mode** switch to Preset, as shown below.

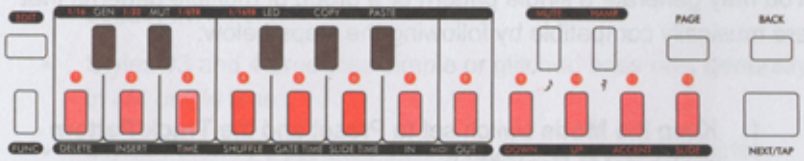
2. Turn the **Track/Pattern** switch to position 1, as shown below. This selects Preset Memory Bank #1.

3. Select pattern P1 by pressing **[1]**. The **[1]** button will blink in time with the tempo that is set by the **Tempo** knob's position.



4. Press **[START/STOP]** to begin playing the pattern. You will hear the pattern loop continuously. Press **[START/STOP]** again at any time to stop the sequencer.

You can also select a full range of successive patterns by pressing the first number and last number of the range at the same time. For example, select patterns P1 - P4 by pressing **[1]+[4]**, or patterns P3 - P6 by pressing **[3]+[6]**.



Preset Patterns 3-6 selected

The selected patterns will play in order then start again at the first selected pattern in a continuous loop until different patterns are selected or the sequencer is stopped.

Try the different positions of the **Track/Pattern** switch. Each position is associated with a different Preset pattern personality. That means that each set of patterns will have a distinct style. You will find an interesting assortment of Preset patterns to sample and explore. The different personalities are described in detail in the next lesson.

Note that each Bass Bot has its own unique set of Preset patterns. No two Bass Bots are exactly alike!

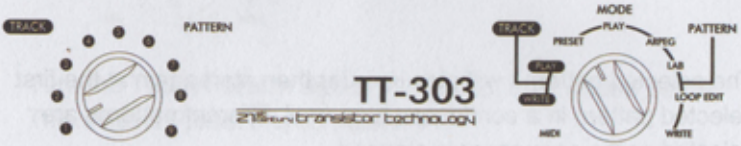
Tip! *Learn how the Bass Bot created patterns you like. Find a preset pattern you like and copy it to Pattern Write Mode. Enter the Step Editor to inspect the pattern as a teaching tool for making your own riffs!*

Lesson 5 Creating New Preset Patterns

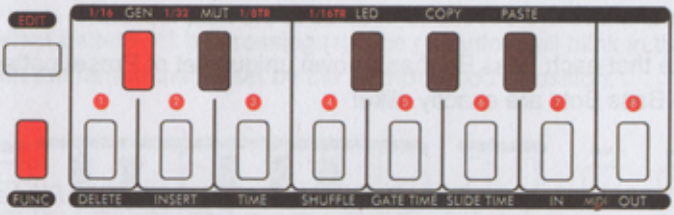
Unlike presets you may find on other instruments, your Bass Bot's presets can be generated on-demand to help give you new pattern ideas.

You may generate a single pattern or a group of multiple patterns that are musically compatible by following the steps below:

1. Keep the **Mode** switch set to Preset and the **Track/Pattern** switch set to Bank #1.



2. Select a single pattern by pressing its [#] button, or select a range of patterns as you learned in Lesson 3.
3. Command your Bass Bot to generate the new pattern(s) by pressing **[FUNC]+[GEN]**.



4. Press **[START/STOP]** to listen to the new pattern(s).

New preset patterns may be generated while the sequencer is running. The new pattern will play once the current pattern has played completely.

The Pattern Generator's Personalities

The Bass Bot's pattern generator features nine different musical personalities. The position of the **Track/Pattern** switch determines which personality is used by the pattern generator.

- Styles #1 and #2 produce fluid styles as a lead instrument, usually in 4/4 time.
- Styles #3 and 4 produces simple or glitched bass riffs, generally in 4/4 or 2/4 time.
- Styles #5 and #6 produce driving rhythm and lead basslines with an emphasis on dynamics and energy.
- Styles #7 and #8 produce chaotic styles for creatively complex patterns as the lead instrument. Patterns will primarily be quarter notes or triplets and the length of the patterns may vary from one to sixteen steps.
- Style #9 produces triplet styles for accompaniment or as the lead instrument, usually consisting of twelve notes with a 8th note triplet time scale.

Tip! *Patterns may also be generated when in Pattern Write Mode, though it is often best to perform this function in Preset mode to avoid filling up your User Pattern Memory section when auditioning presets!*

Lesson 6 Copying, Pasting, Merging, and Clearing Patterns

This lesson describes some of the most important ways to manage and manipulate entire patterns.

Copy a Preset Pattern to User Pattern Memory

With the **Mode** switch set to Preset, choose a preset pattern that you'd like to copy to User Pattern Memory for editing. Copy the pattern to the clipboard by pressing **[FUNC]+[COPY]**.

Set the **Mode** switch to Pattern Write. Find and select a pattern location (empty patterns will have a dark LED – if none are empty, choose a pattern that may be overwritten). Paste the preset pattern to this location by pressing **[FUNC]+[PASTE]**. An identical copy now exists for editing without changing the original in Preset Memory.

You can also use this technique to copy patterns in User Pattern Memory from one Pattern Bank or slot to another location.

Tip! *After performing a copy, the pattern will reside on the clipboard until a new copy command is issued (clipboard contents get replaced). So repeated pattern copies can be pasted without copying each time.*

Copy a Pattern and Paste Identical Copies to Multiple Pattern Slots

While still in Pattern Write mode from the previous example, select four successive memory areas to be overwritten, such as P5 - P8 by pressing **[5]+[8]** for this example. Press **[FUNC]+[PASTE]**. Now all four patterns P5 - P8 are identical.

Copy Multiple Patterns and Paste as One Pattern (Merge Paste)

You can merge multiple adjacent patterns into one single pattern with a maximum of 64 steps. This function allows you to combine several patterns into one longer pattern.

While in Pattern Write mode, select four successive memory areas to be copied, such as P3 - P6 by pressing **[3]+[6]** for this example. Press **[FUNC]+[COPY]** to copy the contents of the four patterns. Select a single destination pattern location and press **[FUNC]+[PASTE]**.

Now all four patterns P3 - P6 will be merged into one pattern in the pattern location you selected. But note that the new pattern will be limited to the maximum pattern length of 64 steps.

You will find this capability incredibly useful when building pattern sections for composing a track as it allows you to maximize the contents of your User Pattern Memory. For example, you can use the Mutate function (see Lesson 18) to quickly make four variations of a pattern then copy and merge paste them into a single interesting sequence that requires only one slot in pattern memory.

Clearing Patterns

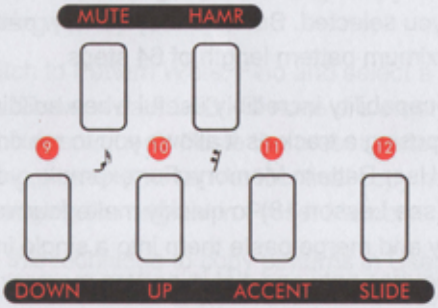
Clear a pattern by pressing **[CLEAR]+[#]**, where "#" is the number of the pattern slot you wish to clear.

You can also clear multiple pattern slots by selecting a range. For example, to clear patterns P1 - P4 you would press **[CLEAR]+[1]+[4]**.

Lesson 7 Step Modifiers

Modifiers are special properties that can be assigned to a step within a pattern in order to change the dynamics of the step. An understanding of how modifiers work will open up new creative ways to make your patterns more interesting and expressive.

It may help to think of these modifiers as tools for simulating some of the playing techniques used by bass guitarists.



Panel view of the modifier buttons

DUAS (Down, Up, Accent, Slide) Modifiers

DUAS refers to the set of modifier buttons that are most commonly used. These modifiers are Down, Up, Accent, and Slide.

- The **Down** and **Up** modifiers transpose the note's pitch down or up by one octave.
- The **Accent** modifier sets a note to be an accented note. Accented notes will be louder and will have unique audio characteristics compared to regular non-accented steps. The impact of the accent effect depends on the settings of the audio control knobs, particularly the **Accent** knob itself.
- The **Slide** modifier causes the note from the current step to *slide* to the note of the next step in the pattern.

Mute and Hammer Modifiers

The Bass Bot introduces new modifiers that may be assigned to steps of your bassline patterns.

- The **Mute** modifier mimics the effect of performing a *palm mute*, where the bass guitarist slightly dulls the sound of the guitar by damping the string with her palm before plucking it. Muted steps are somewhat shorter than regular steps and will usually sound less bright.
- The **Hammer** modifier simulates a *hammer-on* or *hammer-off* action, where the bass guitarist plucks a string only once but plays one or more notes later by forcefully applying or releasing pressure on other frets. The Hammer modifier causes the note from the current step to *hammer* into the note of the next step in the pattern.

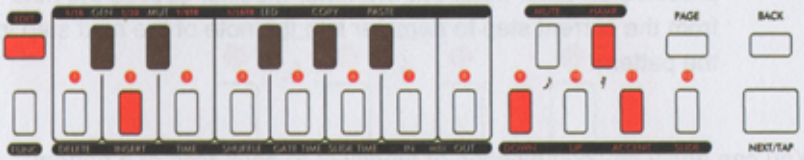
You can apply any combination of modifiers to each step of a pattern. Applying a variety of modifiers can lead to very interesting patterns. Try a Muted Accented step, or try some steps with both Slide and Hammer applied.

Tip! *You can adjust the speed with which one note slides to another during a step with the Slide modifier applied. This is called the Slide Time. See Lesson 11 to learn about this setting.*

Lesson 8 Editing Patterns with the Step Editor

The Step Editor can be used to edit any pattern in User Pattern Memory. Patterns are edited by navigating through all the steps in a pattern and setting the pitch and modifier characteristics of each.

To enter the Step Editor, set the **Mode** switch to Pattern Write. With the sequencer stopped, select an existing pattern in memory that you would like to edit. Press **[EDIT]** to begin step-editing the pattern. You will immediately hear and see the first note in the pattern.



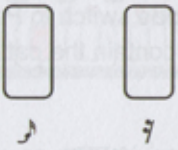
The characteristics of each step are displayed in Edit Mode. This step is a D Note ON step with the Down, Hammer, and Accent modifiers active.

To edit this step or any step in the pattern, program the step as one of the following:

Note ON: Set the step as a Note ON step by selecting the step's pitch using one of the keys of the keyboard section. The selected pitch will be played during this step of the sequence. Then choose the step's modifier settings by pressing the corresponding button(s) on the panel. The modifier buttons (**[DOWN]**, **[UP]**, **[ACCENT]**, **[SLIDE]**, **[MUTE]**, **[HAMR]**) will be illuminated to show which modifiers are active for the current step.

Note HELD: A step can be set as a Note HELD step, or a *tie*. Setting this step to be a tie step means that it will have the same pitch as the previous step, but the note will be extended into the second step. Do this by pressing **[FUNC]**+**[TIE]** (the **[TIE]** button is also the **[MUTE]** button). You cannot change the pitch of a tie step. None of the keyboard note keys or modifier buttons will be illuminated when a tie step is displayed - only **[TIE]** will be illuminated.

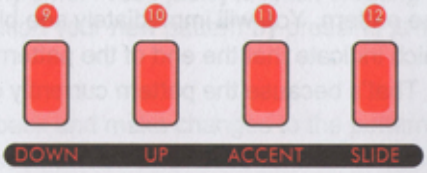
Note OFF: A step can be set as a Note OFF step, or a *rest*. No note will be played during rest steps in the pattern sequence. Set a step to be a rest step by pressing **[FUNC]+[REST]** (the **[REST]** button is the same as the **[HAMR]** button). None of the keyboard note keys will be illuminated when a rest step is displayed. Only **[REST]** will be illuminated.



Panel view of the Tie (note HELD) and Rest (note OFF) buttons and symbols

Tip! *A Note HELD or Note OFF step can quickly be converted to a Note ON step by pressing a note key on the keyboard section.*

Move through the pattern sequence by pressing **[NEXT/TAP]** to advance one step. Press **[BACK]** to go to the previous step. Should you want to change any step, simply use **[NEXT/TAP]** or **[BACK]** to navigate and edit the step. The end of the pattern is identifiable by blinking DUAS LEDs (the *end-of-pattern marker*). To return to the beginning of the pattern press **[CLEAR]**. Press **[EDIT]** to complete your edits and exit step editing mode.

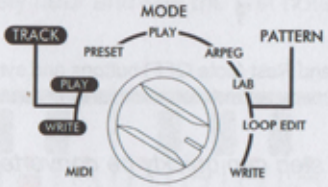


DUAS end-of-pattern marker (blinking LEDs)

Lesson 9 Programming Your First Pattern

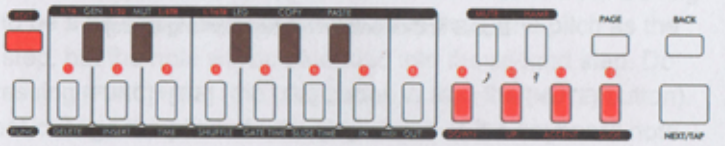
Use the step editing functions from Lesson 8 to create a new pattern from scratch. Follow the instructions below to clear a slot in pattern memory and program a new pattern.

1. To begin, set the **Mode** switch to Pattern Write. Navigate to the bank and page that contain the pattern you wish to overwrite.

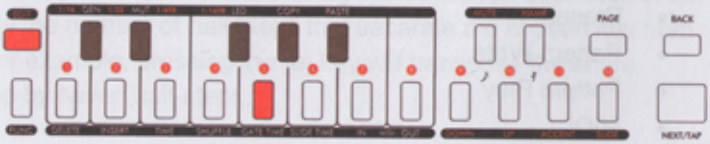


2. Clear the pattern by pressing **[CLEAR]+[#]**, where "#" is the number of the pattern slot you wish to clear. In the image below, pattern slot P1 would be cleared.

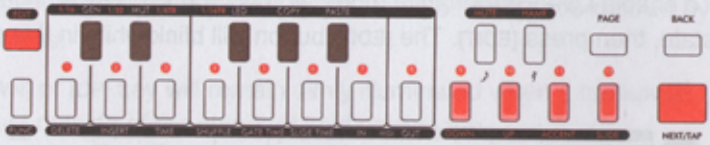
3. Be sure the sequencer is stopped and press **[EDIT]** to begin step editing the pattern. You will immediately see blinking DUAS LEDs which indicate that the end of the pattern has been reached. That's because the pattern currently contains zero steps!



4. Add a step to the pattern sequence by pressing any note key on the keyboard. You'll see that the DUAS LEDs have stopped blinking, indicating that the current step in the sequence is now a valid Note ON step. The example below shows the pitch of G.



5. Assign step modifiers as desired (see Lesson 7) and press **[NEXT/TAP]** to move on to the next step. You'll again encounter the end-of-pattern indicator.



6. Repeat steps 4 and 5 to create more steps. The pattern's length is simply defined by how many steps you enter using this process. A pattern may contain up to 64 steps.

You may go back (**[BACK]**) and forward (**[NEXT/TAP]**) within a pattern and edit any step at any time. Press **[EDIT]** to finish creating your pattern. You can now audition your new pattern by pressing **[START/STOP]**.

If you wish to go back and make changes to the pattern, follow the instructions in Lesson 8. See Lesson 18 for information about advanced pattern editing techniques.

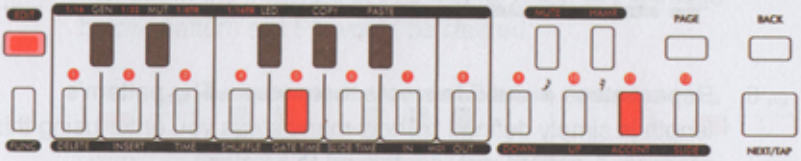
Lesson 10 Live Performance During Playback

In certain modes, you can use the front panel controls to change the way the Bass Bot plays your patterns during a performance. This lesson applies to the following modes:

- Preset
- Pattern Write
- Pattern Play
- MIDI
- Track Play

Adjustments made in Live Performance mode are non-destructive. They only affect pattern playback and will not alter your stored patterns.

To enable Live Performance mode, first put the sequencer in its running state, then press **[EDIT]**. The **[EDIT]** button will blink while in this mode.



Live Performance example with pitch transpose and Accent modifier added

The following adjustments are available in Live Performance mode:

Modifiers

The modifier buttons (**[DOWN]**, **[UP]**, **[ACCENT]**, **[SLIDE]**, **[MUTE]**, and **[HAMR]**) are available for adding modifier effects. The effects of the modifier buttons are momentary in this mode and do not alter the patterns that are stored in memory. Their effects are described in Lesson 7. You can apply several modifiers simultaneously, and modifiers will be added to all steps of the pattern as long as their buttons are pressed.

Transpose

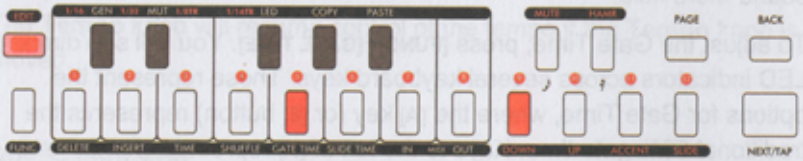
Select any keyboard key to temporarily transpose the entire pattern. With this function, the low C key represents the neutral setting, meaning the notes played will be exactly those contained in the pattern.

Pressing a key other than the low C key will transpose each step in the pattern by the number of half-steps that separate the chosen key from low C. For example, pressing the **[G]** key will transpose the entire pattern up by seven half-steps.

Transpose Across Octaves

You can also set a transpose value that is in the octave below or above the standard keyboard range. Press **[DOWN]** or **[UP]** together with the desired pitch to set it to be an octave lower or higher than usual. For example, you would press **[DOWN]+[G]** to transpose the pattern down by five half-steps.

The **[DOWN]** or **[UP]** key will remain dimly illuminated when a transpose value is set outside of the standard keyboard range.



Live Performance example with pitch transposed down by five half-steps

Lesson 11 Sequencer Controls

Your Bass Bot provides some additional options to give you extra control of its sequencer.

Shuffle Amount

The sequencer can add shuffle or 'swing' when playing patterns. The Shuffle Amount setting is applied to the playback of all patterns. The lowest Shuffle Amount setting corresponds to no shuffle.

To set the Shuffle Amount, press **[FUNC]+[SHUFFLE]**. The indicators of buttons **[1]** - **[8]** reflect the available range of shuffle amounts. The current Shuffle Setting is brightly lit. To choose a new setting, press a **[#]** button then press **[FUNC]** to exit the menu.

Gate Time Setting

You can set the sequencer's Gate Time. The Gate Time setting controls how long each Note ON step in a pattern is held. Short gate times result in a more staccato quality while longer gate times will make patterns sound more fluid.

To adjust the Gate Time, press **[FUNC]+[GATE TIME]**. You will see dim LED indicators across several keyboard keys. These represent the options for Gate Time, where the **[A]** key (or **[6]** button) represents the traditional 50% gate time. Keys to the left of **[A]** represent shorter gate times while keys to the right represent longer gate times. You can listen to the different gate times to decide which option you'd like to use.

Press **[FUNC]** to accept your new selection or press **[CLEAR]** to exit the selection screen without changing the Gate Time.

Tip! *You can simultaneously press two adjacent buttons within most of the Sequencer Control menus to get more precise control. For example, pressing* **[3]+[4]** *will give you a setting value that is right between the values of setting #3 and setting #4.*

Slide Time Setting

The Slide Time setting controls how long it takes the VCO to slide from one pitch to another for steps with the Slide modifier applied. To change the Slide Time, press **[FUNC]+[SLIDE TIME]**. You will see LED indicators across several keyboard keys. These represent the options for Slide Time, where the **[Low C]** key (or **[1]** button) represents the standard slide time and other buttons represent longer slide times. Press **[FUNC]** to accept your new selection or press **[CLEAR]** to exit the selection screen without saving any changes to the Slide Time.

Tap Tempo

Set the sequencer's tempo through the Shuffle menu by first pressing **[FUNC]+[SHUFFLE]**, then pressing **[TAP]** along with the quarter notes of target tempo. At least three presses of **[TAP]** are required to accurately set the tempo.

If **[TAP]** is pressed only once, the sequencer will do its best to shift the start of the pattern to the time when **[TAP]** was pressed. These tools make it possible to beat-match your Bass Bot to another instrument or song. Press **[FUNC]** to exit the Shuffle menu.

The **Tempo** knob will resume control of the tempo if the **Tempo** knob is moved.

Quick Start/Stop

Occasionally you may want to send out a fresh *Run* message to other gear to get it synchronized but you don't want to interrupt your session. You can generate instantaneous Stop and Run commands to the sequencer by pressing **[FUNC]+[START/STOP]** right at the beginning of a new bar.

This technique affects any external gear synchronized to the Bass Bot using the **MIDI Out** or **Run Out** jacks.

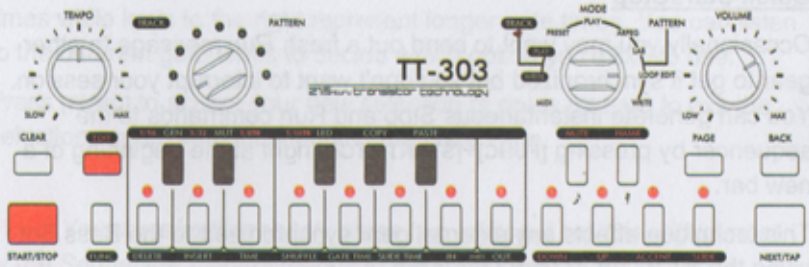
Lesson 12 Loop Edit Mode

The Bass Bot's Loop Edit mode provides a way to create or edit a pattern while the sequencer is running. Unlike the step editor (described in Lesson 8), you will hear the results of your edits immediately while using Loop Edit mode. This is a great way to make quick edits to existing patterns or create new patterns as inspiration strikes.

Note! *In Loop Edit mode you have access to all your patterns from User Pattern Memory. Any changes you make to your patterns will be saved!*

Your patterns from User Pattern Memory will be displayed in Loop Edit mode when the sequencer is stopped. Select a pattern that you'd like to edit, then press **[START/STOP]** to run the sequencer. The **[EDIT]** button illuminates to show that you are currently editing the pattern (this is called the Edit screen). The display will show your pattern's pitches and modifiers as the pattern plays.

While the pattern plays, you can press keyboard and modifier buttons to add notes, change the pitch, or alter modifiers any step. For example, if there is a step that you think should have the Accent modifier added to it, press **[ACCENT]** when the sequencer plays that step.



Loop Edit mode with sequencer running

Loop Edit mode works intuitively. Spend some time experimenting with it. Here are some key rules to remember:

- Your changes are being recorded as long as the **[EDIT]** button is illuminated. Press **[EDIT]** to toggle Edit mode if you want to experiment with changes before modifying your pattern.
- To remove a modifier from a note, hold **[CLEAR]** and press the button for the modifier you want to remove. For example, press **[CLEAR]+[ACCENT]** to remove the Accent modifier from a note.
- If you press and hold a modifier button, that modifier will be added to all notes that play while the button is held. If you press and hold buttons to clear a modifier, the modifier will be removed from all notes that play.
- If you want to remove a note (i.e., turn it into a rest step), press **[CLEAR]+[NEXT/TAP]** at the desired step.
- If you begin to edit a pattern that is currently empty, the sequencer will create the pattern as a 16-step pattern with 16th note timing.
- Using the Undo function (**[BACK]+[TIME]**) will cancel all your edits and revert your pattern to its original state.

Note! *Ties may get transformed into slides when a pattern is modified in Loop Edit Mode. This is illustrated below:*

Conversion of a Tie to a Slide

Tip! *Decrease the **Tempo** setting when editing patterns in Loop Edit Mode. This makes it easier to edit your pattern precisely.*

Lesson 13 The Arpeggiator

The Bass Bot's arpeggiator is unlike any other synthesizer arpeggiator on the planet. Arpeggiator mode maintains the Bass Bot's focus on patterns - your patterns are the foundation of the Bass Bot's arpeggiator. It's a powerful tool for making expressive variations of your patterns.

There are three factors that determine the output of the arpeggiator:

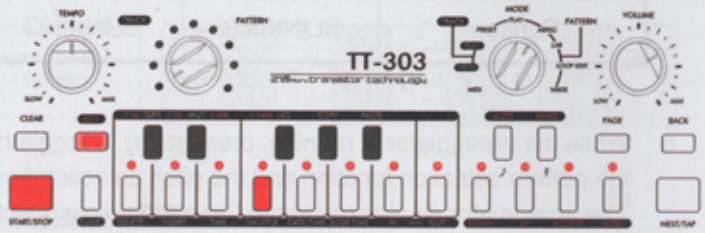
1. One (or more) of the patterns in User Pattern Memory will serve as the basis of the arpeggiator. The arpeggiator will use this pattern to determine the rhythm, length and timing of the loop, which steps are Note ON or Note OFF, and the modifier characteristics of each step.
2. Use the Bass Bot's keyboard to select which pitches are active. Much like a standard arpeggiator, the Bass Bot will cycle through the active pitches over and over. Unlike a standard arpeggiator, keys do not need to be held in order for them to be active. Instead, pitches can be toggled on and off at any time.
3. The arpeggiator has four note order settings: Up (lowest to highest), Down (highest to lowest), Up/Down (lowest to highest, then back down to lowest), and Random. The note order is toggled using the **[NEXT/TAP]** key.

Arpeggiator mode is a great way to unlock the hidden potential of your patterns. The remainder of this lesson will help you get started using the arpeggiator. You'll find that Arpeggiator mode can be a wonderful creative tool.

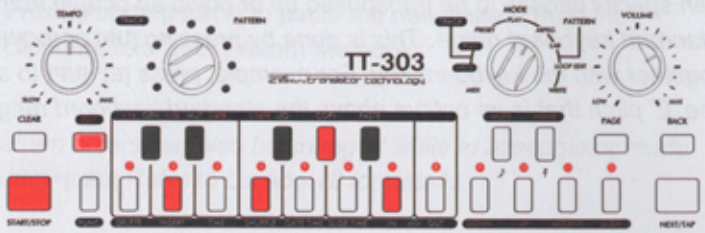
Arpeggiator mode is non-destructive. Your patterns are not modified unless you choose to copy the arpeggiator output and paste it back to User Pattern Memory. This is described later in this lesson.

The best way to get acquainted with Arpeggiator mode is to try it.

1. Set the **Mode** switch to the Arpeggiator position ("ARPEG").
2. Select a pattern using the usual techniques. Note that you are selecting patterns from User Pattern Memory. Preset Memory is not available in arpeggiator mode.
3. Now you must select at least one pitch to be active. Press **[EDIT]**. You'll see that none of the panel's key LEDs are on, indicating that all pitches are currently inactive. Choose a pitch from the keyboard and press its button. Its LED will turn on.



4. Press **[START/STOP]**. You should now hear the selected pattern playing. But because only one pitch is selected, you'll notice that it's playing only a single note instead of the pattern's normal contents. Select some other pitches and you'll hear the arpeggiator cycle through them while keeping the underlying rhythm and dynamics of the original pattern. An example is shown below:



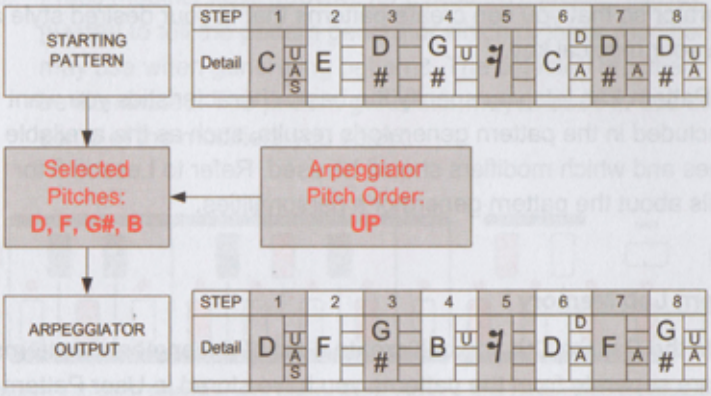
5. Change the order that the arpeggiator plays your selected pitches. Press **[NEXT/TAP]** to cycle through the four note orders. The Up and Down LEDs will illuminate to show the pitch order while pressing **[NEXT/TAP]**. Refer to the table below:

Pitch Order	"Down" LED	"Up" LED
Up (Ascending)	OFF	ON
Down (Descending)	ON	OFF
Up/Down	ON	ON
Random	BLINKING	BLINKING

6. While the arpeggiator is running, press **[EDIT]** to toggle between the pattern selection function and the pitch selection function. The arpeggiator display reverts to the pattern selection function when the arpeggiator is stopped. It enters the pitch selection function when the arpeggiator begins running.
7. If you like new version of your pattern that you've created using the arpeggiator, you can save a copy of it back to User Pattern Memory using the instructions in the next section.

Tip! *When selecting the set of pitches for the arpeggiator to use, you can specify pitches to be transposed up or down an octave from the standard keyboard range. This is done by pressing* **[UP]** *or* **[DOWN]** *together with the keyboard key. For example, press* **[E]+[UP]** *to select the 'E' pitch that is an octave above the standard keyboard range.*

The illustration below shows how the arpeggiator would combine a sample 8-step pattern with the pitches selected in the example above to generate a new output pattern.



Copy Arpeggiator Pattern

Perform these steps to save your Arpeggiator mode output as a new pattern:

1. While in Arpeggiator mode's pattern selection menu, press **[FUNC]+[COPY]** to save the arpeggiated version of your pattern that is currently playing to the clipboard.
2. Select the destination Pattern Bank, page, and number for your new pattern. This can be done while in Arpeggiator mode or you can switch to Pattern Write mode.
3. Press **[FUNC]+[PASTE]** to paste the new pattern from the clipboard into User Pattern Memory.

Tip! *Pattern colors can also be changed while in Arpeggiator mode using* **[FUNC]+[LED]**. *Refer to Lesson 18 for details.*

Lesson 14 The Pattern Lab

As you learned in Lesson 5, your Bass Bot features an intelligent pattern generator that you can use to create and experiment with new pattern ideas. The Pattern Lab gives you extended control of the pattern generator so that you can create patterns that fit your desired style and even your musical key.

The Pattern Lab lets you specify the basic characteristics you want to be included in the pattern generator's results, such as the available pitches and which modifiers should be used. Refer to Lesson 5 for details about the pattern generator's personalities.

Pattern Lab Memory

Within the Pattern Lab you can create a set of experimental patterns that are separate from the patterns you have stored in User Pattern Memory. There are 12 pattern slots for each of the 9 pattern generator personalities. Once you are satisfied with a pattern you've created in the Pattern Lab, you can copy it and paste it into User Pattern Memory (see Lesson 3 and Lesson 6).

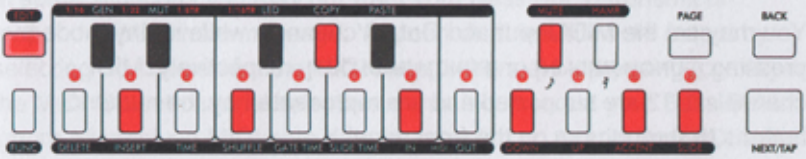
Using the Pattern Lab

Follow the steps below to get acquainted with the Pattern Lab.

1. Set the **Mode** switch to the Pattern Lab position ("LAB").
2. Set the **Track/Pattern** switch to the position of the pattern generator personality you want to use.
3. Press **[1]** to select the first pattern in your Bass Bot's Pattern Lab memory. The experimental patterns you generate in the following steps will be saved to pattern slot #1.
4. Press **[EDIT]** to bring up the Pattern Lab editing menu. The **[EDIT]** button blinks when the editing menu is shown. Note that the [EDIT] button's color corresponds to the particular pattern generator personality you're working with.

5. Press keys on the keyboard to tell the pattern generator which pitches to use when generating patterns. The selected keys will be illuminated. The pattern generator may choose to use only some of the pitches you select.

6. Press modifier keys (**[DOWN]**, **[UP]**, **[ACCENT]**, **[SLIDE]**, **[MUTE]**, and **[HAMR]**) to tell the pattern generator which of these modifiers it may use when generating patterns. The selected modifiers will be illuminated. The pattern generator may choose to use only some of the modifiers you select.



Pattern Lab pitch selection with Down, Mute, Accent, and Slide modifiers enabled

7. Press **[FUNC]+[GEN]** to generate a new pattern, then press **[START/STOP]** to listen to it. You will see your Bass Bot's buttons illuminate as the pattern plays to show the pattern's pitches and modifiers.

8. Choose some different pitches and modifiers then press **[FUNC]+[GEN]** again to generate a new pattern. The new pattern will start playing after the previous pattern is played completely.

Experiment with the different pattern generator personalities to create interesting patterns that fit the style and key of the music you're making.

Tip! *You can generate multiple new patterns with a single command by selecting a range of pattern slots (see Lesson 3) prior to pressing* **[FUNC]+[GEN]**.

Lesson 15 MIDI Functions

This Lesson outlines the Bass Bot's MIDI capabilities and functions.

Set the MIDI Channels

The first step is to check that the Bass Bot's MIDI Input and MIDI Output channels are configured properly for your setup. The default channel for both MIDI Input and MIDI Output is channel 1. Therefore your Bass Bot will operate with many MIDI devices without any change to its MIDI channel settings.

You may set the MIDI Input and Output channels while in any mode by pressing **[FUNC]+[MIDI IN]** or **[FUNC]+[MIDI OUT]**, respectively. MIDI channels 1-12 are supported and are represented by the numeric buttons **[1]** through **[12]** on the front panel.

Press the appropriate button to select a MIDI channel, then press **[FUNC]** to exit the menu.

External Control of the Bass Bot

The Bass Bot can be controlled by an external MIDI controller or sequencer. Connect the MIDI output from another device to the Bass Bot's **MIDI In** port. Set the **Mode** switch to the "MIDI" position.

- The Bass Bot responds to MIDI Note On messages. Refer to the MIDI Implementation Chart at the end of this manual.
- The velocity of received MIDI notes will determine whether or not certain modifiers are applied:

Velocity Range:	1 - 16	17 - 32	33 - 111	112 - 127
Modifier(s):	Mute	Mute+Accent	None	Accent

- MIDI notes that overlap (a second note begins before the first note ends) are considered to be tied together, and the result will be similar to a note that has the slide modifier applied.
- MIDI notes can also be used activate pattern playback. See Lesson 20 for details.

Synchronization to an External MIDI Clock

The Bass Bot will automatically sync its sequencer to a MIDI clock received from an external MIDI source, such as a Drum Drone or Beat Bot drum machine or a computer. The Bass Bot will be under the control of the external device when it detects an incoming MIDI clock. It will respond to external start commands, stop commands, continue messages, and clock information.

Disable MIDI Note Input or Output

In some situations you may not want your Bass Bot to transmit or respond to MIDI note message. You can disable MIDI note output by selecting *no channel* for the MIDI Output channel by pressing **[CLEAR]** in the MIDI Output channel selection menu. You can set your Bass Bot to ignore all received MIDI note data by pressing **[CLEAR]** in the MIDI Input channel selection menu.

All 12 MIDI channel LEDs will be dim to show that no channel is selected. Your Bass Bot will continue to synchronize with received MIDI clock messages (or send MIDI clock messages) even when the MIDI Input or MIDI Output channel is set to *no channel*.

MIDI Thru Mode

To set the **MIDI Out** jack to behave as a MIDI Thru jack, enter the MIDI Output channel menu by pressing **[FUNC]+[MIDI OUT]**. Then press **[NEXT/TAP]** instead of choosing one of the available MIDI channels. The **[NEXT/TAP]** button will be lit to show that MIDI Thru is enabled.

Tip! *In MIDI mode, you can also 'play' the Bass Bot using the keyboard and modifier keys.*

Control External Devices

The Bass Bot transmits MIDI information for use in controlling other equipment.

When the Bass Bot's sequencer is running, the playing pattern's note information is transmitted through the **MIDI Out** port using your selected MIDI Output channel. Additionally, the Bass Bot transmits Start, Stop, and Clock messages when the sequencer is running so that you can keep external gear in sync.

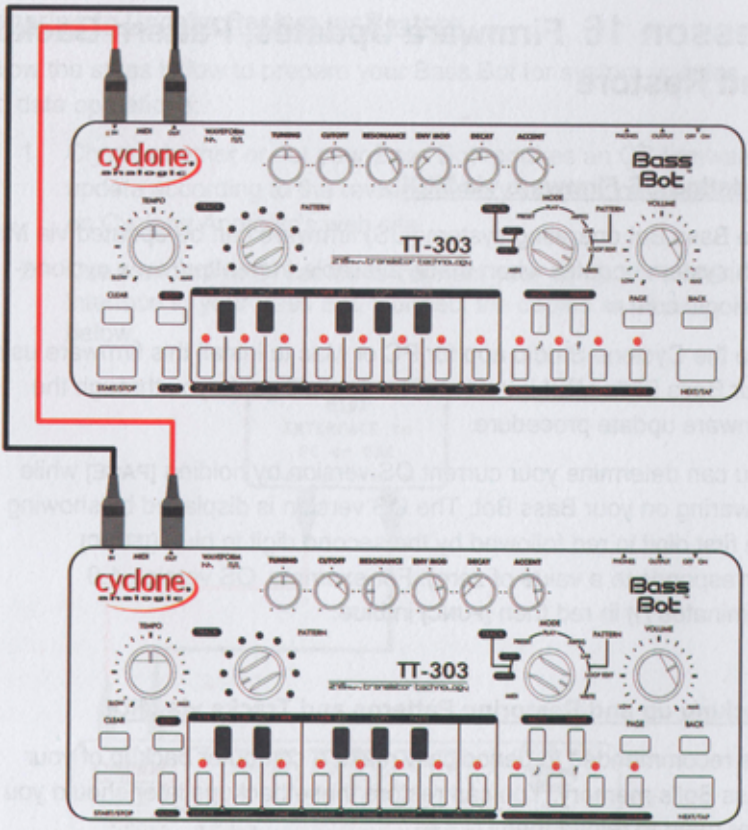
Tip! *Driving external instruments with the Bass Bot's sequencer can breathe new life into other instruments when 'stacked' together during mix-down as was never before possible with other sequencers!*

Filter Hold

Sometimes it is helpful for the Bass Bot's filter and amplifier to be held open in their *on* state when passing an external audio source through your Bass Bot's **Filter In** jack. Set the **Mode** switch to MIDI then press **[FUNC]+[HAMR]** to enable this. When enabled, the **[HAMR]** button will blink. Press **[FUNC]+[HAMR]** again to disable the filter hold.

Pattern Cloning Between Two Bass Bots

If you have multiple Bass Bots, you may want to copy patterns from one to the other. You can quickly do so by connecting the **MIDI Out** port of the first Bass Bot to the **MIDI In** port of the second. Then connect the **MIDI In** port of the first to the **MIDI Out** port of the second. Basic copy and paste functions as used in pattern management now apply between the machines.



Pattern Cloning setup

To clone patterns, select one or more patterns on the source Bass Bot and perform a Copy function (**[FUNC]+[COPY]**). Then select one or more patterns on the destination Bass Bot and perform a Paste function (**[FUNC]+[PASTE]**). The source patterns will be cloned into the destination Bass Bot.

Lesson 16 Firmware Updates, Pattern Backup and Restore

Updating OS Firmware via MIDI

The Bass Bot operating system (OS) firmware can be updated via MIDI with system updates when made available from http://www.cyclone-analogic.com.

Use the Cyclone Studio app for PC or Mac to install this firmware using your Bass Bot's MIDI interface. The app will guide you through the firmware update procedure.

You can determine your current OS version by holding **[PAGE]** while powering on your Bass Bot. The OS version is displayed by showing the first digit in red followed by the second digit in blue (**[FUNC]** corresponds to a value of zero). For example, OS version 1.0 illuminates **[1]** in red then **[FUNC]** in blue.

Backing up and Restoring Patterns and Tracks via MIDI

It is recommended to periodically make a computer backup of your Bass Bot's memory. You can restore these backups later should you ever need to reload them.

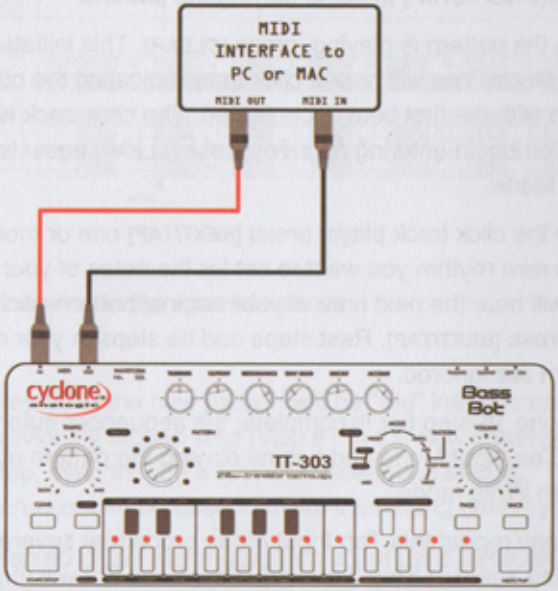
Backup files contain Patterns, Tracks, and user system preferences (system color setting, MIDI in/out channel selections, etc.). Download the Cyclone Studio utility from the Cyclone Analogic website. It takes just seconds to backup work that may have taken hours to create!

Note that when restoring a backup using Cyclone Studio, all of your Bass Bot's Patterns, Tracks, and user settings will be overwritten by the contents of the backup file.

Preparing to Update, Backup, or Restore

Follow the steps below to prepare your Bass Bot for system updates and data operations:

1. Check whether or not your Bass Bot requires an OS firmware update according to the revision history information available on Cyclone Analogic's web site.
2. Use standard MIDI cables to connect your computer's MIDI interface to your Bass Bot. Connect the cables as shown below.



3. Download and install the Cyclone Studio app for PC or Mac and get the most recent Bass Bot OS firmware update file from the Cyclone Analogic web site.
4. Run the Cyclone Studio app.
5. To perform a firmware update, click the "Firmware Update" button and follow the on-screen directions.
6. To perform a system backup, or to restore your Bass Bot from a previous backup file, click the "Backup" or "Restore" button and follow the on-screen instructions.

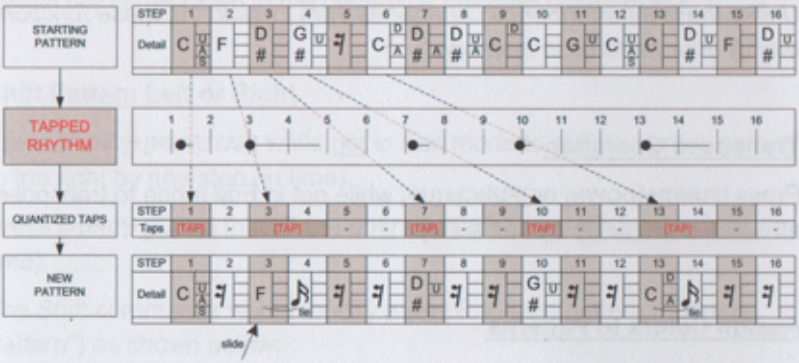
Lesson 17 Tap Input Mode

The rhythm of a pattern can be edited using Tap Input Mode. The existing note data from the pattern is maintained, along with each step's DUAS properties, but the pattern's rhythm can be reprogrammed by pressing **[NEXT/TAP]** at the desired rhythm. Follow these instructions to try Tap Input Mode:

1. Set the MODE knob to Pattern Write Mode and select a pattern you want to modify.
2. Press **[START/STOP]** to begin playing the pattern.
3. While the pattern is playing, press **[CLEAR]**. This initiates Tap Input Mode. You will hear a click track indicating the current tempo with the first beat accentuated. The click track will repeat until you begin entering notes or press **[CLEAR]** again to exit Tap Input Mode.
4. While the click track plays, press **[NEXT/TAP]** one or more times at the new rhythm you want to set for the notes of your pattern. You will hear the next note of your original pattern each time you press **[NEXT/TAP]**. Rest steps and tie steps in your original pattern are ignored.
5. After one 16-step bar is complete, the sequencer automatically exits Tap Input Mode and begins playing the pattern normally in Pattern Write mode.
6. You may repeat this Tap Input Mode procedure several times (starting again at Step 3 above). Your Bass Bot will remember all the steps of the original pattern, even if you've edited the pattern using Tap Input Mode to have fewer steps than the original version. The unused steps will be saved until you select a different pattern for editing, at which time your edited pattern will be committed to memory.

Patterns that are modified using Tap Input Mode are restricted to a length of 16 steps, though the pattern length can be changed as usual after exiting Tap Input Mode.

The diagram below illustrates how Tap Input Mode works. The characteristics of the starting pattern are shown first. Then in Tap Input Mode, we pressed **[NEXT/TAP]** at approximately steps #1, #3, #7, #10, and #13. The pattern that results from this is shown as the new pattern.



Note the following in the example above:

- Step #3 in the new pattern will be "slid" into because the previously tapped step (step #1 in the new pattern) was a slide step, even though a rest was inserted in step #2. This slide behavior can be used to make interesting new rhythms.
- Step #5 of the starting pattern is not used because it is a rest step.
- The taps on steps #3 and #13 were long taps, which result in tie notes within the new pattern.

You can tap more steps than your starting pattern contained. For example, if your starting pattern contains only three note steps, you can still tap out more than three notes into the new pattern. The editor will loop back to the first note in your pattern when it runs out of notes to add to the new pattern.

Lesson 18 Advanced Pattern Editing

This section describes additional pattern editing functions that weren't covered in earlier lessons. These functions are available only in Pattern Write mode unless stated otherwise. Be sure to read Lesson 8 before trying these features. The following are available in Pattern Write mode.

Unlike the live performance capabilities from Lesson 10, these functions modify your patterns in memory.

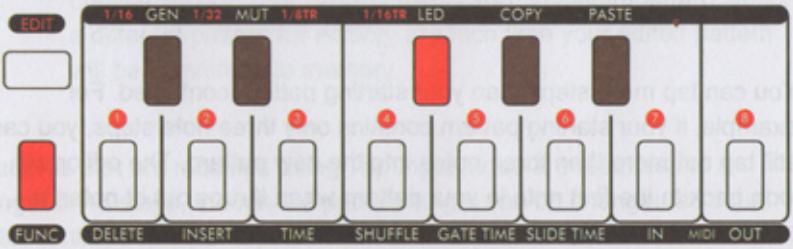
Transpose Operation

Press **[FUNC]+[DOWN]** or **[FUNC]+[UP]** while not in Edit mode to transpose all notes down or up by half a step.

Assign Colors to Patterns

You may have noticed that your Bass Bot's Preset Pattern Banks are displayed using different colors. You can change the color that's associated with any pattern stored in User Pattern Memory. This can be very helpful for organizing your work and quickly identifying patterns that work well together.

Select one or more of your patterns then press **[FUNC]+[LED]**. You will see the keyboard LEDs light up in several different colors. Press the button for the color you'd like to assign to the pattern (or press **[CLEAR]** to remove a color assignment, causing the pattern's color to use the system color as discussed in Lesson 15). Press **[FUNC]** to commit your selection and exit the color selection menu.



Press **[FUNC]+[LED]** to assign a color to a pattern

Insert and Delete Steps

Insert a new pattern step immediately before the currently selected step by pressing **[FUNC]+[INS]**. The inserted step will be a rest step. The pattern length will increase by one step and none of the existing steps will be deleted.

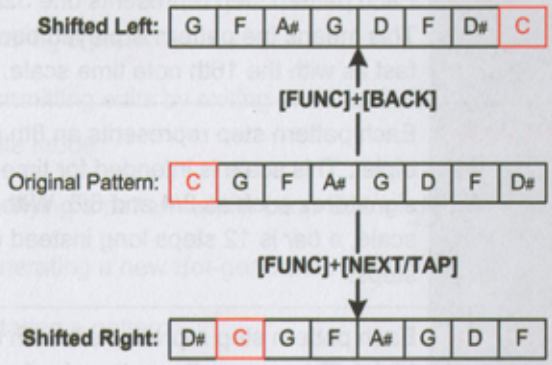
Delete the current step in the pattern by pressing **[FUNC]+[DEL]**.

Shift Pattern Left or Right

Press **[FUNC]+[NEXT/TAP]** while not in Edit mode to shift the entire pattern to the right by one step (in time).

Press **[FUNC]+[BACK]** to shift the entire pattern to the left by one step (in time).

The Shift commands would modify a simple 8-step pattern ("Original Pattern") as shown below:



Tip! *Shifting a pattern can dramatically change its character. The effect is much clearer when the Bass Bot is synchronized to an external rhythm device like a Drum Drone TT-606 or Beat Bot TT-78 for timing reference.*

Mutate

Pattern mutation is an excellent tool for producing exciting new variations for more complex patterns and tracks that are less repetitive. Select the pattern(s) you want to mutate then press **[FUNC]+[MUTATE]**.

You can also make completely new patterns by repeating the Mutate command until a desirable pattern evolves.

Change the Pattern's Time Scale

The standard time scale for Bass Bot patterns is 16th note timing. However, you may assign a different time scale to a pattern so that the sequencer will play it back accordingly. The time scale options are shown in the table below.

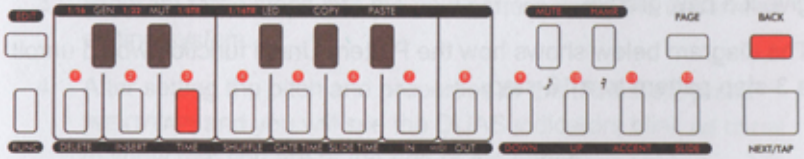
[1] 16th note	Each pattern step represents one 16th note. This is the default time scale for new patterns.
[2] 32nd note	Each pattern step represents one 32nd note. This means the pattern is played back twice as fast as with the 16th note time scale.
[3] 8th note triplet	Each pattern step represents an 8th note triplet. This scale is intended for time signatures such as 3/4 and 6/8. With this time scale, a *bar* is 12 steps long instead of 16 steps.
[4] 16th note triplet	Each pattern step represents a 16th note triplet. This means the pattern is played back twice as fast as with the 8th note triplet time scale.

While the sequencer is stopped, select the pattern(s) you want to modify, then press **[FUNC]+[TIME]**. You will see buttons **[1] - [4]** illuminate to show the available time scale options, with the pattern's current setting shown by a bright LED. Note that the available time scales are shown on the Bass Bot's front panel. Select your desired time scale

then press **[FUNC]** to save your selection and exit the menu.

Undo a Pattern Edit

You can undo any single change that modified your pattern while in Pattern Write mode. Undo a previous action by pressing **[BACK]+[TIME]**.



Press **[BACK]+[TIME]** to Undo a pattern edit

The following are examples of actions that can be undone:

- Clearing a pattern
- Committing edits by exiting the Step Editor while in Pattern Write mode
- Modifying a pattern within Loop Edit mode's Edit screen
- Generating a new Bot-generated pattern
- Mutating a pattern
- Pasting a pattern to User Pattern Memory

Lesson 19 Pattern Unroll Function

The Pattern Unroll function allows you to convert a short pattern into a longer standard-length pattern to make it easier to work with.

For example, you can take a 4-step pattern and quickly *unroll* it into a 16-step pattern so that it's easier to manage pattern changes during a performance. Or you can unroll a 6-step pattern to a 16-step pattern to give it a new groove.

The diagram below shows how the Pattern Unroll function would unroll a 3-step pattern to a 16-step.

The Pattern Unroll function applied to a 3-step pattern

A pattern that is shorter than 16 steps in length will be unrolled into a 16-step pattern. A pattern that is between 16 and 31 steps in length will be unrolled into a 32-step pattern. A pattern that is greater than 31 steps in length will be unrolled into a 64-step pattern.

Follow these steps to try the Pattern Unroll function:

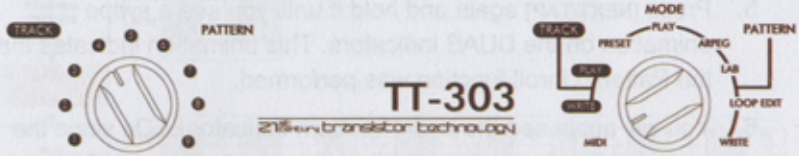
1. Set the **Mode** switch to Pattern Write.
2. Select a pattern slot in memory where you can create a new pattern. Clear the memory slot using **[CLEAR]+[#]**, where "#" is the pattern number you will clear.
3. Program three steps into the new pattern using the usual step editing system.
4. After setting the pitch and properties of the third step, press **[NEXT/TAP]** and you will see the DUAS indicators blink as usual to show that you are at the end of the pattern.
5. Press **[NEXT/TAP]** again and hold it until you see a swipe animation on the DUAS indicators. This animation indicates that the Pattern Unroll function was performed.
6. You will again see the end-of-pattern indicator LEDs since the pattern editor has automatically advanced to the end of the extended pattern.
7. Press **[EDIT]** to exit the editor and listen to your new 16-step pattern.

Tip! *You can unroll a pattern multiple times in a row to change to 16 steps, 32 steps, then 64 steps.*

Lesson 20 Pattern Playback via MIDI

Patterns may be selected and played by an external MIDI device. This is especially useful for integrating your Bass Bot with your digital audio workstation (DAW) workflow.

You can trigger the playback of complete patterns while in MIDI mode. Use MIDI notes #0 through #47 (that's C-2 through B1 *or* C-1 through B2, depending on your DAW) to play patterns from the Pattern Bank that is currently selected by the **Track/Pattern** switch. Valid MIDI note numbers and their corresponding patterns are listed in the table on the next page.



Pattern Bank 4 selected while in MIDI mode

The pattern will begin playing upon receiving the Note On message and will stop playing when the Note Off message is received. For example, to play pattern P2 from Page 3 for a single bar you would program a single MIDI note event for note #25 that is one bar in length.

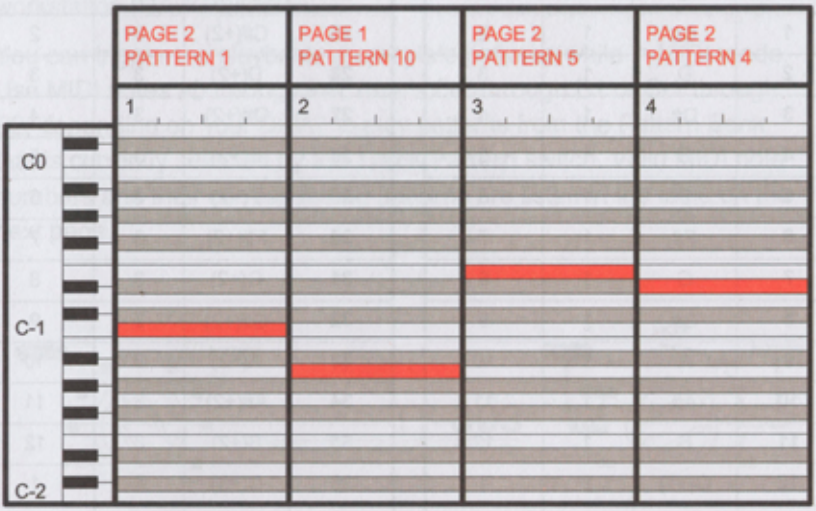
While a pattern is playing, your Bass Bot will use its LED indicators to show you the pattern's page and pattern number.

Tip! *Make sure that the MIDI output channel of your DAW matches your Bass Bot's MIDI Input Channel setting (refer to Lesson 15).*

MIDI Note #	MIDI Pitch	Page	Pattern Number
0	C	1	1
1	C#	1	2
2	D	1	3
3	D#	1	4
4	E	1	5
5	F	1	6
6	F#	1	7
7	G	1	8
8	G#	1	9
9	A	1	10
10	A#	1	11
11	B	1	12
12	C(+1)	2	1
13	C#(+1)	2	2
14	D(+1)	2	3
15	D#(+1)	2	4
16	E(+1)	2	5
17	F(+1)	2	6
18	F#(+1)	2	7
19	G(+1)	2	8
20	G#(+1)	2	9
21	A(+1)	2	10
22	A#(+1)	2	11
23	B(+1)	2	12

MIDI Note #	MIDI Pitch	Page	Pattern Number
24	C(+2)	3	1
25	C#(+2)	3	2
26	D(+2)	3	3
27	D#(+2)	3	4
28	E(+2)	3	5
29	F(+2)	3	6
30	F#(+2)	3	7
31	G(+2)	3	8
32	G#(+2)	3	9
33	A(+2)	3	10
34	A#(+2)	3	11
35	B(+2)	3	12
36	C(+3)	4	1
37	C#(+3)	4	2
38	D(+3)	4	3
39	D#(+3)	4	4
40	E(+3)	4	5
41	F(+3)	4	6
42	F#(+3)	4	7
43	G(+3)	4	8
44	G#(+3)	4	9
45	A(+3)	4	10
46	A#(+3)	4	11
47	B(+3)	4	12

The DAW piano roll example image below shows what a sequence of four patterns would look like when programmed using this method. Your DAW's octave numbers may differ from those shown here.



The pattern will be played at the tempo that your Bass Bot receives at its MIDI IN port, so be sure your DAW or other MIDI clock source is sending MIDI sync clock to your Bass Bot in order to keep it synchronized. Patterns triggered by these MIDI notes will not play properly if the Bass Bot is not receiving a MIDI sync clock (in this case only the first note of each pattern will be played and held).

Tip! *Experiment with sending additional MIDI notes layered on top of the long note used to trigger the playback of a pattern. You can trigger additional notes or even other patterns that will temporarily override the pattern that was first triggered.*

Lesson 21 Overview of Track Modes

A track is a structured sequence of your patterns. It can be a short sequence for making loops or the bass section for a complete song. There are two track modes available on the **Mode** switch. Track Write mode is where you compose and program tracks. Track Play mode is where you play and perform tracks.

Track Storage

Your Bass Bot can store up to 9 tracks which are selected using the **Track/Pattern** switch. Each track may be up to 144 bars in length, where a *bar* refers to one complete cycle of a pattern regardless of the pattern's length.

Track Display and Navigation

Within the Track modes, the patterns that make up a track are displayed graphically through the **[#]** buttons. Up to 12 bars can be displayed at one time, and therefore a track may span multiple *pages*. Cycle through the pages using **[PAGE]**. When **[PAGE]** is pressed, you will see an LED indicator on a **[#]** button showing the number of the page that is about to be shown. While holding **[PAGE]** you can press a **[#]** button to jump to any page in your track.

When the track is displayed, the indicator color of each bar corresponds to the color of that bar's pattern.

Tip! *Many of the techniques learned in prior lessons can be applied in the Track modes, such as selecting and looping a range of bars, copying and pasting bars, and navigating pages using* **[PAGE]**.

Lesson 22 Writing a Track

Writing a track involves programming a pattern to play for each bar of your track. In this lesson, you will compose a short track that will demonstrate the techniques of Track Write mode.

Each bar of the song can be programmed with the pattern that should be played at that part of the track and whether or not the pattern should be transposed when played back. The pattern can be any of the 48 patterns in User Pattern Memory from the memory bank that corresponds to the track's number. For example, Track #5 can include patterns from User Pattern Memory Bank #5.

Views

Track Write mode has two views which are used in building a track:

Track View: This view shows each bar of the track and indicates the color of the pattern is assigned to each bar.

Pattern Selection View: This view is similar to that of Pattern Play mode and allows you to select a pattern to assign to one or more bars of the track.

Transposing

While in Track View, you can set bars of your track to be transposed when they are played. Set a bar's transpose property by selecting one or more patterns in Track View then press **[EDIT]**. The keyboard keys will be illuminated, with the current transpose value brightly lit. The low C key represents *no transpose*, and other keys represent how much to transpose the pattern up or down when it is played in the track. This transpose property is temporary and does not alter your pattern stored in User Pattern Memory. Octave transpose settings can also be used (refer to Lesson 10).

Example

To prepare for writing a short track, be sure to have patterns stored in User Pattern Memory Bank #1, slots P1 and P2 in your first (red) page (see Lesson 3). The final track will have the structure shown below:

Bar	1	2	3	4	5	6	7	8
Pattern	P1	P1	P1	P1	P2	P2	P2	P2
Transpose	-	-	-	+7	-	-	-	+7

Follow these steps to construct the track:

1. Set the **Track** switch to Track 1 and set the **Mode** switch to Track Write mode.
2. The display shows Track View. Only bar #1 is present in the track, though no pattern has been assigned to it yet.
3. Assign the track's first four bars to play pattern P1 from your red page of patterns. To do this, first select the first four bars of the track by pressing **[1]+[4]**.
4. Press **[NEXT/TAP]** to enter Pattern Selection View. Here you can choose a pattern to assign to the four bars that you selected in the previous step.
5. Press **[1]** to choose pattern P1 then press **[NEXT/TAP]** to commit the selection and go back to Track View.
6. Track View now shows that bars #1 through #4 have been assigned with pattern P1 as shown by its color.
7. Transpose bar #4 up by 7 half-steps. Select bar #4 then press **[EDIT]**. Press the G key (**[5]**) to set the transpose value for this bar, then press **[EDIT]** to exit the Transpose menu.
8. Now repeat steps 3 through 6 for bars #5 through #8, except assign pattern P2 to these bars.

Now you have a simple track with 8 bars!

Other Track Writing Tools

- You can copy and paste bars within a track. Copy and paste operations include the Transpose property.
- You can insert and delete bars within your track using **[FUNC]+[INSERT]** and **[FUNC]+[DELETE]**. These operations can apply to one bar or a selected range of bars in your track.
- You can audition patterns when in Pattern Selection view. Press **[START/STOP]** to run the sequencer. The sequencer will loop the selected pattern to help you choose the right one.
- You can clear bars within a track while in Track View, which will set those bars to be 16 steps of silence. This is done the same way as clearing patterns in Pattern modes (see Lesson 3).

Clear a Track

To clear an entire track while in Track Write mode, first select the track to be cleared using the **Track** switch. With the sequencer stopped, press **[CLEAR]+[PAGE]** and hold them for five seconds.

Lesson 23 Playing and Performing Tracks

Track Play mode is the easiest way to play and perform your tracks without making accidental changes. In Track Play mode, you can also add non-destructive live performance elements to the track while it plays.

With the sequencer stopped, set the **Mode** switch to Track Play and set the **Track/Pattern** switch to Track 1. Press **[START/STOP]** and your track will loop continuously. You can perform any of the following while the track plays:

- Select a range of bars to instruct the sequencer to repeatedly loop just those bars.
- Add live performance elements (refer to Lesson 10).

Lesson 24 System Functions and Options

This lesson covers system functions and general notes on the Bass Bot's operation and maintenance.

In this lesson, button combinations are sometimes written as **[FUNC]+[NOTE]**, where "NOTE" is a key on the musical keyboard portion of the front panel.

Automatic Tuning

The Bass Bot can self-calibrate its tuning. Set the **Mode** switch to MIDI. Set the **Tuning** knob to the center position. Switch your Bass Bot's power off and back on again before tuning.

Press **[FUNC]+[C#]** to initiate tuning calibration. The FUNC and C# LEDs will light up for a few seconds. When these LEDs turn off, your Bass Bot will be in tune with accuracy of ± 5 cents.

Take a few seconds to check the tuning's accuracy using a tuner or by ear by pressing the keys on the keyboard after completion. If the desired accuracy is not achieved with the first tuning, very slightly adjust the Tuning knob then run the automatic tuning function a second or third time. They keyboard's low C is a C2 note and it should be 65.4 Hz when accurately tuned.

System Color

You can customize the system color of your Bass Bot's LEDs. While in MIDI mode, press **[FUNC]+[LED]**. You will see the keyboard key LEDs light up in different colors. Simply press the key for the color you want to use for the system LED color then press **[FUNC]** to exit the menu. The factory default system color is red.

Hardware Maintenance

Preventative measures to avoid non-warrantied damage

When purchased, record the serial number and affix receipt to the inside back cover of this manual for indisputable record of ownership in case of theft or damage which is possible due to portability of the device. Your serial number will be required for support by your distributor or Cyclone Analogic online.

Your device includes a protective, nearly invisible force-field that should always be engaged when not in use. This will deflect any foreign particles from entry into the rubber switch membranes and protect against collisions that may damage the device and should always be used with the provided transporter.

Cleaning

Use a soft slightly water-dampened cloth with no chemicals such as window cleaner, alcohol or paint thinners. They may stain or remove casing paint. If liquids are spilled into the system immediately disconnect power to prevent a short circuit and allow to air dry.

AC Adapter and Power

Always unplug the provided AC adapter when not in use. Only use the supplied power adapter. Using a lower quality adapter may result in buzzing sounds or other unwanted symptoms.

Use of an incorrect and excessive voltage from the use of an incorrect AC adapter may result in tripping internal safety fuses. This is evidenced by no power indication. If this should occur, your unit is not 'dead' but in protection mode. Your Bass Bot may recover and work normally once you've corrected any problems with the power adapter or external equipment that is connected to it. However, some causes of such a failure will require servicing, requiring an authorized technician's full inspection and potentially repair to fix the problem.

Troubleshooting

Power: *No Power when switched on.*

- Confirm the supplied power adapter is being used. The power adapter supplied is specifically made for your Bass Bot. You may require a different type of adapter 'head' for your local area.
- Confirm that the **Power Switch** is on the ON position.

Unit is buzzing loudly.

- Unplug the power adapter and use the originally supplied 9VDC 300mA.
- Place your Bass Bot in a different area away from lamps or other high wattage devices.

Sound: *No sound.*

- If using headphones, make sure they are connected to the **Phones** jack and not the **Output** jack.
- Check that the main **Volume** control is turned up.
- Check that you are playing a pattern that is not empty. Switch the **Mode** switch to Preset mode and try to play a preset pattern.
- Check that nothing is plugged into the **Filter In** jack on the Bass Bot's rear panel.

The sound is only in the left or right channel.

- Use the **Phones** jack for amplified stereo sound, though the mix is mono. The **Main Out** jack provides a mono output.

MIDI: *MIDI IN or MIDI OUT not working.*

- Verify that your MIDI cables are connected properly (from IN to OUT and from OUT to IN).
- Check that correct channel numbers are selected for the Bass Bot's MIDI Input and MIDI Output (refer to Lesson 15).

MIDI: *Cannot perform MIDI update from previous OS version.*

- Confirm that your PC or Mac has detected your MIDI/USB interface device.
- Try another cable or MIDI/USB device.
- Confirm your MIDI channel selections.

Command Shortcuts Summary

GLOBAL COMMANDS (For All Modes)

Set MIDI Input Channel	[FUNC]+[MIDI IN]
Set MIDI Output Channel	[FUNC]+[MIDI OUT]
Set Shuffle Amount	[FUNC]+[SHUFFLE]
Tap Tempo	[FUNC]+[SHUFFLE] then [TAP]
Set Slide Time	[FUNC]+[SLIDE TIME]
Set Gate Time	[FUNC]+[GATE TIME]

PATTERN WRITE MODE

Copy pattern(s)	[FUNC]+[COPY]
Paste pattern(s)	[FUNC]+[PASTE]
Generate	[FUNC]+[GEN]
Mutate	[FUNC]+[MUTATE]
Set pattern color	[FUNC]+[LED]
Transpose up / down	[FUNC]+[UP] / [FUNC]+[DOWN]
Shift left / right (in time)	[FUNC]+[BACK] / [FUNC]+[NEXT/TAP]
Unroll pattern	hold [NEXT/TAP] for two seconds at end of pattern
Clear pattern	[CLEAR]+[#] (the pattern number)
Undo	[BACK]+[TIME]
Change time scale	[FUNC]+[TIME]
Initiate Tap programming	[CLEAR] while sequencer is running
Enable Live Performance mode	[EDIT] while sequencer is running

LOOP EDIT MODE

Toggle Edit/Play modes	[EDIT]
Clear modifier	[CLEAR]+[(MODIFER KEY)]
Change step to rest	[CLEAR]+[TAP]
Copy pattern(s)	[FUNC]+[COPY]

PATTERN LAB MODE

Copy pattern(s)	**[FUNC]+[COPY]**
Generate pattern(s)	**[FUNC]+[GEN]**

ARPEGGIATOR MODE

Copy pattern(s)	**[FUNC]+[COPY]**
Paste pattern(s)	**[FUNC]+[PASTE]**

PATTERN PLAY MODE

Copy pattern(s)	**[FUNC]+[COPY]**
Enable Live Performance mode	**[EDIT]** while sequencer is running

PRESET MODE

Copy	**[FUNC]+[COPY]**
Generate	**[FUNC]+[GEN]**

TRACK PLAY MODE

Enable Live Performance mode	**[EDIT]** while sequencer is running

TRACK WRITE MODE

Toggle Bar / Pattern View	**[TAP]**
Copy / Paste Bar(s)	**[FUNC]+[COPY] / [FUNC]+[PASTE]**
Clear Bars at Selection	**[CLEAR]+[#]** (the pattern number)
Set System Color	**[FUNC]+[LED]**
Insert / Delete Bar(s)	**[FUNC]+[INSERT] / [FUNC]+[DELETE]**
Clear a Track	hold **[CLEAR]+[PAGE]** for 5 seconds

MIDI MODE

Automatic tuning calibration	**[FUNC]+[C#]**
Toggle Filter Hold	**[FUNC]+[HAMR]**
Set system display color	**[FUNC]+[F#]**

OS v1.0 MIDI Implementation Chart

Function		Transmitted	Recognized	Remarks
Basic Channel		1-12	1-12	
Mode		4	4 Omni Off, Mono	
Note Number	Pattern True Voice	X 48-96	0-47 48-100	Recognizes received notes in MIDI mode only
Velocity	Note On	V = 16 Mute, 32 Mute+Acc, 64 Normal, 127 Accent	V = 0 Off, 1-16 Mute, 17-32 Mute+Acc, 33-111 Normal, 112-127 Accent	
	Note Off	V = 0	Any	
Aftertouch	Buttons Channel	X X	X X	
Pitch Bend		X	X	
Control Change	64 65	X X	O O	Sustain Portamento (Slide)
Program Change		X	X	
System Exclusive		O	O	Pattern backup, Firmware updates
System Common	Song Pos Song Sel Tune Req	X X X	X X X	
System Real-Time	Clock Commands	O Start/Stop	O Start/Stop/Continue	
System Common		X	X	
Aux Messages		X	X	

Warranty

Our Bots are made by robots using surface mount technology. No user or human serviceable parts inside.

Never open your Bass Bot. Doing so will automatically void your warranty and risk damage to the device.

Your Bass Bot comes with a one (1) year warranty free from manufacturer defects.

The warranty does not cover accidental damages.

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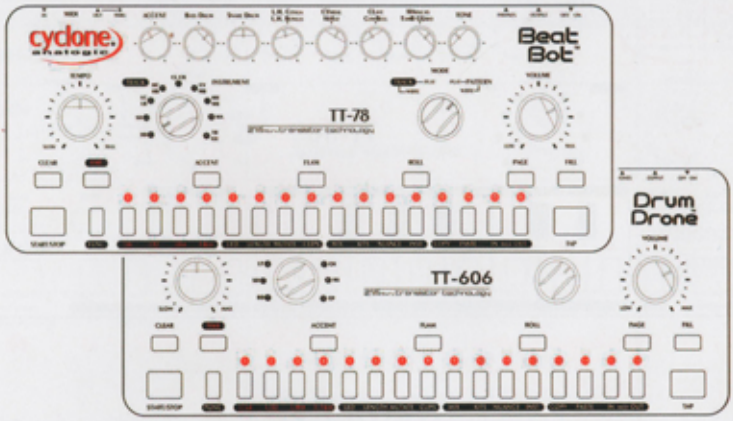
Introducing the TT-78 Beat Bot & TT-606 Drum Drone drum machines.

Truly analogue drum machines for the discerning artist.



Especially designed for today's electronic dance with use in live performance in mind.

No fumbling simplicity so you can really get into the mix.

Control the tone of the selected instrument with only one Tone knob.

Switch between play and write modes seamlessly.

Fade the volume by top panel mixer or live punch in/out mute.

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