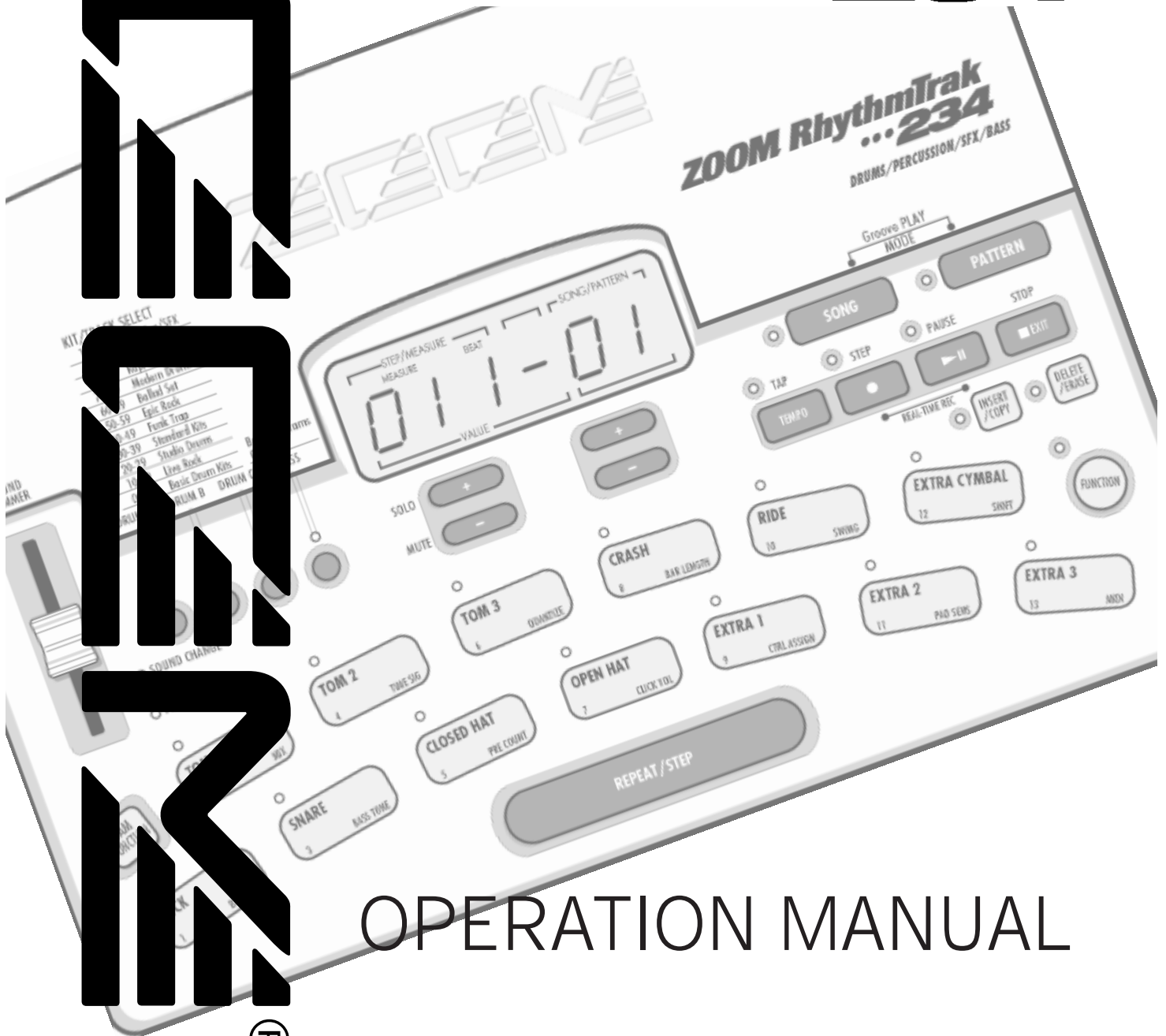


ZOOM RhythmTrak ...234




OPERATION MANUAL




USAGE AND SAFETY PRECAUTIONS

USAGE AND SAFETY PRECAUTIONS

In this manual, symbols are used to highlight warnings and cautions for you to read so that accidents can be prevented. The meanings of these symbols are as follows:


Warning This symbol indicates explanations about extremely dangerous matters. If users ignore this symbol and handle the device the wrong way, serious injury or death could result.


Caution This symbol indicates explanations about dangerous matters. If users ignore this symbol and handle the device the wrong way, bodily injury and damage to the equipment could result.

Please observe the following safety tips and precautions to ensure hazard-free use of the RhythmTrak ...234.



• Power requirements

The RhythmTrak ...234 is powered by the supplied AC adapter. To prevent malfunction and safety hazards, do not use any other kind of AC adapter.

When using the RhythmTrak ...234 in an area with a different line voltage, please consult your local ZOOM distributor about acquiring a proper AC adapter.



• Environment

Avoid using your RhythmTrak ...234 in environments where it will be exposed to:

- Extreme temperature
- High humidity or moisture
- Excessive dust or sand
- Excessive vibration or shock



• Handling

The RhythmTrak ...234 is a precision instrument. Do not exert undue pressure on the keys and other controls. Also take care not to drop the unit, and do not subject it to shock or excessive pressure.



• Alterations

Never open the case of the RhythmTrak ...234 or attempt to modify the product in any way since this can result in damage to the unit.



• Connecting cables and input and output jacks

You should always turn off the power to the RhythmTrak ...234 and all other equipment before connecting or disconnecting any cables. Also make sure to disconnect all

cables and the AC adapter before moving the RhythmTrak ...234.

Usage Precautions

• Electrical interference

For safety considerations, the RhythmTrak ...234 has been designed to provide maximum protection against the emission of electromagnetic radiation from inside the device, and protection from external interference. However, equipment that is very susceptible to interference or that emits powerful electromagnetic waves should not be placed near the RhythmTrak ...234, as the possibility of interference cannot be ruled out entirely.

With any type of digital control device, the RhythmTrak ...234 included, electromagnetic interference can cause malfunctioning and can corrupt or destroy data. Care should be taken to minimize the risk of damage.

• Cleaning

Use a soft, dry cloth to clean the RhythmTrak ...234. If necessary, slightly moisten the cloth. Do not use abrasive cleanser, wax, or solvents (such as paint thinner or cleaning alcohol), since these may dull the finish or damage the surface.

Please keep this manual in a convenient place for future reference.

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MIDI Implementation Chart

Introduction

Thank you for selecting the ZOOM RhythmTrak ...234. This product is an innovative drum machine with the following features and functions.

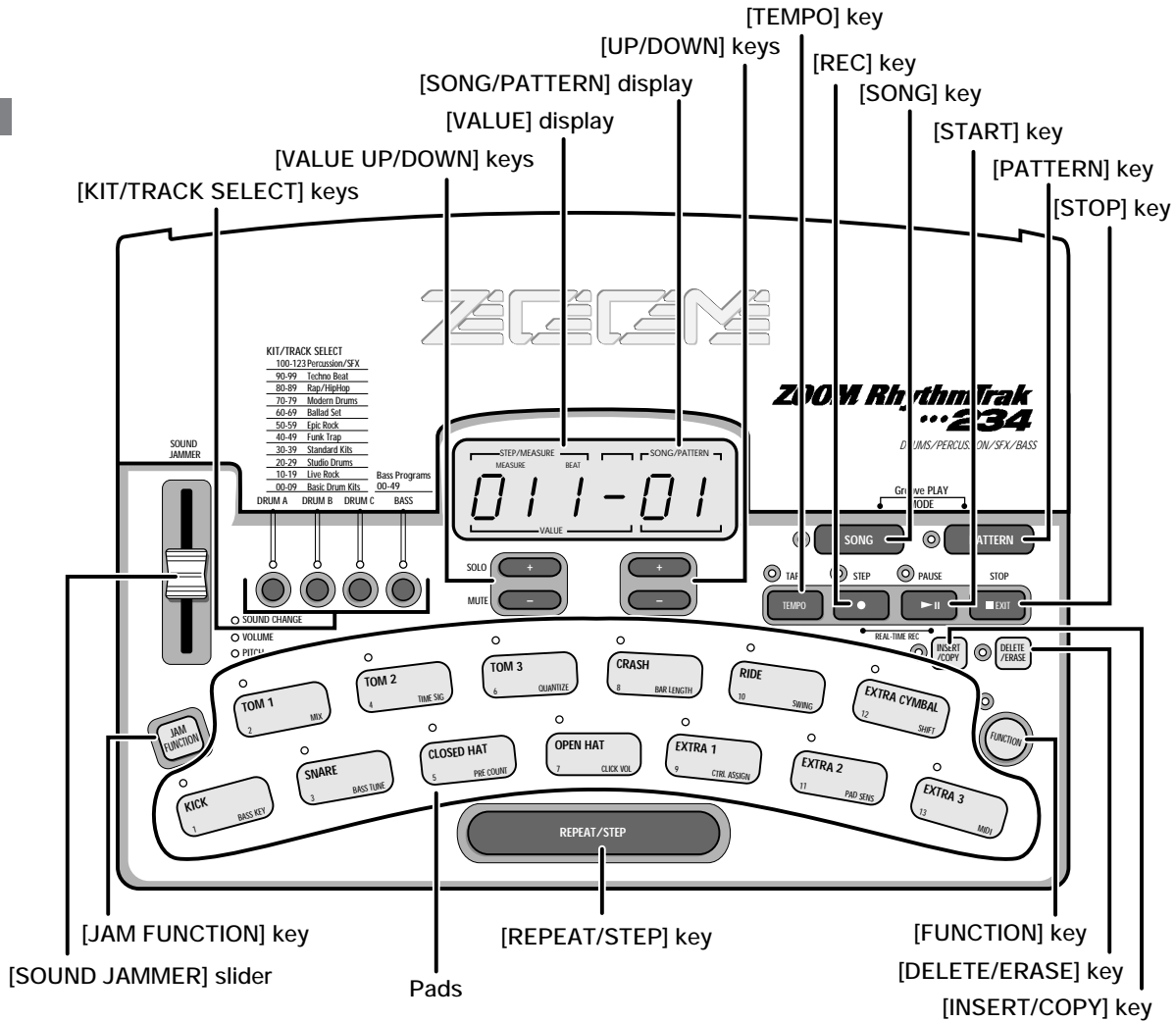
- The RhythmTrak ...234 plays versatile backing patterns using three different drum tracks and one bass track. 99 preset patterns provide many popular rhythms at the touch of a key. 99 additional patterns can be programmed and stored by the user.
- Program up to 255 patterns in a sequence to create the backing for an entire song. Up to 99 songs can be stored.
- Choose from a variety of 174 built-in super-realistic drum and bass sounds. Practice or perform on stage as if with a whole band. Great for making guitar or keyboard demo tapes, too.
- LINE IN jack allows connection of external instruments. Mix the sound from an instrument, processed by a multi-effect such as the ZOOM 503, with the backing sound provided by the RhythmTrak ...234.
- Simple and intuitive controls make it a snap to operate the RhythmTrak ...234, even if you have never used a drum machine or sequencer before.
- Groove play mode allows changing patterns during play simply by tapping pads on the unit. Great for live performances and for DJ use.
- Parameters such as pitch, volume, or tone can be modified manually during a performance, using a handy slider control.
- Optional foot pedal FP01 can continuously alter pitch, volume, or tone.
- Optional foot switch FS01 can serve for example to control the bass drum by foot or to change between open hi-hat and closed hi-hat.
- MIDI IN connector allows synchronization with an external MIDI sequencer or control of the RhythmTrak ...234 from other MIDI equipment.

Please take the time to read this manual carefully so as to get the most out of your RhythmTrak ...234 and to ensure optimum performance and reliability. Retain this manual, the warranty card and all other documentation for future reference.

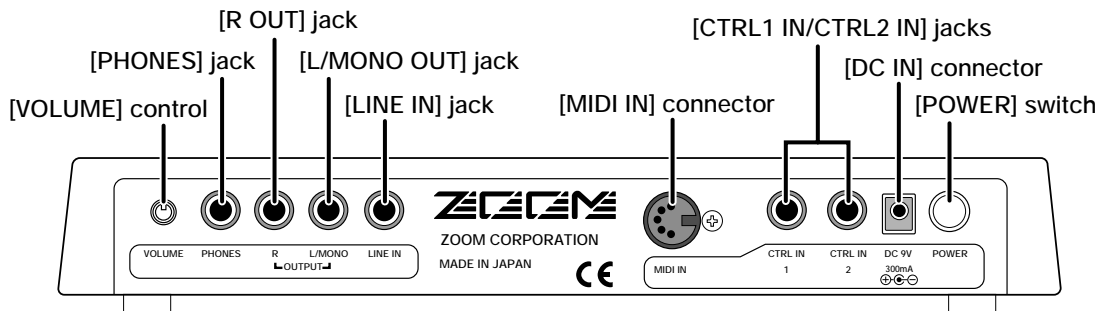
Names of Parts

Top Panel

Names of Parts

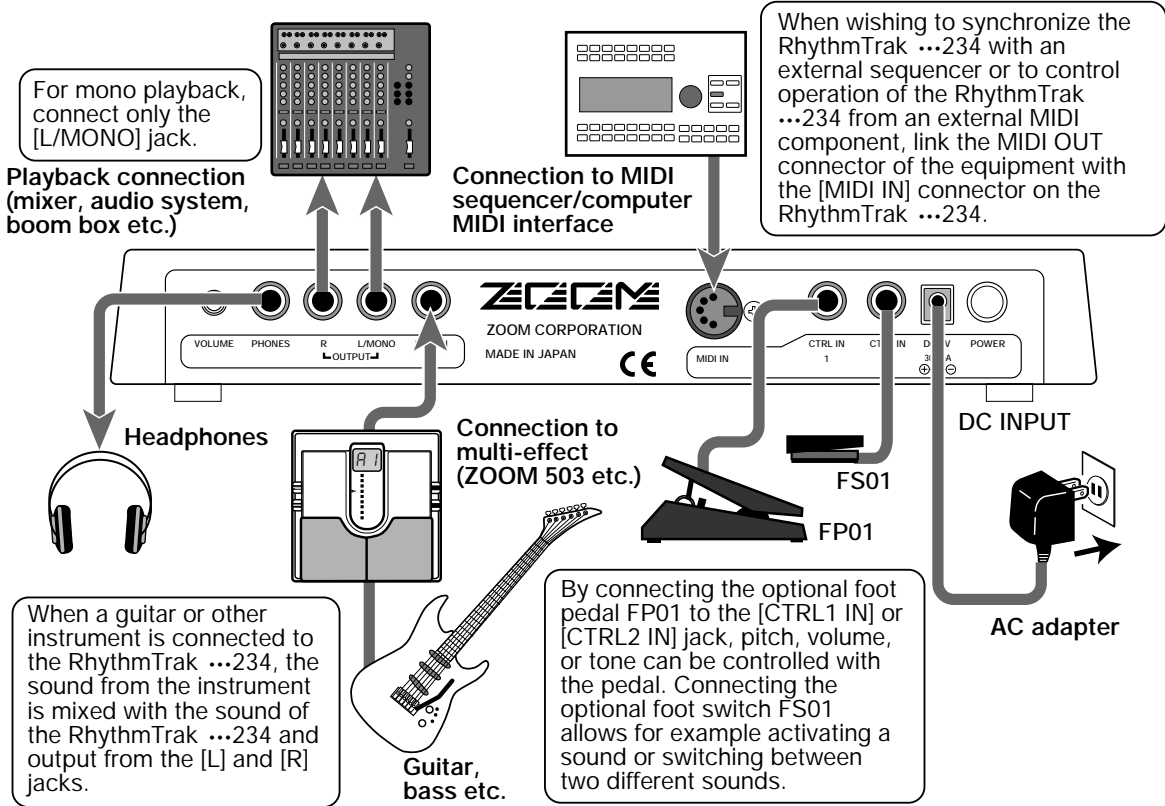


Rear Panel



Names of controls and connectors on the top panel and rear panel are enclosed in angle brackets in this manual.

Getting Connected



Names of Parts

Preparations

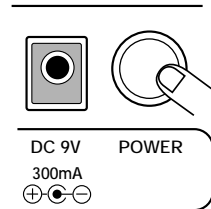
After connections are established, check the sound by performing the following steps.

STEP 1 While the playback system is still turned off and the volume is fully turned down, double-check whether all connections have been made correctly.

If cables are plugged in while power is turned on, or if the system is turned on with the volume control turned up, speaker damage may occur.

STEP 2 Turn power to the RhythmTrak ...234 on.

Connect the supplied AC adapter to the [DC IN] connector and set the [POWER] switch to ON.



While tapping a pad to produce sound, adjust the [VOLUME] control

STEP 3 Turn power to the playback system on.

of the RhythmTrak ...234 and the volume control on the playback system to a suitable position.

Quick Guide

This Quick Guide shows how to operate your RhythmTrak ...234, using a few representative examples. Some of terms and concepts used in this manual are also explained here.

Quick Guide (1) Listening to the Demo

The RhythmTrak ...234 comes with a demo song already built in. Hear for yourself what the RhythmTrak ...234 can do.

1 Connect the RhythmTrak ...234 to the playback system and turn the power on.

2 Press the [FUNCTION] key.

Verify that the LED to the left of the [FUNCTION] key flashes.

3 Press the [SONG] key.

The demo song starts.

Sounds just like the backup of a live band, doesn't it? Note how effectively various drum, percussion, and bass sounds are combined. The RhythmTrak ...234 can produce such a great variety of sounds with ease.



Drum kits and bass programs

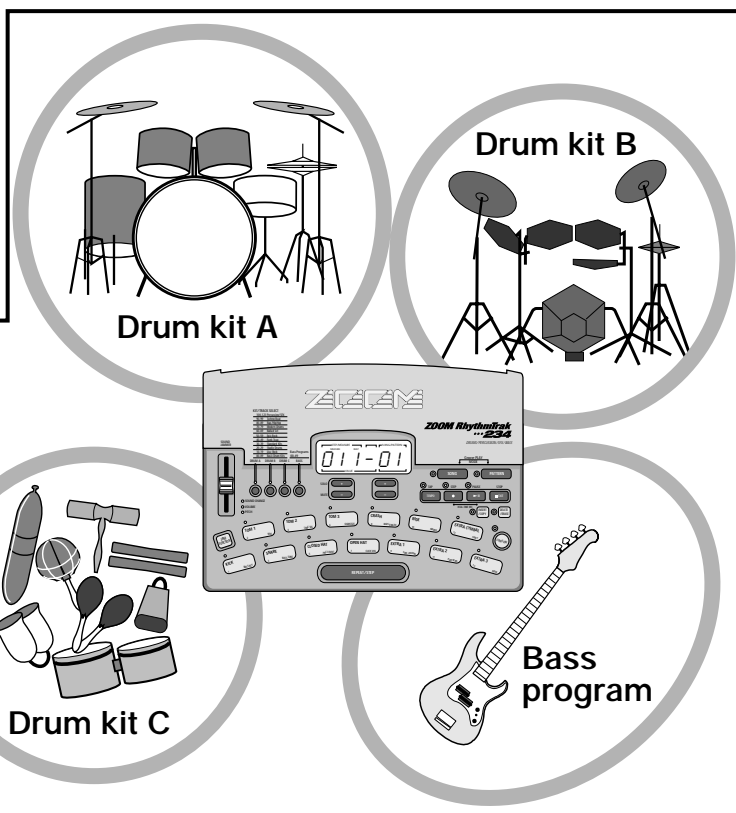
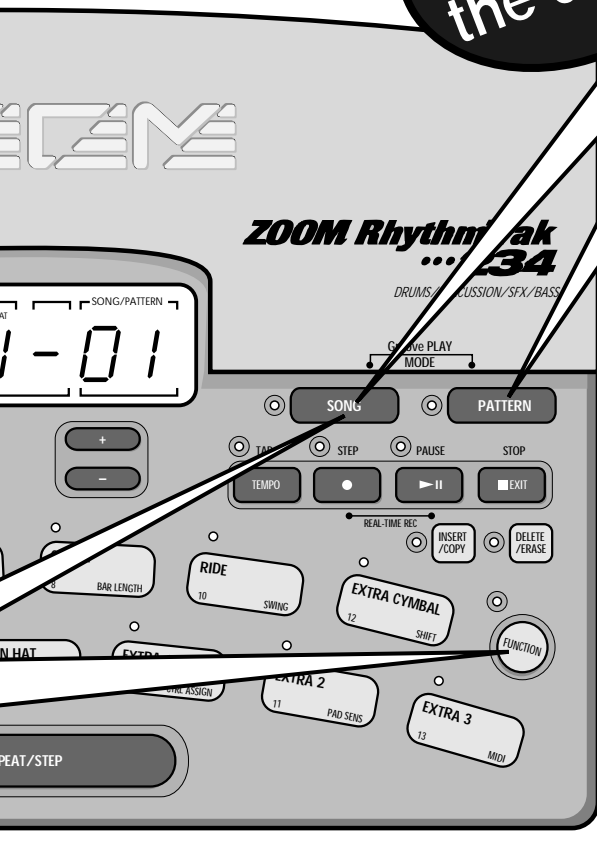
The backup sound provided by the RhythmTrak ...234 consists of up to three drum kits and one bass program. A drum kit is a collection of drum sounds including bass drum, snares, tom-tom, percussion sounds such as congas and bongos, and various other effect sounds. These are combined to create backing tracks for a

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the demo

4 Press the [PATTERN] key or [SONG] key.

- [PATTERN] key: RhythmTrak ...234 switches to pattern mode (for playing and recording patterns).
- [SONG] key: RhythmTrak ...234 switches to song mode (for creating backing songs which are sequences of patterns).



wide range of music genres. The RhythmTrak ...234 comes with 124 preprogrammed drum kits of which up to three can be used simultaneously. In addition, 50 types of bass programs are available, of which one can be selected for playback.

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Quick Guide (2) Playing the Pads

The top panel of the RhythmTrak ...234 has 13 pads which serve to play drum kits and bass programs.

1 Turn the power on.

2 Press the [PATTERN] key.

The [PATTERN] key LED lights up and the RhythmTrak ...234 is in pattern mode.

3 Press the [DRUM A] key.

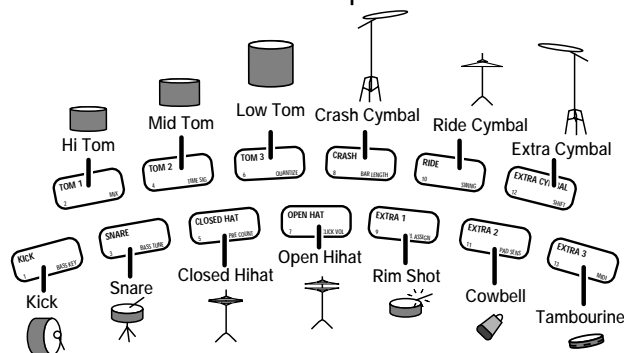
The [DRUM A] LED lights up. Now you can use the pads to play the drum kit.



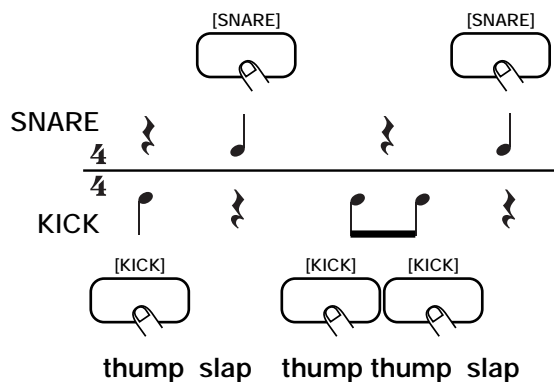
You can also select the [DRUM B] key or [DRUM C] key to play a different drum kit.

4 Tap the pads.

You will notice that the pads produce various drum sounds. The 13 pads are assigned different sounds, depending on the drum kit or bass program that has been selected. The illustration below shows an example for the drum sounds of the 13 pads with a drum kit.



By tapping for example pad 1 (KICK) and pad 3 (SNARE) as in the illustration below, you can play bass drum and snare drum in the rhythm as shown.



To play a bass program with the pads

6 Press the [BASS] key.

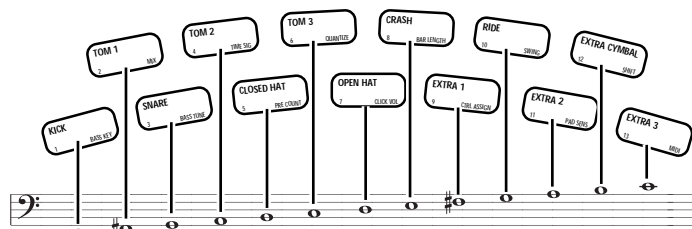
The [BASS] key LED lights up and the current bass program can be played with the pads. Give it a try! You will notice that different pads produce sound of a different pitch.

Unlike with the drum kit, the bass program does not consist of different instrument sounds. Rather, one type of bass sound is varied in pitch. You can use the 13 pads like the keys of a keyboard.

The illustration below shows an example for the notes produced by the 13 pads with a bass program.



To change the bass program, hold the [BASS] key down and use the [VALUE UP/DOWN] keys to change the program number (0 - 49).

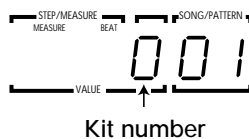


Which sound is assigned to the pads depends on the pattern.

To change the drum kit

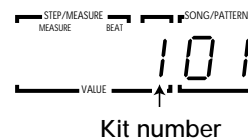
5 Press and hold the [DRUM A] key...

While the [DRUM A] key is being pressed, the [VALUE] display shows the currently selected kit number (0 - 123).



Press the [VALUE UP or DOWN] key.

- [+] key: Selects the next higher kit number.
- [-] key: Selects the next lower kit number.



Quick Guide (3) Playing a Pattern

The RhythmTrak ...234 already contains many preprogrammed patterns (backing sequence of several bars). Each pattern combines up to three drum kits and a bass program. Here's how you can play a pattern.

1 Turn the power on.

2 Press the [PATTERN] key.

The [PATTERN] key LED lights up and the RhythmTrak ...234 is in pattern mode.

The [SONG/PATTERN] display shows the currently selected pattern number.



Pattern number

The RhythmTrak ...234 has memory capacity for 198 patterns.

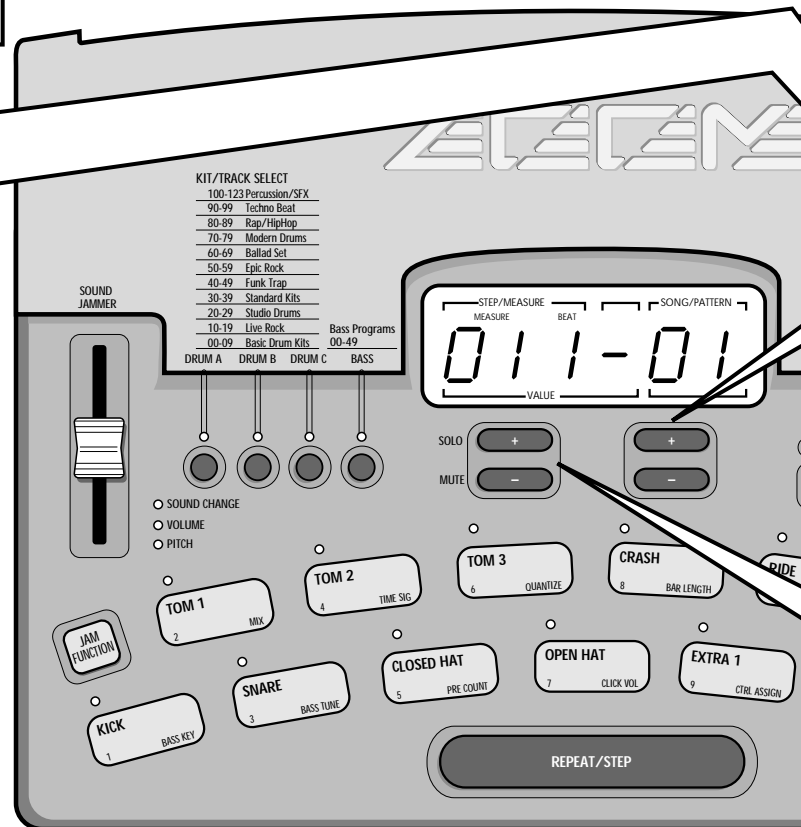
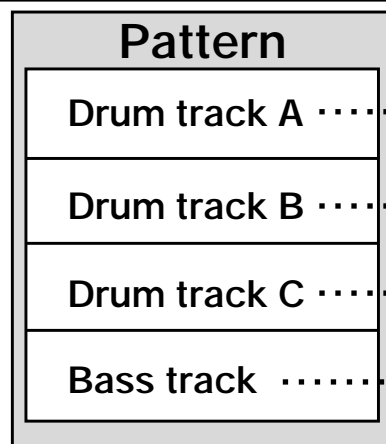
- 01 - 99: User patterns (can be modified)
- P01 - P99: Preset patterns (cannot be modified)

In the factory default condition, the user patterns have the same content as the preset patterns.

3 Press the [▶||] (START) key.

Playback of the currently selected pattern starts.

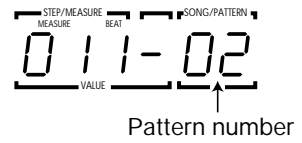
The patterns of the RhythmTrak ...234 can be thought of as recordings of up to 3 drum kits and 1 bass program. These are recorded on tracks that are combined to form the pattern. A pattern of the RhythmTrak ...234 therefore consists of drum track A, drum track B, drum track C, and the bass track. Drum tracks A - C contain drum kit recordings and the bass track contains a bass program recording.



To change the pattern

4 Press one of the [UP/DOWN] keys

- [+] key: Selects next higher pattern number.
- [-] key: Selects next lower pattern number.



To change the tempo

5 Hold the [TEMPO] key...

While the [TEMPO] key is held down, the [VALUE] display shows the currently active tempo.



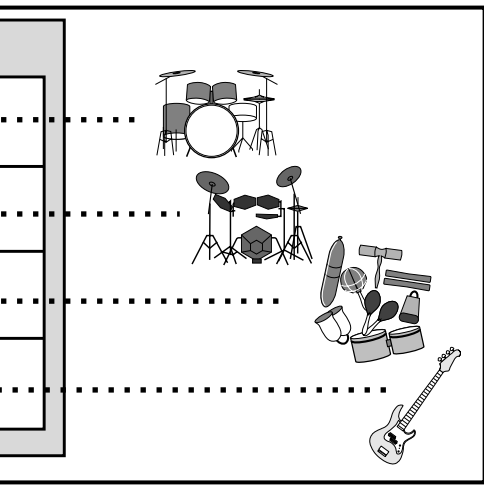
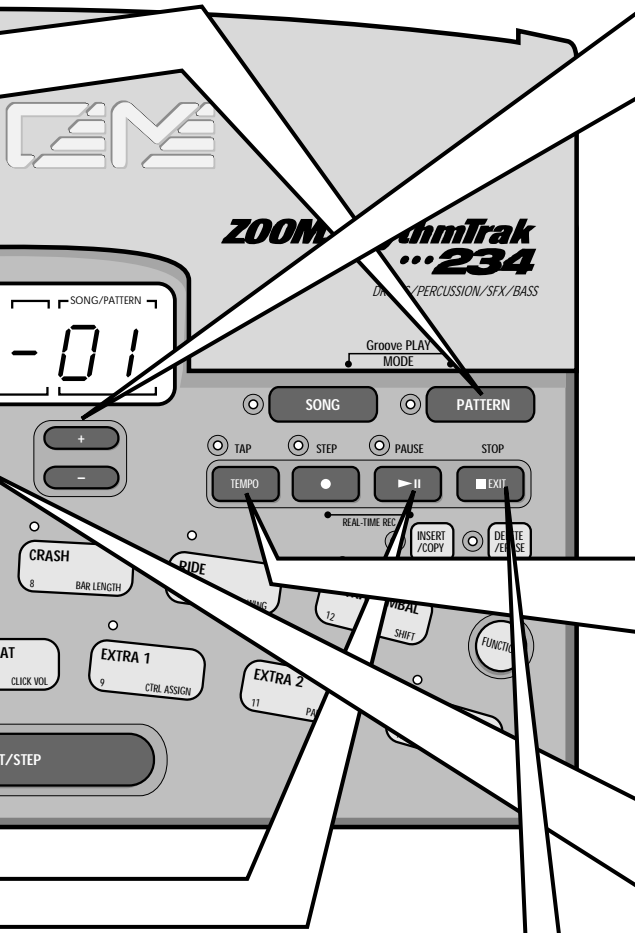
Press the [VALUE UP or DOWN] key.

- [+] key: Increases the tempo value.
- [-] key: Decreases the tempo value.



To stop pattern play

6 Press the [EXIT] (STOP) key.



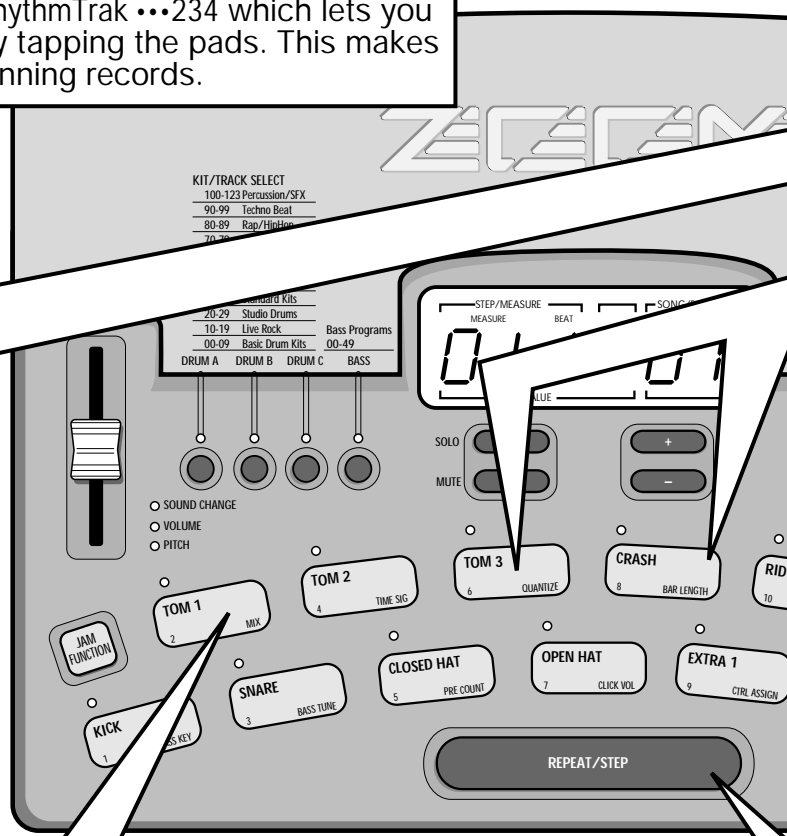
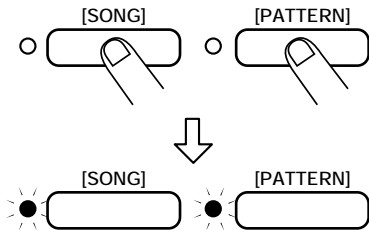
Quick Guide (4) Using Groove Play

Groove play is a special feature of the RhythmTrak ...234 which lets you switch among various patterns simply by tapping the pads. This makes it easy to play with patterns like a DJ spinning records.

1 Turn the power on.

2 Press the [SONG] key and [PATTERN] key together.

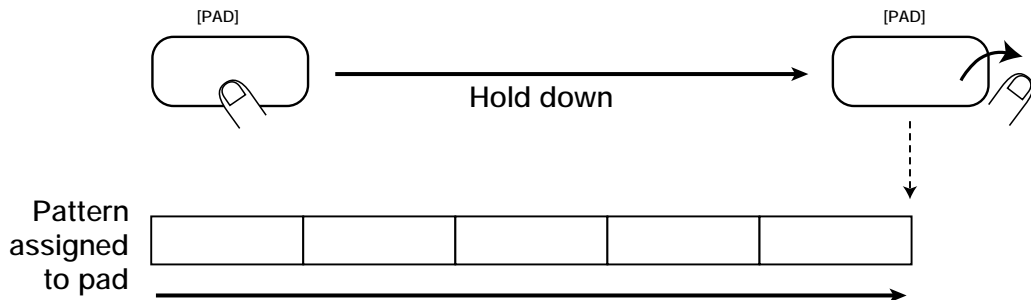
The [SONG] key LED and [PATTERN] key LED light up, and the RhythmTrak ...234 is in groove play mode.



3 Push a pad.

While the pad is held down, the pattern assigned to that pad is played. Give it a try and check out which patterns are assigned to the various pads.

HINT The pattern assigned to a pad can be changed (→ p. 39).



Quick Guide

To play multiple patterns simultaneously

5 Push several pads together.

In groove play mode, up to 4 patterns can be played simultaneously. For example, while playing a basic drum pattern, you can hit another pad to overlay a bass pattern and then add a

snare fill-in. By using the right timing when pushing the pads, you can create complex rhythms.

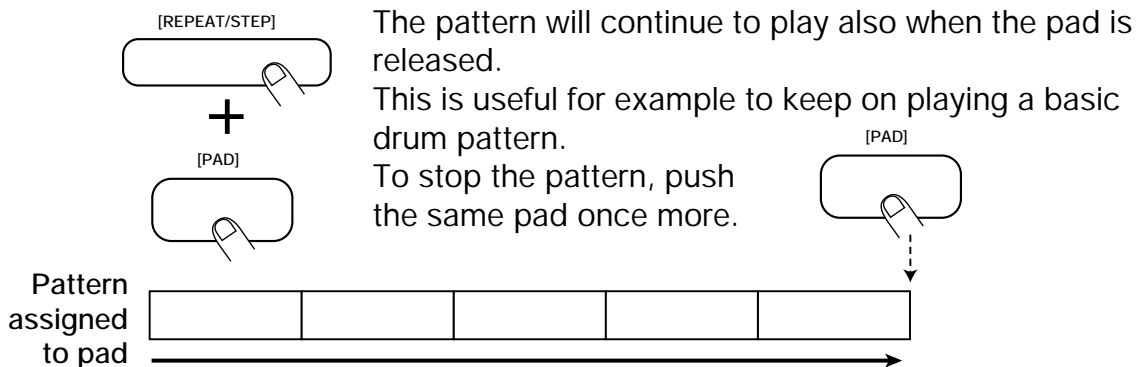
To stop groove play

6 Press the [SONG] key or [PATTERN] key.

- [PATTERN] key was pressed: RhythmTrak ...234 switches to pattern mode.
- [SONG] key was pressed: RhythmTrak ...234 switches to song mode.

4 Hold the [REPEAT/STEP] key down while pushing the pad.

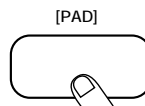
To keep playing the pattern without pressing the pad



The pattern will continue to play also when the pad is released.

This is useful for example to keep on playing a basic drum pattern.

To stop the pattern, push the same pad once more.

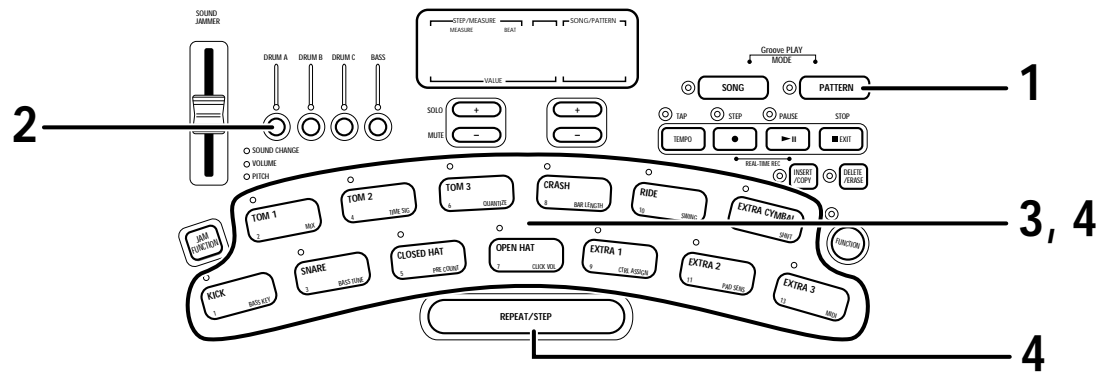


Playing the Pads (Manual Play)

The RhythmTrak ...234 lets you not only play back existing patterns and songs, it also allows you to manually play the unit by tapping the pads and using the [SOUND JAMMER] slider. This section describes how to manually play the unit

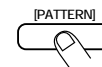
Playing by tapping the pads

The RhythmTrak ...234 assigns various sounds to the pads, depending on the currently selected drum kit. Play the pads to discover the realistic sounds offered by the RhythmTrak ...234.



STEP 1 Press the [PATTERN] key.

This activates the pattern mode. The [PATTERN] key LED lights up.



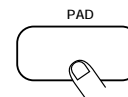
STEP 2 Press the [DRUM A] key of the [KIT/TRACK SELECT] keys.

During manual play, you use the [KIT/TRACK SELECT] keys to select the desired drum kit or bass program. (The LED of the selected key lights up.) Pressing the [DRUM A], [DRUM B], or [DRUM C] key selects drum kit A - C. Pressing the [BASS] key selects the bass program. In this example, let's use drum kit A.



STEP 3 Tap one of the pads.

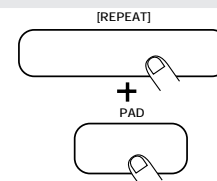
The LED of the pad lights up briefly and the sound assigned in the drum kit to that pad is heard. The volume changes according to how strongly you tap the pad.



When the [BASS] key is pressed in step 1, a bass program can be played, but there is a difference in how the pads operate. With a drum kit, the sound plays through even if the pad is released immediately. With a bass program, the sound continues only as long as the pad is pressed.

STEP 4 Tap a pad while holding the [REPEAT/STEP] key down.

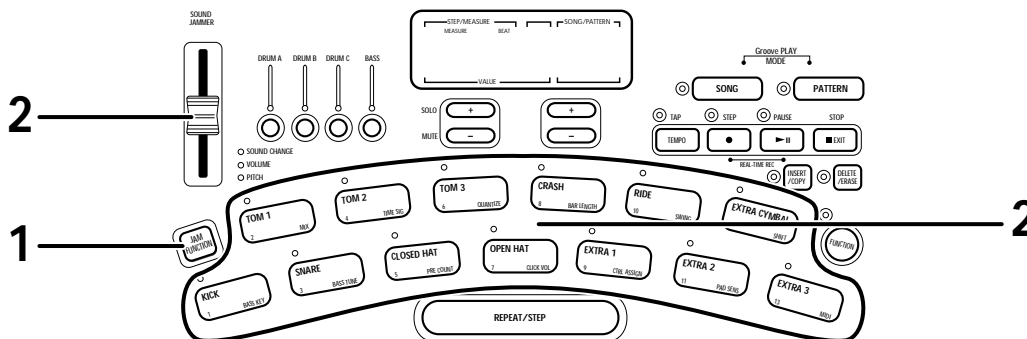
The sound will be produced continuously for as long as the pad is pressed. The repetition speed depends on the tempo.



You can adjust the interval for repeated play. See the "Quantize" section on page 44.

Using the slider (modify function)

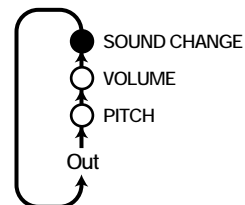
By moving the [SOUND JAMMER] slider while using the pads, you can change the pitch, volume, or tone continuously.



STEP 1 Use the [JAM FUNCTION] key to select the sound parameter that you want to change with the slider.

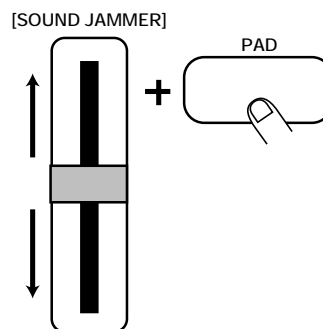
With each push of the key, the setting cycles through the following setting, and the corresponding LED lights up: PITCH → VOLUME → SOUND CHANGE → Out.

[JAM FUNCTION]



STEP 2 Tap the pad while moving the [SOUND JAMMER] slider.

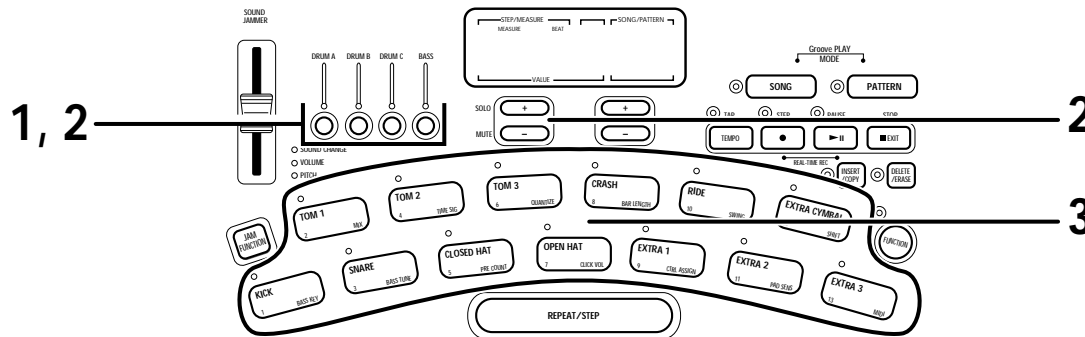
- When PITCH is selected: The slider center position is the reference pitch, and moving the slider shifts the pitch up or down. The adjustment range depends on the sound type.
- When VOLUME is selected: Moving the slider changes the volume. The pad tapping intensity has no effect in this case.
- When SOUND CHANGE is selected: In the center position of the slider, there is no change in the sound. Moving the slider up or down selects variation 1, variation 2 etc. The available variations depend on the sound type.



- Only one sound parameter (pitch, volume, or tone) can be changed at a time. When the parameter is switched, the previous parameter returns to its original setting.
- When the sound parameter is switched, the slider becomes active only after passing the position corresponding to the current value. For example, if the VOLUME parameter is selected with the slider set to 0, the volume will not become zero right away. The volume starts to change only after the slider is moved and has passed the current volume position ([SOUND JAMMER] slider LED flashes at this point).
- If you have assigned PITCH to the [SOUND JAMMER] slider on the bass track, moving the slider while tapping the pad will produce sound with different pitches. Moving the slider from the bottom to the top will shift the pitch in the same order as the pitches assigned to pads 1 to 13.

Selecting a kit/program for manual play

For manual play, you can select among 100 drum kits, 24 percussion/SFX kits, and 50 bass programs.



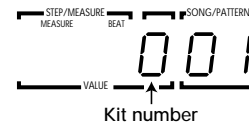
STEP 1 Press one of the [KIT/TRACK SELECT] keys to select the track, and hold the key down.

The current kit/program number is shown on the [VALUE] display.



Available drum kit types are printed on the panel.

[DRUM A]

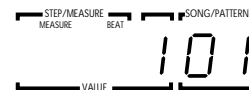
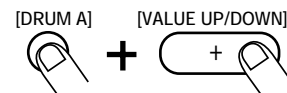


STEP 2 While holding the [KIT/TRACK SELECT] key down, use the [VALUE UP/DOWN] keys to select a kit.

The [VALUE UP/DOWN] keys switch the kit number shown on the [VALUE] display by 1 up or down, and the selected kit changes accordingly.



- Keeping a [VALUE UP/DOWN] key depressed changes numbers continuously.
- You can also select a kit by holding the [KIT/TRACK SELECT] key down and moving the [SOUND JAMMER] slider. The slider changes numbers continuously.



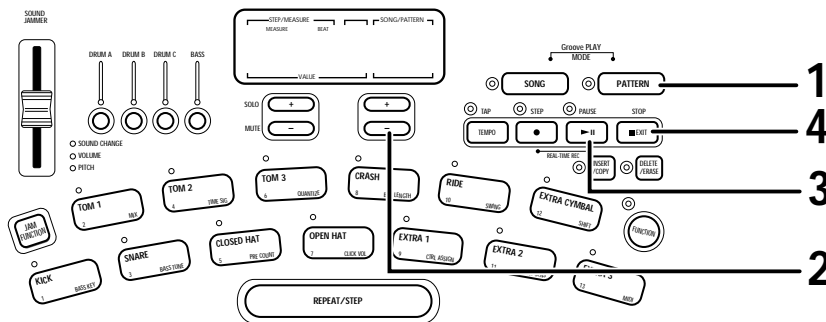
STEP 3 Tap the pads to check the new sound.

Playing the Patterns (Pattern Mode)

This section describes how to play patterns that are built into the RhythmTrak ...234 or that have been recorded by the user.

Pattern play

The RhythmTrak ...234 incorporates 99 preset patterns (P01 - P99) which cannot be changed by the user, as well as 99 user-definable patterns (01 - 99). The unit is shipped with the user patterns programmed with the same contents as the preset patterns, but these contents can be changed freely. The section below describes how to play back a pattern.



STEP 1 Press the [PATTERN] key so that the [PATTERN] key LED lights up.

The RhythmTrak ...234 switches to pattern mode and the number of the currently selected pattern is shown on the [SONG/PATTERN] display. 01 - 99 indicates a user pattern, and P01 - P99 a preset pattern. The [VALUE] display shows the current position in the pattern (measure/beat). If an empty user pattern was selected, the [VALUE] display shows "----".



STEP 2 Use the [UP/DOWN] keys to select the desired pattern number.

In pattern mode, the [UP/DOWN] keys serve to switch the pattern. You can also hold the [PATTERN] key down and use the [SOUND JAMMER] slider to select a pattern.



STEP 3 Press the [START] key.

The [START] key LED lights up, and the pattern is played repeatedly. The [TEMPO] key LED flashes according to the tempo of the pattern. The [VALUE] display shows the current position in the pattern (measure/beat).

Pressing the [VALUE UP] key during pattern playback turns off the sound of tracks other than the currently selected track (whose [KIT/TRACK SELECT] LED is lit). Pressing the [VALUE DOWN] key turns off the sound of the currently selected track.



STEP 4 Press the [STOP] key when you want to stop the pattern.

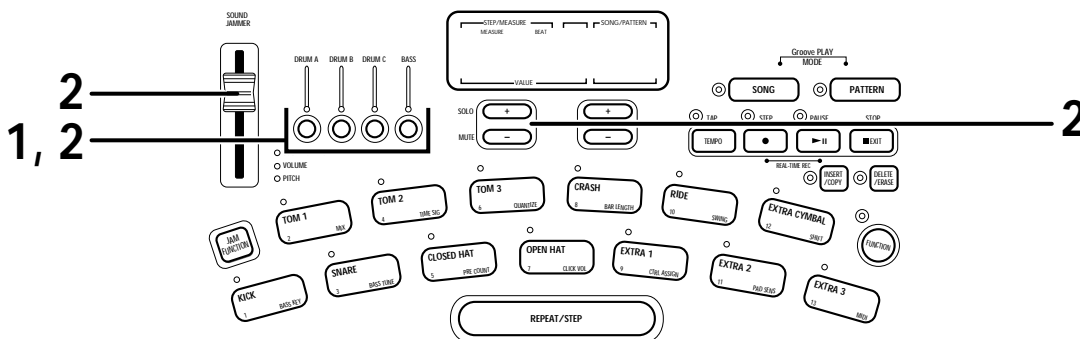
Pressing the [START] key instead of the [STOP] key sets the unit to pause mode. The [START] key LED flashes. Pressing the [START] key again in this condition resumes playback.



Also while playing a pattern, you can use the pads for manual play. However, the [SOUND JAMMER] slider has no modifying effect on the playback sound of the pattern.

Changing the kit/program of a track

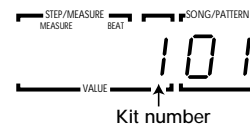
The patterns of the RhythmTrak ...234 are made up of drum track A - C and the bass track. The drum tracks contain a drum kit each, and the bass track contains a bass program. The steps below can be used to change the kit or program assigned to a track.



STEP 1 Use the [KIT/TRACK SELECT] keys to select the track whose drum kit/bass program you want to change, and hold the key down.

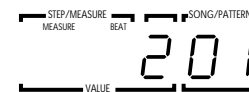
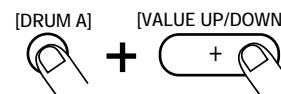
In pattern mode, the [KIT/TRACK SELECT] keys serve to select a track. While one of the keys is pressed, the number of the kit/program allocated to the corresponding track is shown on the [VALUE] display.

[DRUM A]



STEP 2 While holding the [KIT/TRACK SELECT] key down, use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to change the kit.

The track is switched to the sounds of the new kit.



STEP 3 By repeating steps 1 and 2, you can change the kits assigned to the other tracks.



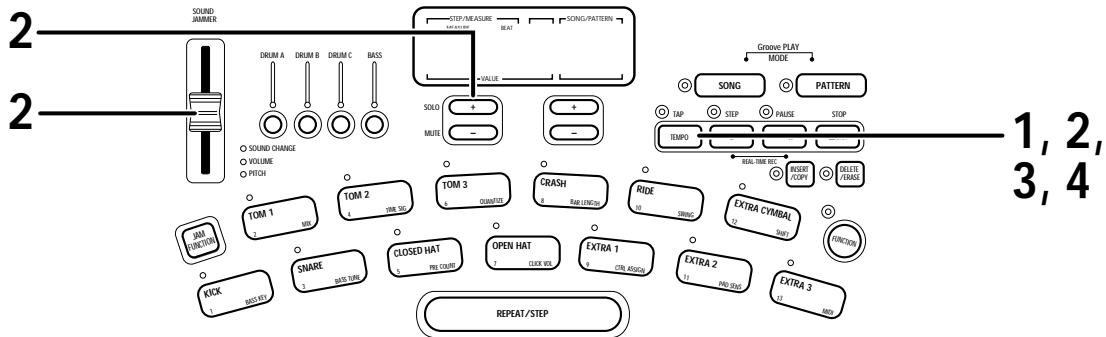
Changing the kit/program is also possible while playing a pattern.



- When the kit/program is changed in a user pattern, the new kit/program setting will be stored when the pattern is stored.
- The kit/program of a preset pattern cannot be changed.

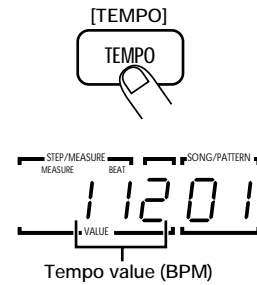
Changing the tempo of pattern playback

When playing a pattern in pattern mode, the playback tempo for the pattern can be varied over the range of 40 - 250 BPM (BPM = beats per minute, using quarter notes).



STEP 1 Press the [TEMPO] key.

The [VALUE] display shows the current tempo for about 2 seconds.



STEP 2 While holding the [TEMPO] key down, use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to change the tempo.



STEP 3 When the tempo has been set to the desired value, release the [TEMPO] key.

The [VALUE] display shows the current tempo for about 2 seconds.

STEP 4 To input the tempo for manual play, tap the [TEMPO] key twice in the desired interval (tap tempo input).

While a pattern is paused or playing, the [TEMPO] key can be tapped twice to input a quarter note interval. When creating a pattern, this makes it easy to set the desired tempo.



NOTE The tempo set in pattern mode applies to all patterns. It cannot be changed for an individual pattern.

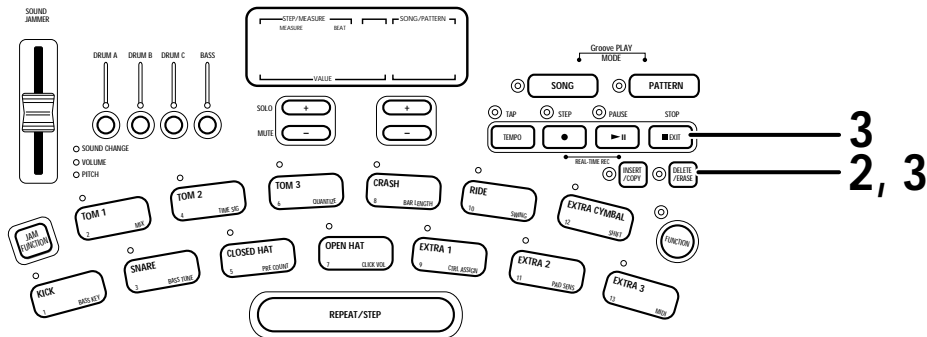
Playing the Patterns (Pattern Mode)

Pattern Recording (Real-Time Recording)

The RhythmTrak ...234 has 99 user pattern slots which can be filled with your own patterns. Creating and recording a pattern is possible in two ways: by actually playing the pattern on the pads (real-time recording), or by entering each sound individually (step recording). The procedure for real-time recording of a drum track and bass track is described below.

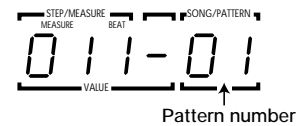
Deleting an unnecessary pattern

As shipped from the factory, the user patterns 01 - 99 of the RhythmTrak ...234 contain the same patterns as the preset patterns P01 - P99. Therefore you must first delete a pattern if you wish to write your own pattern to a user pattern slot. This is done as follows.



STEP 1 In pattern mode, select the user pattern (01 - 99) you want to erase.

After erasing a pattern, the unit remembers the drum kit and bass program type and other values, until the pattern is changed. Therefore we recommend that you choose a pattern whose image resembles the new one you want to create.



NOTE The preset patterns (P01 - P99) cannot be erased.

STEP 2 Press the [DELETE/ERASE] key.

The [DELETE/ERASE] key LED and the pattern number are flashing, and the indication "dEL?" appears on the [VALUE] display.

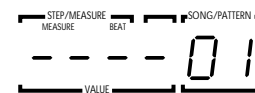
If you wish to delete all patterns, see page 47.



STEP 3 When wishing to go ahead with the delete process, press the [DELETE/ERASE] key once more. Otherwise press the [STOP] key.

When the delete process is completed, the unit returns to the pattern mode with the empty user pattern selected. At this time, the [VALUE] display shows "----".

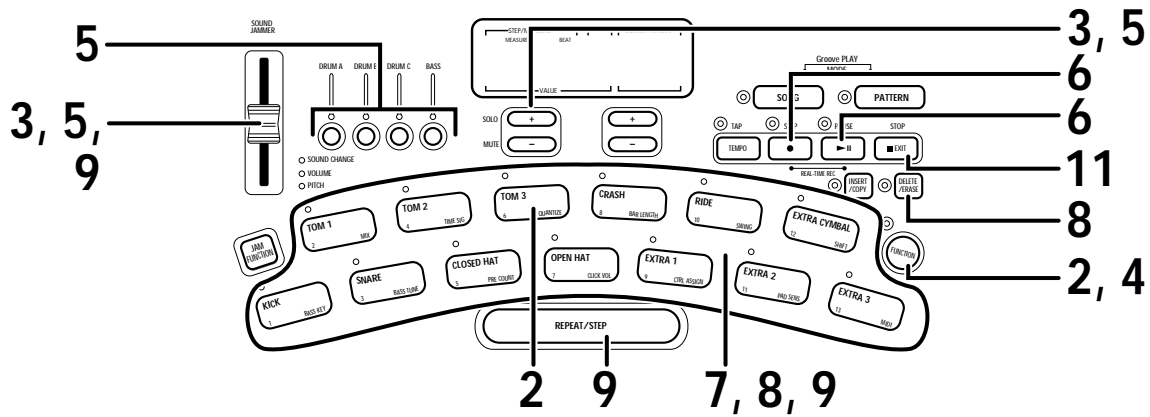
If the delete process was canceled, the unit returns to the pattern mode with the original user pattern selected.



NOTE If you erase a user pattern that you have created yourself, you will not be able to restore it. Make sure that you really want to erase the pattern before carrying out step 2. When wishing to return all user patterns to the factory default condition, please refer to page 52.

Real-time recording of a drum track

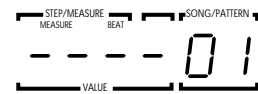
Real-time recording refers to the process of playing the pads while listening to a metronome sound and recording what you play. First, let's record drum tracks in real time.



STEP 1 In pattern mode, select an empty user pattern (01 - 99).

When a pattern that contains nothing is selected, the [VALUE] display shows only "----".

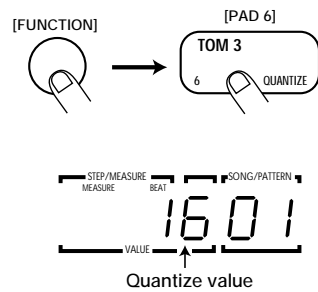
NOTE You cannot record over a preset pattern.



STEP 2 Press the [FUNCTION] key and then pad 6 (QUANTIZE).

The [VALUE] display shows the current quantize setting. Quantization refers to the degree of detail with which notes are recorded. By setting the quantize value to the shortest note that you want to use for the pattern, recording can be carried out while automatically maintaining precise timing. You can also turn the quantize function off, to retain the human touch that is characterized by slightly irregular timing.

HINT The [FUNCTION] key is used to make various settings for the RhythmTrak 234. For details, please refer to page 41.



STEP 3 Use the [VALUE UP/DOWN] key or the [SOUND JAMMER] slider to set the quantize value (shortest note to be recorded).

4 ····· Quarter note	16 ····· Sixteenth note	48 ··· Thirty-second triplet note
8 ····· Eighth note	24 ····· Sixteenth triplet note	Hi ····· Quantize function off
12 ····· Eighth triplet note	32 ····· Thirty-second note	

STEP 4 Press the [FUNCTION] key once more.

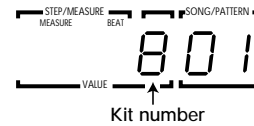
The new quantize value is set and the unit returns to the pattern mode.

HINT After recording is completed, it is also possible to change the quantize value and record again on the same track. For example, after recording bass drum and snare drum using quarter notes, you may want to record a hi-hat sequence with sixteenth notes.

Pattern Recording (Real-Time Recording)

STEP 5 While holding the [KIT/TRACK SELECT] key for the desired track down, use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to select the kit for the selected track.

For recording a pattern, the [KIT/TRACK SELECT] keys are used to select the track. In this example, select the [DRUM A] key. While the [DRUM A] key is held down, the currently selected kit number is shown on the [VALUE] display.

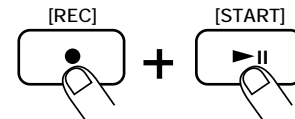


HINT In a user pattern, the kit/program is stored for each track. If the kit/program was changed, the last selected kit/program will be stored.

STEP 6 While holding the [REC] key down, press the [START] key.

The [REC] key LED and [START] key LED light up and the [TEMPO] key LED flashes. The metronome sound starts.

HINT If not specified otherwise, an empty pattern is set to a beat of 4/4 and a length of 2 measures. These settings can be changed, as described on page 44–45.



STEP 7 Tap the pads in accordance with the metronome sound.

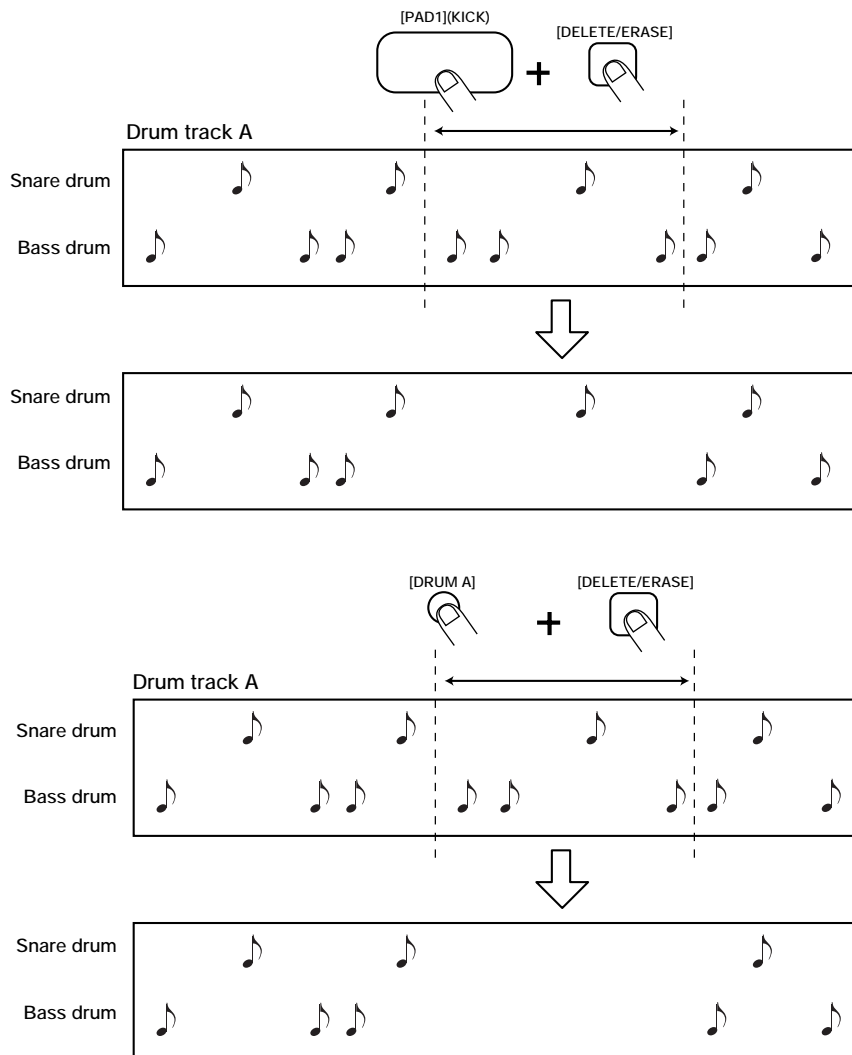
The sound of the respective pad is heard, and it is recorded for the duration set with the quantize value. You can verify the current position in the pattern by checking the [VALUE] display. When the end of the pattern is reached, the recording loops back to the beginning and continues, allowing you to add to the recording as often as desired.

HINT When the [REC] key is pressed during real-time recording, the [REC] key LED starts to flash and pattern recording is suspended. In this condition, tapping the pads will produce sound, but it is not recorded. This is useful to check phrasing and sound before actually recording. To resume recording, press the [REC] key once more.

STEP 8

To erase the sound from a specific pad, push the pad while holding the [DELETE/ERASE] key down.

While the key is held down, the sound from that pad is erased from the pattern. To erase the entire track, push the respective [KIT/TRACK SELECT] key while holding the [DELETE/ERASE] key down. While both keys are held down, all sounds in that track are erased.

**STEP 9**

Tap the pads while using the [REPEAT/STEP] key or the [SOUND JAMMER] slider.

By holding the [REPEAT/STEP] key down while hitting a pad, an ongoing sound can be created. Moving the [SOUND JAMMER] slider while hitting a pad changes the pitch, volume, or tone (please refer to page 47). In this case, the change is effective only while the pad is being pushed. If the [SOUND JAMMER] slider is moved while the pad is released, the change will not be recorded.

STEP 10 Record drum tracks B and C using the same procedure.

STEP 11 When recording is completed, press the [STOP] key.

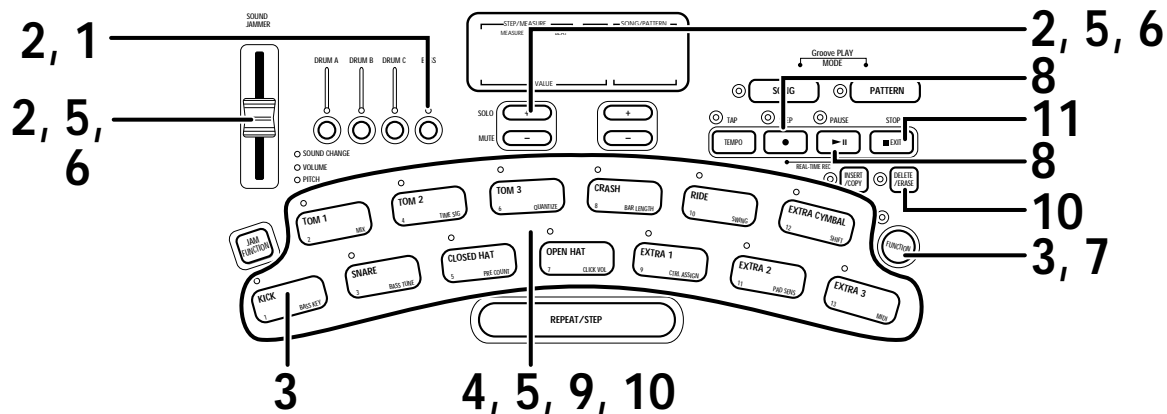
Operation of the RhythmTrak ...234 stops.



- *If a MIDI clock signal is being received, real-time recording is not possible. For details, please refer to page 47.*
- *The sound from external MIDI components cannot be recorded.*

Real-time recording of a bass track

Next, let's add a bass track to the drum track pattern recorded in the previous section.



STEP 1 Press the [BASS] key of the [KIT/TRACK SELECT] keys and hold the key down.

The bass track is selected for recording.

[BASS]



STEP 2 While holding the [BASS] key down, use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to select a bass program. If necessary, change the quantize and tempo settings.



The bass program can also be changed during recording.

STEP 3 Press the [FUNCTION] key and then pad 1 (BASS KEY).

To record a bass track, you must first assign the pitches from the bass pattern to the pads. Pressing the [FUNCTION] key followed by pad 1 (BASS KEY) enables pitch setting for each pad. The [FUNCTION] key LED lights up and the [VALUE] display shows the pitch name assigned to pad 1.



Pitch name assigned to pad 1



- Also if a pattern was erased, the pitches assigned to the pads in the previous pattern are retained. When wishing to use these as is, steps 3 - 7 can be omitted.
- In the factory default condition, all user patterns have E2 (the lowest note of a 4-string bass) assigned to pad 1.

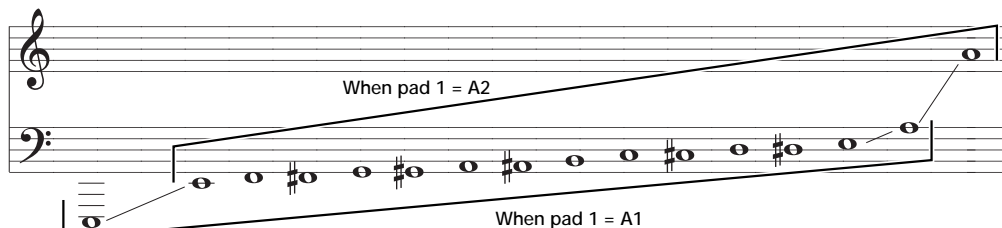
STEP 4 Among pads 2 - 13, press the one whose pitch you want to change.

While the pad is being pressed, the assigned pitch name (E1 - A4) is shown on the VALUE indicator.



Pitch name assigned to currently pressed pad

NOTE When pad 2 - 13 is released, the pitch name assigned to pad 1 is shown again. This pitch is used as reference when shifting the entire pitch of all pads up or down in semitone steps. Take care not to inadvertently change this pitch.



E 1 . . . E 2 F 2 F#2 G 2 G#2 A 2 A#2 B 2 C 3 C#3 D 3 D#3 E 3 . . . A 3 . . . A 4
E 1 . . . E 2 F 2 F#2 G 2 G#2 A 2 A#2 B 2 C 3 C#3 D 3 D#3 E 3 . . . A 3 . . . A 4

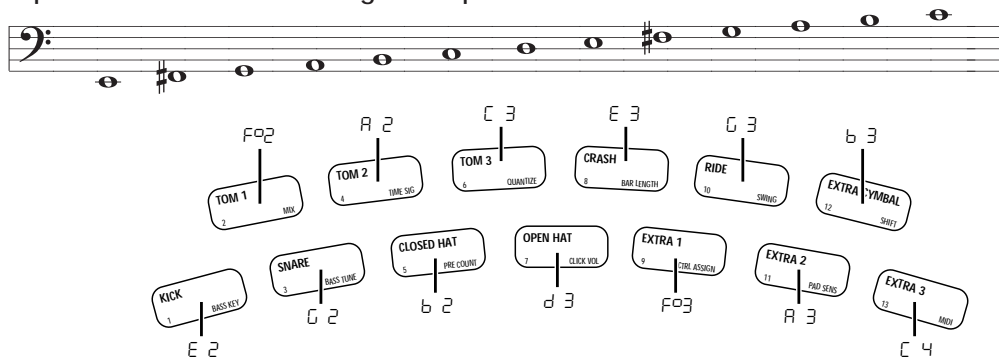
STEP 5 While holding the pad down, use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to change the pitch assigned to the pad.

The illustration below shows an example for assigning an E minor and E major scale to the pads.

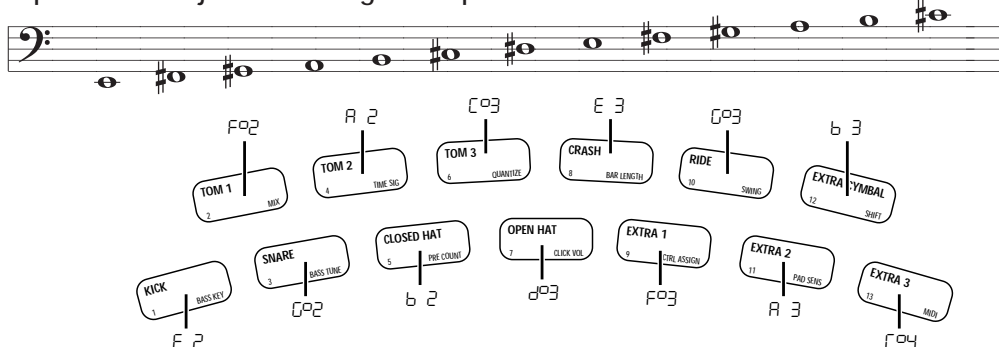
There are many possibilities for assigning pitch names. We recommend that you try out various approaches to find the one that is best suited to the bass pattern that you want to record.



Example with E minor scale assigned to pads



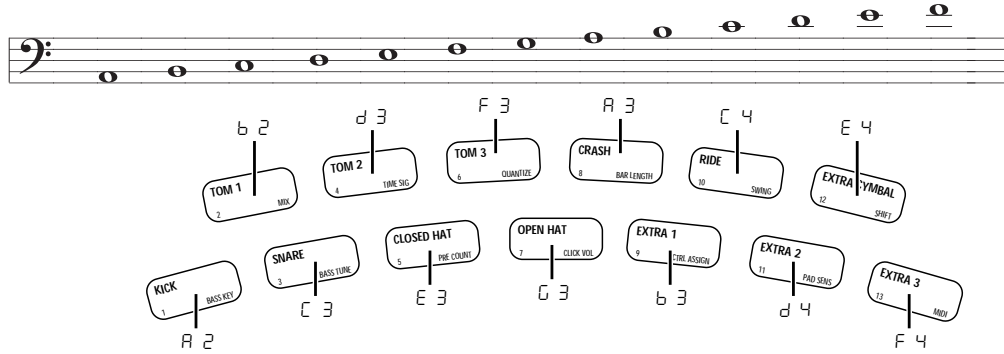
Example with E major scale assigned to pads



STEP 6 To shift the pitch of all pads, operate the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider while no pad is pushed.

When the pitch assigned to pad 1 is changed, the pitch of pads 2 - 13 also changes accordingly. For example, if the E minor scale is assigned and you shift pad 1 from "E 2" to "A 2", the A minor scale will be assigned to the pads.

Example with A minor scale assigned to pads



STEP 7 When the pitch has been assigned as desired, press the [FUNCTION] key once more.

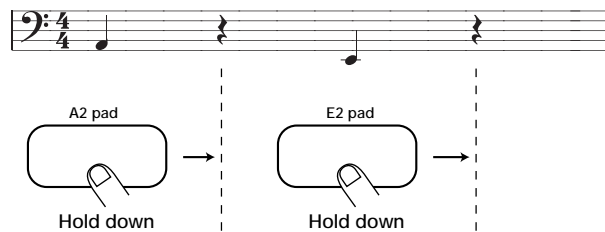
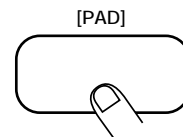
The [FUNCTION] key LED goes out.

STEP 8 While holding the [REC] key down, press the [START] key.

The [REC] key LED and [START] key LED light up and the [TEMPO] key LED flashes. The already recorded drum tracks are played back.

STEP 9 Tap the pads in accordance with the metronome sound.

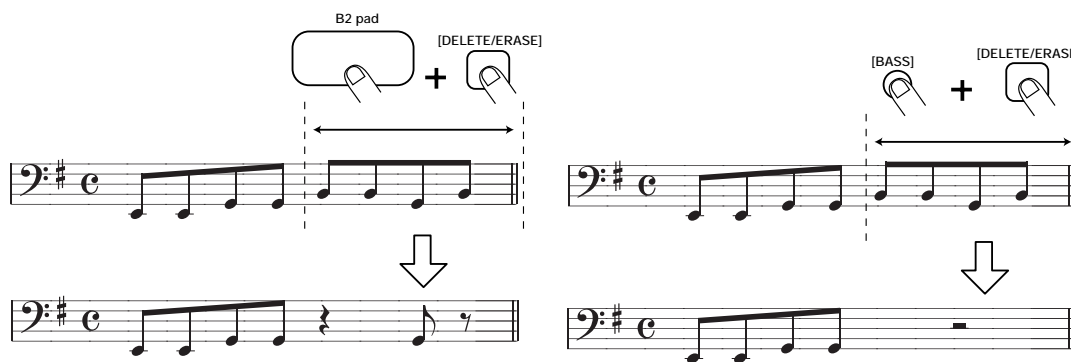
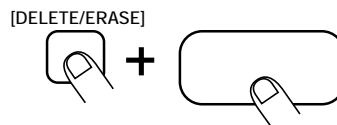
As opposed to drum track recording, the bass track records for the length of which you press a pad. For example, to record the following sequence, hold the pad to which A2 has been assigned and the pad to which E2 has been assigned down for the length of a quarter note each.



HINT When the [REC] key is pressed during real-time recording, the [REC] key LED starts to flash and pattern recording is suspended. In this condition, tapping the pads will produce sound, but it is not recorded. This is useful to check phrasing and sound before actually recording.

STEP 10 To erase the sound from a specific pad, push the pad while holding the [DELETE/ERASE] key down.

While the key is held down, the sound from that pad is erased from the pattern. To erase the entire bass track, push the [BASS] key of the [KIT/TRACK SELECT] keys while holding the [DELETE/ERASE] key down. While both keys are held down, the bass track is erased.



STEP 11 When recording is completed, press the [STOP] key.

Pattern Recording (Step Recording)

This section describes step recording, which is another recording type that is possible with the RhythmTrak ...234.

What is step recording?

Step recording allows you to enter and record each sound separately, step by step, while the RhythmTrak ...234 is in the stop condition. Even without mastering how to play the pads in real time, you can easily create complex drum and bass patterns. And you don't need to stop there, because you can even create patterns that would be impossible to play in real time.

For step recording of a drum track, you select the shortest note that is to be used as unit, and you create the pattern by pressing a pad (note) or the [REPEAT/STEP] key (rest) for each step.

For example, to create the following bass drum pattern with step recording, select an eighth note as smallest unit and make the entry as follows:

The diagram shows a musical staff in 4/4 time with a bass clef, labeled "bass drum". The staff contains a pattern of notes: a dotted quarter note, an eighth note, a quarter note, and a quarter rest. Below the staff, a sequence of eight pad presses is shown. The first pad is labeled "[KICK]" and is held down for the duration of the dotted quarter note. The second and third pads are labeled "[STEP]" and are held down for the duration of the eighth note. The fourth pad is labeled "[KICK]" and is held down for the duration of the quarter note. The fifth pad is labeled "[KICK]" and is held down for the duration of the quarter note. The sixth, seventh, and eighth pads are labeled "[STEP]" and are held down for the duration of the quarter rest.

When the end of a pattern is reached, it loops automatically back to the beginning, allowing you to add for example snare and hi-hat separately, to complete the pattern. By pushing 2 pads at the same time, you can enter 2 sounds in the same position.

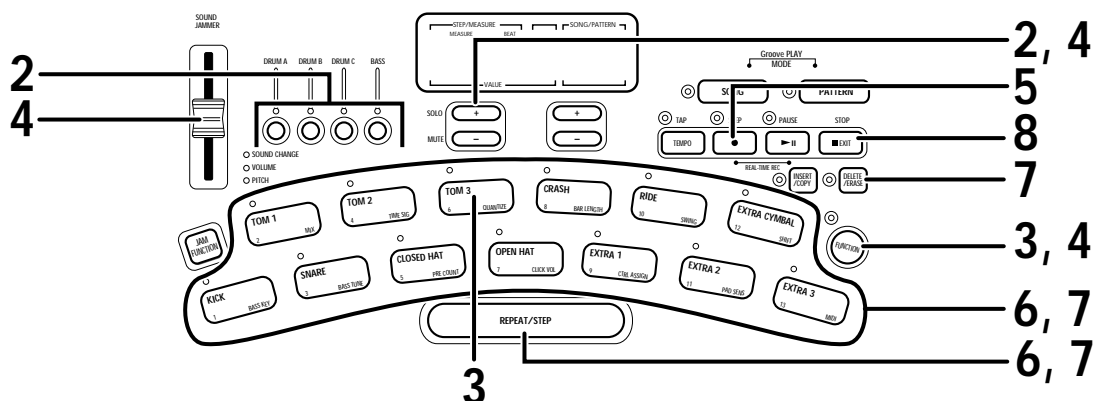
For step recording of a bass track, the procedure is slightly different, because unlike for the drum track, the pitch and duration of the sound must be specified. The fact that tapping a pad gives the shortest-unit note and pushing the [REPEAT/STEP] key gives the shortest-unit rest is the same. The pitch is determined by which pad you push. The length is determined by holding down the pad down and pressing the [REPEAT/STEP] key multiple times. Each push of the [REPEAT/STEP] key increases the duration of the sound by the shortest unit note.

For example, to enter the following bass phrase, select an eighth note as smallest unit and make the entry as follows:

The diagram shows a musical staff in 4/4 time with a bass clef. The staff contains a bass phrase: a dotted quarter note, an eighth note, a quarter note, and a quarter rest. Below the staff, a sequence of pad presses is shown. The first pad is labeled "[A2]" and is held down for the duration of the dotted quarter note. The second pad is labeled "[A2]" and is held down for the duration of the eighth note. The third pad is labeled "[E2]" and is held down for the duration of the quarter note. The fourth pad is labeled "[E2]" and is held down for the duration of the quarter note. The fifth, sixth, seventh, and eighth pads are labeled "[STEP]" and are held down for the duration of the quarter rest.

Step recording of a drum track

This section describes how to record drum tracks A - C using step recording.



STEP 1 In pattern mode, select an empty user pattern.

HINT When wishing to use a pattern where a track has already been recorded, the pattern must be erased first. Please refer to page 18.

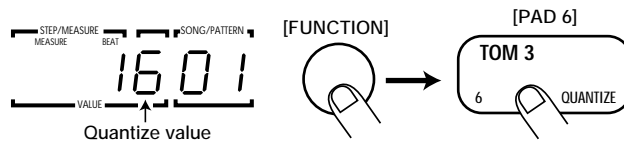
STEP 2 Use the [KIT/TRACK SELECT] keys and [VALUE UP/DOWN] keys to select the track and kit for recording.

The selection method is the same as for real-time recording. In this example, press the [DRUM A] key of the [KIT/TRACK SELECT] keys.

HINT Selecting drum track B or C allows recording in the same way.

STEP 3 Press the [FUNCTION] key and then pad 6 (QUANTIZE).

The current quantize setting appears on the [VALUE] display. The minimum unit (shortest note) for step recording is determined by this setting.



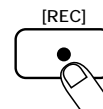
STEP 4 Use the [VALUE UP/DOWN] key or the [SOUND JAMMER] slider to set the quantize value, and then press the [FUNCTION] key once more.

4.....Quarter note	16.....Sixteenth note	48....Thirty-second triplet note
8.....Eighth note	24.....Sixteenth triplet note	Hi...1 tick (1/96 of quarter note)
12.....Eighth triplet note	32.....Thirty-second note	

HINT For details on the [FUNCTION] key, please refer to page 41.

STEP 5 Press the [REC] key.

The [REC] key LED and [START] key LED light up, indicating that the RhythmTrak ...234 is ready for recording.



STEP 6 To enter a note, press the pad corresponding to the desired sound. To enter a rest, press the [REPEAT/STEP] key.

For example, tapping the [KICK] pad will enter a bass drum note (the [KICK] pad LED flashes briefly). The current position of the pattern then advances by one unit. The tapping intensity will of course also be recorded.

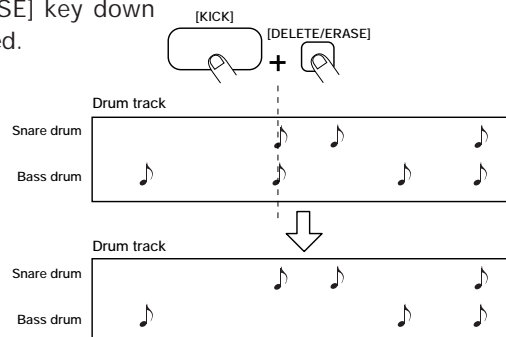
When the end of the pattern is reached, the recording loops back to the beginning and continues, allowing you to add to the recording as often as desired.



- The [VALUE] display shows the current position in the pattern (measure/beat).
- By moving the [SOUND JAMMER] slider while tapping the pad, you can change the pitch, volume, or tone.

STEP 7 To erase a sound, use the [REPEAT/STEP] key to move to the desired position. Then press the corresponding pad while holding down the [DELETE/ERASE] key.

As you move the position with the [REPEAT/STEP] key, the LED of a pad that has been input for the current position lights up. Pressing the pad while holding the [DELETE/ERASE] key down causes the LED to go out and the sound will be erased.



During step recording, erasing the entire track is not possible.

STEP 8 When recording is completed, press the [STOP] key.

The [REC] key LED goes out, and step recording ends.

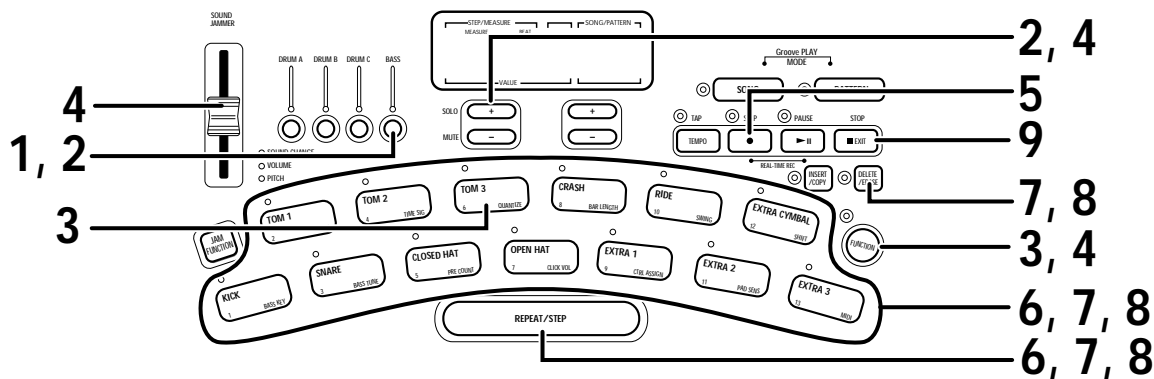
STEP 9 To record drum track B or C, repeat steps 3 - 8.



If step 4 is carried out without pressing the [FUNCTION] key, the quantize value of the pattern already recorded in that track will also be changed. For example, if step recording was carried out with sixteenth notes and the quantize value was then changed to quarter notes, the pattern already recorded will also be changed to quarter notes if the [REC] key is pushed without pressing the [FUNCTION] key.

Step recording of a bass track

Now let's add a bass track to the drum tracks recorded as described in the previous section. Because pitch and duration must be specified for the bass track, the procedure is slightly different from step recording of the drum track.



STEP 1 Press the [BASS] key of the [KIT/TRACK SELECT] keys.

The bass track is selected.

STEP 2 Use the [BASS] key and the [VALUE UP/DOWN] keys to select a kit.

STEP 3 Press the [FUNCTION] key and then pad 6 (QUANTIZE).

STEP 4 Use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to set the quantize value (smallest unit for recording). Then press the [FUNCTION] key again.

For details on the quantize value, please refer to page 28.

STEP 5 Press the [REC] key.

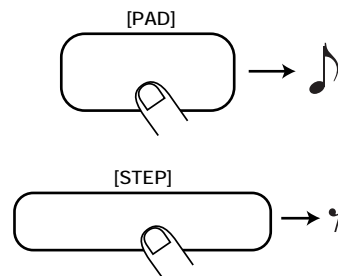
The [REC] key LED and [START] key LED light up, indicating that the RhythmTrak ...234 is ready for recording.

NOTE If step 4 is carried out without pressing the [FUNCTION] key, the quantize value of the pattern already recorded in that track will also be changed. For example, if step recording of a bass track was carried out with sixteenth notes and the quantize value was then changed to quarter notes, the pattern already recorded will also be changed to quarter notes if the [REC] key is pushed without pressing the [FUNCTION] key.

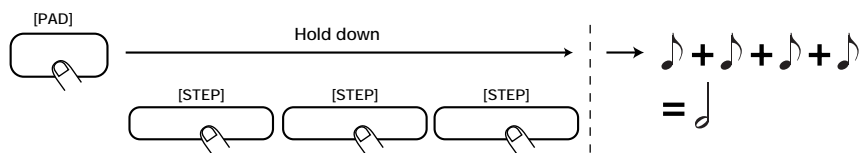
STEP 6 Press the desired pad and/or the [REPEAT/STEP] key to enter the desired note or rest with the desired duration.

For step recording of the bass track, you perform one of three actions:

- Enter the minimum unit note: Briefly tap the pad and release it. A note of the selected minimum duration and the pitch assigned to that pad is entered, and the position proceeds to the next step.
- Enter the minimum unit rest: Briefly tap the [REPEAT/STEP] key and release it. A rest of the selected minimum duration is entered, and the position proceeds to the next step.



- Enter a note longer than the minimum unit: Hold the pad down and repeatedly press the [REPEAT/STEP] key. With each push of the [REPEAT/STEP] key, the immediately preceding note is extended by one unit.

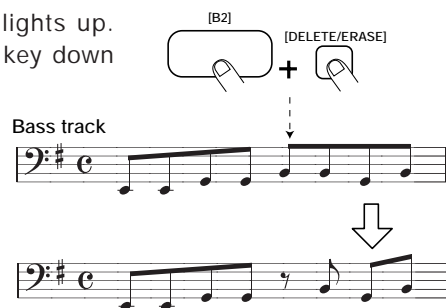


When you press a pad, its LED lights up, indicating that the note has been input. The [VALUE] display shows the current position in the pattern (measure/beat).

NOTE A note longer than the entire pattern cannot be input. When the input exceeds the pattern length, the note will only be as long as the pattern.

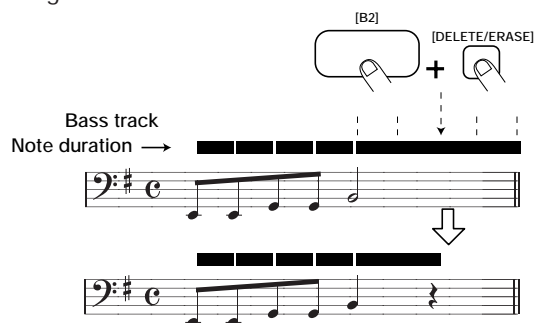
STEP 7 To erase a note, use the [REPEAT/STEP] key to move to the desired position. Then press the corresponding pad while holding down the [DELETE/ERASE] key.

As you move the position with the [REPEAT/STEP] key, the LED of a pad that has been input for the current position lights up. Pressing the pad while holding the [DELETE/ERASE] key down causes the LED to go out and the note will be erased.



STEP 8 To decrease the length of a note, use the [REPEAT/STEP] key to move to the position where the note should stop.

Then press the corresponding pad while holding down the [DELETE/ERASE] key.



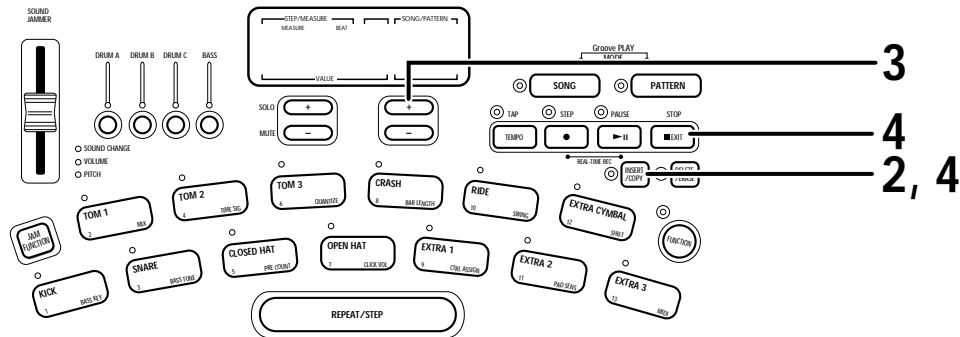
NOTE During step recording, erasing the entire track is not possible.

STEP 9 When recording is completed, press the [STOP] key.

The [REC] key LED goes out, and step recording ends.

Pattern Copy

The current pattern (preset pattern or user pattern) can be copied to another user pattern. This is useful for example when wishing to change only a part of pattern, such as adding percussion or changing only the bass track phrasing. The copy source can be either a preset pattern or a user pattern, but because preset patterns are read-only, the copy destination can only be a user pattern.



STEP 1 In pattern mode, select the pattern to be used as the copy source.

STEP 2 Press the [INSERT/COPY] key.

The [INSERT/COPY] key LED flashes and the current pattern is selected as the copy source.



Copy source pattern number

STEP 3 Use the [UP/DOWN] keys or the [SOUND JAMMER] slider to select a user pattern (01 - 99) as the copy target.



When the copy is executed, the existing contents of the user pattern selected as the copy target will be erased. Make sure that the pattern you have selected is one that you don't mind erasing.



Copy target pattern number

STEP 4 To execute the copy process, press the [INSERT/COPY] key. When wishing to cancel the process, press the [STOP] key.

When copying is completed, the unit returns to the pattern mode with the copy target pattern being selected.

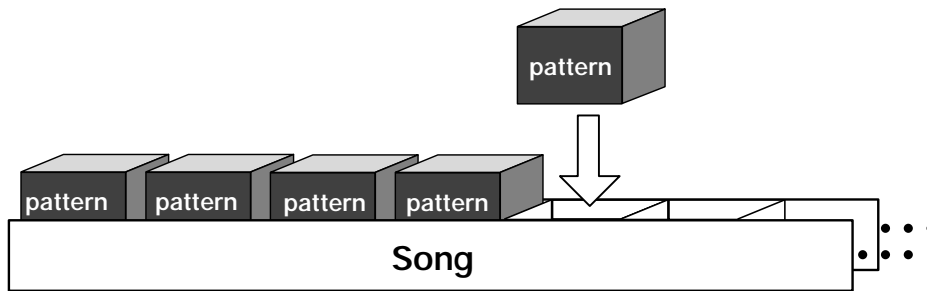
If copying was canceled, the unit returns to the pattern mode with the copy source pattern being selected.

Creating Songs (Song Mode)

This section describes how to line up user patterns in a desired order to create the backing for an entire song. This mode of operation is called the song mode.

What is a song?

A song is a sequence of user patterns (preset patterns cannot be used). A song consists of multiple slots (called "steps") each of which contains one pattern. The maximum length of a song is 255 steps. The maximum number of songs that can be stored in the RhythmTrak 234 is 99. (The actual number of available steps and songs will depend on the number of distinct sounds used for user patterns and other songs.) In song mode, you can change also the tempo and volume during a song.



NOTE *The number of steps is not equal to the number of measures. The length of each step depends on the pattern that is contained in the step.*

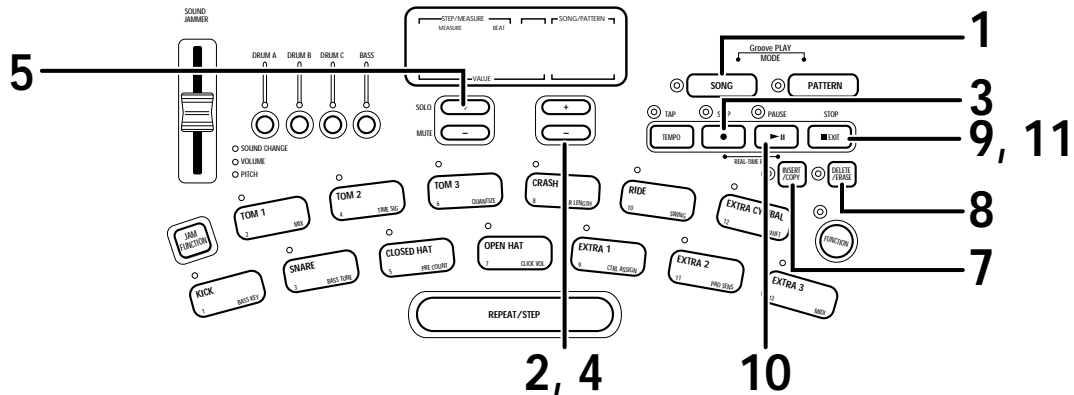
Besides the pattern number, each song step can contain the following settings:

- **Tempo change:** In song mode, the tempo is stored individually for each song. (The tempo is set with the [TEMPO] key, as described on page 17.) Using this tempo as reference, the tempo for each step can be varied in the range from -30 to 0 (no change) to +30 BPM (beats per minute = number of quarter notes per minute).
- **Volume:** The volume of the pattern as contained in the step can be set in the range from 0 (no change) to -30.
- **Transpose:** The bass track can be transposed in semitone steps in the range from -6 to 0 (no change) to +6.

Step 0	Step 1	Step 2 Step 254
<ul style="list-style-type: none">• Pattern number• Tempo information• Volume information• Transpose information	<ul style="list-style-type: none">• Pattern number• Tempo information• Volume information• Transpose information	<ul style="list-style-type: none">• Pattern number• Tempo information• Volume information• Transpose information	

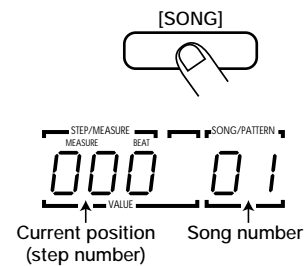
Recording and playing a song

Let's collect a number of patterns into a song.



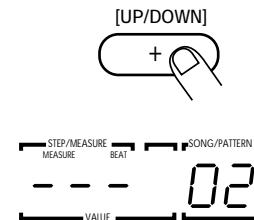
STEP 1 Press the [SONG] key.

The RhythmTrak ...234 is switched to song mode. The [SONG/PATTERN] display shows the currently selected song number, and the [VALUE] display shows the current step number.



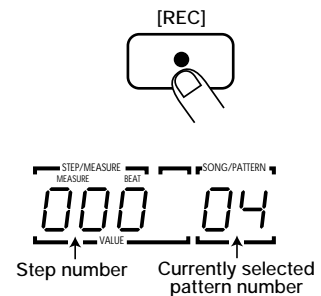
STEP 2 Use the [UP/DOWN] keys to select an empty song number.

In song mode, the [UP/DOWN] keys serve to select a song. A song number can also be selected by holding the [SONG] key down while operating the [SOUND JAMMER] slider. If an empty song was selected, the [VALUE] display shows "----".



STEP 3 Press the [REC] key.

The [REC] key LED lights up, indicating that the RhythmTrak ...234 is ready for song recording. The [VALUE] display shows the step number, and the [SONG/PATTERN] display shows the pattern number selected for that step.



STEP 4 Use the [UP/DOWN] keys to select the user pattern number to be assigned to the first step.

During song recording, the [UP/DOWN] keys select the user pattern number to be assigned to the step. (Preset patterns cannot be selected.) The selected pattern number is shown on the [SONG/PATTERN] display.



When wishing to hear the currently selected pattern, you can use the [START] and [STOP] keys to play it. While a pattern is playing, you can also switch the step number back and forth to check the patterns in other steps.



STEP 5 To proceed to the next step, press the [+] key of the [VALUE UP/DOWN] keys.

The [VALUE] display shows the second step, and the [SONG/PATTERN] display shows "EE" which indicates the end of the song. In this condition, you can select the pattern for the second step.

Pressing the [STEP] key while recording a song will take you to the next step of the song, in the same way as when you press the [VALUE UP] key.



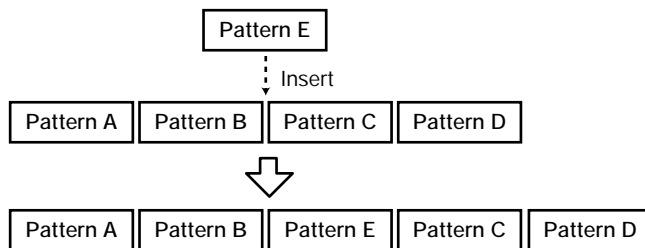
STEP 6 Repeat steps 4 - 5 to create the entire song.



One song can have up to 255 steps (patterns). To change a pattern selection, you can use the [-] key of the [VALUE UP/DOWN] keys to return to the previous step.

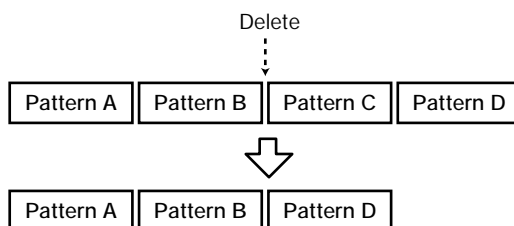
STEP 7 To insert a pattern before the currently selected step, press the [INSERT/COPY] key and perform step 4.

A new step is inserted before the currently selected step, and subsequent steps are shifted one count up.



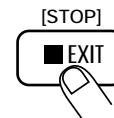
STEP 8 To delete the currently selected step, press the [DELETE/ERASE] key.

The currently selected step is deleted, and subsequent steps are shifted one count down.



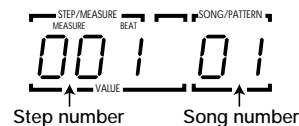
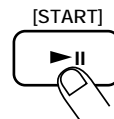
STEP 9 When one song is completed, press the [STOP] key.

The [REC] key LED goes out, and song recording stops. The song position returns to step 1.

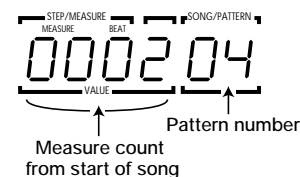


STEP 10 To listen to the song, press the [START] key.

The [START] key LED lights up and the song is played back. The [TEMPO] key LED flashes according to the tempo of the song. During playback, the [VALUE] display shows the current step number, and the [SONG/PATTERN] display shows the song number.



Pressing the [PATTERN] key during playback causes the [VALUE] display to show the number of measures since the start of the song.



- By performing step 2 during playback, you can switch to the next song without stopping play.
- Pressing the [VALUE UP] key during pattern playback turns off the sound of tracks other than the currently selected track (whose [KIT/TRACK SELECT] LED is lit).
- Pressing the [VALUE DOWN] key turns off the sound of the currently selected track.



When you select an empty pattern that you have already deleted per the procedure described on page 18, the BASS KEY, MIX, kit number, and bass program will use the settings that were obtained before you deleted the pattern. TIME SIG will be set to "4" and BAR LENGTH will be set to "2".

If you play back a song that includes an empty pattern step, the playback will stop at the empty pattern step.

If a song includes a rest, not an empty pattern step, the song will continue playing after the rest pattern.

You can create a rest pattern by pressing the [REC] key in an empty pattern. A rest pattern stores the settings of the track BASS key (only for the bass track), MIX, TIME SIG, BAR LENGTH, and kit number/bass program when you press the [REC] key.

STEP 11 Press the [STOP] key when wishing to terminate playback.

The LED goes out and the song returns to the start position. By pressing the [START] key again, you can start playback of the song again from the beginning.



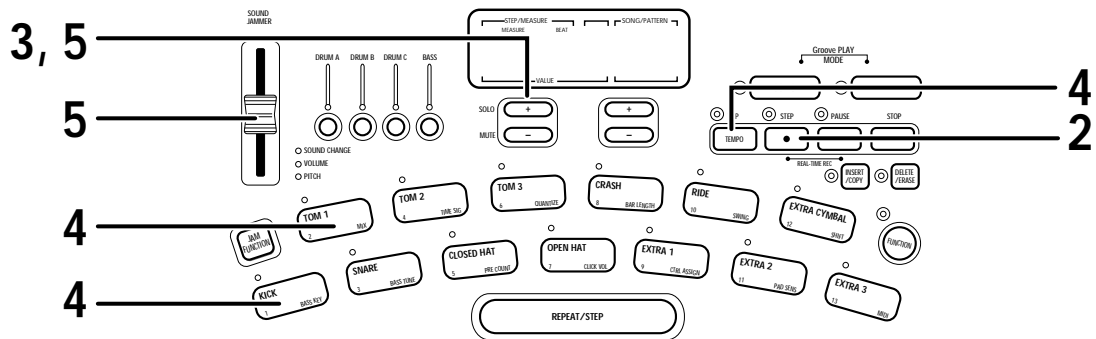
Pressing the [START] key instead of the [STOP] key causes the PAUSE LED to flash, and playback is paused. To resume playback from the same point, press the [START] key once more.



Also during playback of a song, you can use the pads for manual play. However, modifications made with the [SOUND JAMMER] slider have no effect on the playback sound of the song.

Editing a song

This section describes how you can alter parameters such as tempo or volume for a song that has already been recorded.



STEP 1 In song mode, select the song to which you want to make alterations.

STEP 2 Press the [REC] key.

The [REC] key LED lights up, and song editing becomes possible.

STEP 3 Use the [VALUE UP/DOWN] keys to select the step where you want to make an alteration.

The [VALUE] display shows the step number and the [SONG/PATTERN] display shows the pattern number.



STEP 4 Choose the type of alteration by pressing one of the following keys:

- [TEMPO] key: to change the tempo of the pattern
- Pad 2 (MIX): To set the pattern volume
- Pad 1 (BASS KEY): To transpose the bass track

The current setting of the selected parameter is shown on the [VALUE] display.



STEP 5 While holding down the pad whose parameter you want to change, use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to set the value.

The adjustment range for the various parameters is as follows.

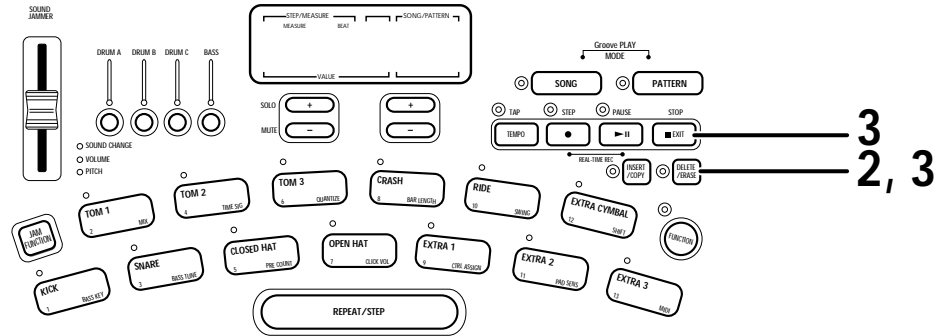
- Tempo change: -30 to 0 to 30 BPM
- Volume: 0 to -30
- Transpose: -6 to 0 to 6 (in semitones)



STEP 6 Repeat steps 3 - 5 until all desired parameters are set.

Deleting a song

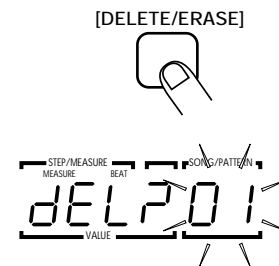
When you wish to delete a song, for example to make room for new recordings, proceed as follows.



STEP 1 In song mode, select the song you want to delete.

STEP 2 Press the [DELETE/ERASE] key.

The [DELETE/ERASE] key LED and the song number flash, and the [VALUE] display shows "dEL?"



STEP 3 To delete the song, press the [DELETE/ERASE] key. To cancel the process, press the [STOP] key.

When deleting is carried out, the unit returns to the song mode with an empty song selected.

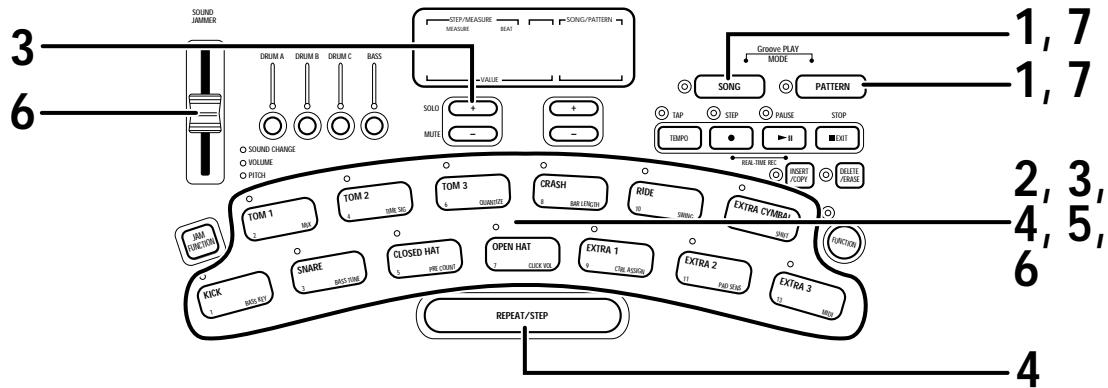
When deleting is canceled, the unit returns to the song mode with the original song selected.



Once deleted, a song cannot be restored. Proceed with care to prevent inadvertently deleting a song.

Using Pads to Play Patterns (Groove Play)

This section describes the groove play mode. In this mode, the 13 pads are used to play patterns assigned to them. This allows quick switching between patterns during a performance. Up to 4 patterns can be played simultaneously, letting you for example play two patterns with a different beat, or the same pattern twice, shifted by 1 beat, to create a complex rhythm.

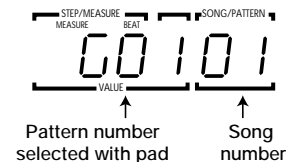


STEP 1 Press the [SONG] key and the [PATTERN] together.

The RhythmTrak ...234 switches to groove play mode, and the [SONG] key LED and [PATTERN] key LED light up.

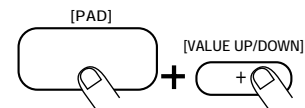
STEP 2 Try out the sound by pressing any pad.

In the factory default condition, the RhythmTrak ...234 has 13 patterns specially designed for groove play assigned to pads 1 - 13. If a pad is held down, the assigned pattern plays repeatedly. The intensity with which the pad is hit controls the overall pattern volume. The pattern number is shown on the [VALUE] display.



STEP 3 To change the pattern assigned to a pad, hold the pad down and use the [VALUE UP/DOWN] keys to select the new pattern.

You can select a groove pattern (G01 - G99) or user pattern (01 - 99). If you select "00", the drum kit and base programs assigned to each pad will sound.

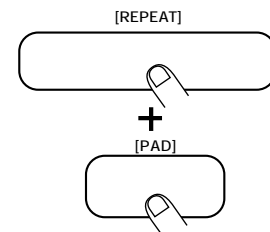


The patterns assigned to the pads are retained also while the unit is turned off.

STEP 4 To repeat a pattern even when the pad is released, hit the pad while holding the [REPEAT/STEP] key down.

The pattern will then be looped even when you release the pad. To stop the loop, hit the pad once more. The unit returns to normal groove play.

To quickly change the pattern assigned to the pad, move the [SOUND JAMMER] slider while pressing and holding down the [REC] key and the corresponding pad.



STEP 5 To play several patterns simultaneously, push several pads together.

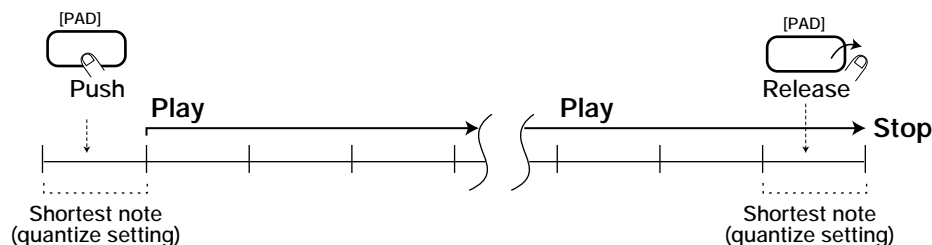
Up to 4 patterns can be played simultaneously, using the same tempo. Slightly shifting the timing when you hit the pads is also possible.



If 5 or more pads are pushed, only the patterns of the last 4 pads will be played.

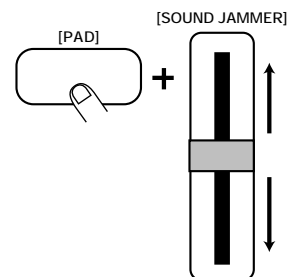


- In groove mode, the [START] and [STOP] key can be used to start and stop the currently selected song.
- During groove playback, pad operation (press/release) is detected using the quantize value (shortest note) as the detection interval. This is aimed at matching the timing to other grooves and songs played at the same time. Playing with a fast timing is therefore facilitated by choosing a low quantize value. To play with small timing shifts, choose a higher quantize setting.



STEP 6 To continuously change the pitch, volume, or tone of the pattern, you can use the [SOUND JAMMER] slider.

The [SOUND JAMMER] slider allows sound modification also in groove play mode. The slider affects all tracks selected with the [KIT/TRACK SELECT] keys.



Use the [JAM FUNCTION] key to select the sound parameter that you want to change with the [SOUND JAMMER] slider. For details, please refer to page 13.

STEP 7 When wishing to terminate the groove play mode, press the [SONG] key or [PATTERN] key.

The RhythmTrak ...234 returns to the song mode or pattern mode.



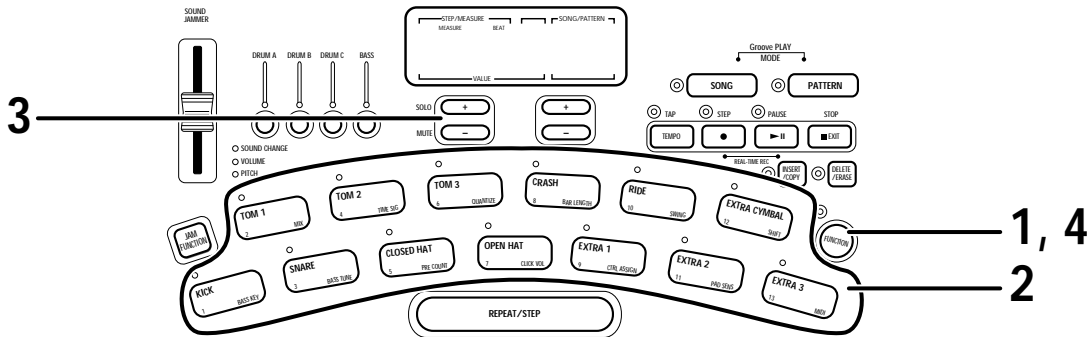
If "00" is selected as pattern number in step 3, the sounds originally assigned to the pads (depending on the currently selected kit/program) are played.

FUNCTION Key Settings

The [FUNCTION] key is used to make various settings for the RhythmTrak ...234. The 13 pads on the top panel of the RhythmTrak ...234 are also used to select setting items for the [FUNCTION] key. These items are indicated in the lower right corner of each pad. By pressing first the [FUNCTION] key and then the pad with the desired item, a setting can be made. The basic steps for using the [FUNCTION] key and the setting items are described below.

Basic [FUNCTION] key operation steps

The [FUNCTION] key is used in the same way for most setting items.



STEP 1 Press the [FUNCTION] key.

The [FUNCTION] LED flashes, indicating that you can select a setting item.



Some items can be set only in pattern mode, while the unit is in the stop condition.

[FUNCTION]



STEP 2 Press the pad with the desired item. The following items are available.

The [FUNCTION] LED flashes, indicating that you can select a setting item.

- Pad 1 (BASS KEY): Shifts the bass program pitch in semitones.
- Pad 2 (MIX): Sets the pattern/track level.
- Pad 3 (BASS TUNE): Allows tuning a bass program.
- Pad 4 (TIME SIG): Sets the beat of the pattern.
- Pad 5 (PRE COUNT): Switches pre-count on or off and sets the number of measures.
- Pad 6 (QUANTIZE): Sets the quantize value.
- Pad 7 (CLICK VOL): Sets the metronome volume.
- Pad 8 (BAR LENGTH): Sets the number of measures for the pattern.
- Pad 9 (CTRL ASSIGN): Selects the foot switch/foot pedal function.
- Pad 10 (SWING): Sets the amount of swing for playback.
- Pad 11 (PAD SENS): Adjusts the pad sensitivity.
- Pad 12 (SHIFT): Shifts the playback timing backwards or forwards.
- Pad 13 (MIDI): Sets MIDI input on/off and assigns the MIDI channel for each track.



Setting value of item assigned to pad

FUNCTION Key Settings

The [VALUE] display shows the setting of the item selected with the pad.



For some items, the sound or track that is to be set must be selected after selecting the item.

STEP 3 Change the setting with the [VALUE UP/DOWN] keys.



The [SOUND JAMMER] slider can also be used to change the setting.



STEP 4 Press the [FUNCTION] key once more.

The setting changed at step 3 is now determined, and the RhythmTrak ...234 puts the function settings to an end.

[FUNCTION] key items

The setting range of the various items controlled with the [FUNCTION] key is described below.

Shifting bass program pitch in semitones (BASS KEY)

Setting Range Pad 1 pitch: A1 - A2
 Pad 2 - 13 pitch: E1 - A4

Sets the pitch of the tones assigned to the pads for a bass program in semitones. You can either shift the pitch of the entire bass program or the pitch of pads 2 - 13 individually.

Shifting the pitch of the entire bass program

Immediately after pressing the [FUNCTION] key and then pad 1 (BASS KEY), the pitch assigned to pad 1 (A1 - A2) is shown on the [VALUE] display. Use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to set the pitch. This will cause the pitch of pads 2 - 13 to change accordingly.

Shifting the pitch of pads 2 - 13 individually

After pressing the [FUNCTION] key and then pad 1 (BASS KEY), press the desired pad of pad 2 - 13, and then use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to set the pitch (E1 - A4) for that pad. This will not affect the pitch of other pads.

E1 . . . E2 F2 F#2 G2 G#2 A2 A#2 B2 C3 C#3 D3 D#3 E3 . . . A3 . . . A4

HINT The RhythmTrak ...234 stores this setting for each pattern individually.

Setting the pattern/track level (MIX)

Setting Range: 0 - 99

Sets the volume for each track in the currently selected pattern over a range of 0 - 99. After selecting this item, use the [KIT/TRACK SELECT] keys to select the track and then use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to make the setting. This operation is performed for each track separately.

HINT The RhythmTrak ...234 stores this setting for each pattern individually.

FUNCTION Key Settings

■ Tuning a bass program (BASS TUNE)

Setting Range: 435 - 445 (Default value: 440)

Allows tuning the bass pitch with the [VALUE UP/DOWN] keys in the range of 435 Hz - 445 Hz.

■ Setting the beat of a pattern (TIME SIG)

Setting Range: 2, 3, 4

Use the [VALUE UP/DOWN] keys to set the beat for the pattern to 2 (2/4 beat), 3 (3/4 beat), or 4 (4/4 beat). Changing the beat of an already recorded pattern is also possible, but the recorded sound will change as follows. Proceed with care, especially when making the beat shorter.

■ Choosing a longer beat than the current beat

A blank space with the length of the additional beat is added to each measure.

■ Choosing a shorter beat than the current beat

The excess duration of each measure is cut off. Once the [FUNCTION] key is pressed to accept the setting, it will not be possible to restore the cut-off sections.



The RhythmTrak ...234 stores this setting for each pattern individually.

■ Setting the pre-count (PRE COUNT)

Setting Range: 0, 1, 2, PAd (Default value: 1)

The pre-count (number of metronome ticks before the start of pattern real-time recording) can be turned on and off, and the number of measures can be set with the [VALUE UP/DOWN] keys.

The settings have the following meaning.

0: Real-time recording starts immediately when the [START] key is pressed.

1: Real-time recording starts after 1 measure has been counted.

2: Real-time recording starts after 2 measures have been counted.

PAd: The unit goes into recording standby mode when the [START] key is pressed, and recording starts when any pad is pressed.

■ Setting the pattern resolution (QUANTIZE)

Setting Range: 4, 8, 12, 16, 24, 32, 48, Hi (Default value: 16)

Sets the quantize value (shortest note) for the pattern. After selecting the item, set the value with the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider.

The quantize setting affects the following four functions:

- Shortest note for real-time recording
- Shortest note for step recording
- Sound interval when [REPEAT/STEP] key is used together with pad for continuous repetition

- Pad push/release detection timing during groove play

The following 9 settings are available for the quantize value.

4Quarter note	16Sixteenth note	48Thirty-second triplet note
8Eighth note	24Sixteenth triplet note	HiQuantize function off
12Eighth triplet note	32Thirty-second note	During step recording: 1 tick (1/96 quarter note)



- Even when the quantize value is set to Hi, the [REPEAT/STEP] key interval is a thirty-second note.
- The quantize value cannot be set separately for each track.

■ Setting the metronome volume level (CLICK VOL)

Setting Range: 0 - 99 (Default value: 70)

The volume level of the metronome click sound heard during real-time recording can be adjusted with the [VALUE UP/DOWN] keys.

This setting applies to all patterns.

■ Setting the number of measures for a pattern (BAR LENGTH)

Setting Range: 1 - 99

Sets the length of the pattern in the range from 1 - 99 measures. Changing the length of an already recorded pattern is also possible, but the recorded sound will change as follows. Proceed with care, especially when making the number of measures smaller.



The RhythmTrak ...234 stores this setting for each pattern individually.

■ Making the number of measures larger

Blank measures are added to the end of the pattern.

■ Making the number of measures smaller

The excess measures at the end of the pattern are cut off. Once the [FUNCTION] key is pressed to accept the setting, it will not be possible to restore the cut-off measures.

■ Selecting the foot switch/foot pedal function (CTRL ASSIGN)

Sets the function of the foot pedal FP01 or foot switch FS01 connected to the [CTRL1 IN]/[CTRL2 IN] jacks on the rear panel.



The intensity with which you tap the pad to set up the FS01 determines the volume level of the sound produced when you press the FS01. The volume is affected by the pad sensitivity setting (PAD SENS).

■ When FP01 is connected

Press the [FUNCTION] key and then pad 9 [CTRL ASSIGN], and move the pedal to enable the setting. After the function is selected with the [JAM FUNCTION] key, the FP01 can then be used in

the same way as the [SOUND JAMMER] slider to continuously adjust pitch, volume, or tone (see page 13). The selected function is shown on the [VALUE] display as "Pit", "Vol", or "SndC". It is not possible to set the [SOUND JAMMER] control and the pedal connected to [CTRL1 IN] or [CTRL2 IN] to a different function.

■ When FS01 is connected

Press any one of pads 1 – 13, the [START] key, [STOP] key, [REPEAT] key, [TEMPO] key, [VALUE UP] key, or [VALUE DOWN] key while pushing down the FS01 to assign the function to the FS01.

- When one pad is pressed

The FS01 operates like that pad, activating the sound assigned to the pad. This can be used for example to play the bass drum manually during a performance.

- When two pads are pressed in sequence

The FS01 can be used to switch the sound of the pad selected first. When the FS01 is depressed, the sound of this pad is heard, and when the FS01 is not depressed, the sound of the other pad is played. (This can be used for example to switch between open hi-hat and closed hi-hat during a performance.) Operating the FS01 will activate the sound of the first pad, even if that pad is not pressed.

- When the [START] key is pressed

Pressing the FS01 will pause or resume playback.

- When the [STOP] key is pressed

Pressing the FS01 will stop playback or start playback from the top of the pattern or song.



When the FP01 or FS01 is not connected or when it is not pressed at the time when the [FUNCTION] key is operated, the above procedure has no effect.

■ Setting the playback swing amount (SWING)

Setting Range: 50 - 75 (Default value: 50)

This setting controls the swing amount (rhythm flourish). Higher values result in more pronounced swing. This item influences only the playback timing of the pattern. It does not affect the recorded data of the pattern.

■ Setting the pad sensitivity (PAD SENS)

Setting Range: Soft, MEd, Loud, LiTE, norM, HArD, EhRD (Default value: norM)

The [VALUE UP/DOWN] keys are used to set the pad sensitivity.

The following 7 settings are available.

- **Soft (Fixed Soft):** Gives a soft sound regardless of the tapping intensity.
- **MEd (Fixed Medium):** Gives a medium sound regardless of the tapping intensity.
- **Loud (Fixed Loud):** Gives a loud sound regardless of the tapping intensity.
- **LiTE (Light):** This setting gives the highest sensitivity.
- **norM (Normal):** This setting gives medium sensitivity.
- **HArD (Hard):** This setting gives low sensitivity.
- **EhRD (Extra Hard):** This setting gives the lowest sensitivity. To achieve a loud sound, the pads must be hit very hard.

■ Setting the playback timing shift (SHIFT)

Setting Range: -192 to +192 (Default value: 0)

Shifts the playback timing of a specific track in the currently selected pattern back or forth in 1-tick units (1/96 of a quarter note). The maximum shift is 2 measures. After selecting this item, use the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider to set the shift value. The recorded data of the pattern is updated when the function is terminated.

■ When set to a negative value (-)

The playback timing of the selected track is shifted forward. The pattern shifted forward is deleted.

■ When set to a positive value (+)

The playback timing of the selected track is shifted backwards. The pattern shifted backwards is deleted.

Proceed with care, because once the [FUNCTION] key is used to terminate the setting, it cannot be undone.

■ Setting MIDI input on/off (MIDI)

Setting Range: Int, Midi (Default value: Int)

When this item is set to "Midi", the RhythmTrak ...234 can receive the following MIDI messages from external components.

- MIDI clock
- Start
- Stop
- Continue



When this item is set to "Midi", real-time recording is not possible.

■ Setting the MIDI receive channel for each track (MIDI)

Setting Range: 0, 1 – 16 (drum track) 0, 1 – 16, Auto (bass track)
(Default values, drum track A: 10, drum track B: 0, drum track C: 0, bass track: 9)

This item sets the MIDI channel for each track. Available settings for drum tracks are 0 (not received) and 1 - 16. Available settings for the bass track are 0 (not received), 1 - 16, and Auto.

"Auto" is a special setting for playing standard GM sound source compatible MIDI files. When the RhythmTrak ...234 receives a GM sound source bass select message, it automatically switches the bass track to that MIDI channel.

To set the MIDI receive channel, hold down the [KIT/TRACK SELECT] key of the desired track and set the value with the [VALUE UP/DOWN] keys or the [SOUND JAMMER] slider. This setting is made individually for each track.

■ Deleting all patterns

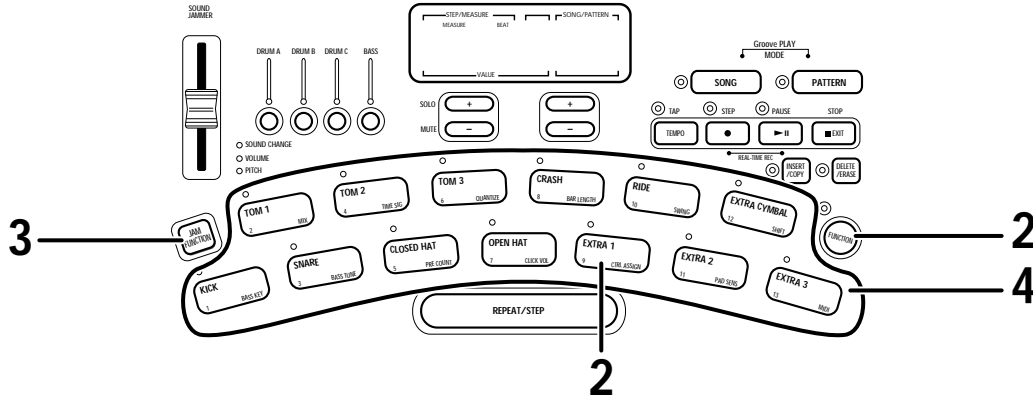
Press and release the [FUNCTION] key. The LED of the [FUNCTION] key will flash. Press the [DELETE] key. The indicator "dEL?AL" will appear. Press the [DELETE] key again to delete the data for all user patterns.

RhythmTrak ...234 Application Examples

This section describes examples for combining the RhythmTrak ...234 with optional equipment and external components.

Controlling the RhythmTrak ...234 with the FP01

When the separately available foot pedal FP01 is connected to the [CTRL1 IN] or [CTRL2 IN] jack on the rear panel, it can be used in the same way as the [SOUND JAMMER] slider to control pitch or tone.



STEP 1 Connect the FP01 to the [CTRL1 IN] or [CTRL2 IN] jack on the rear panel.

For information on connections, see page 3.

HINT The function of the two jacks is identical. You can use either jack.

STEP 2 Use the [FUNCTION] key and pad 9 (CTRL ASSIGN) to set the FP01 to the same function as the [SOUND JAMMER] slider.

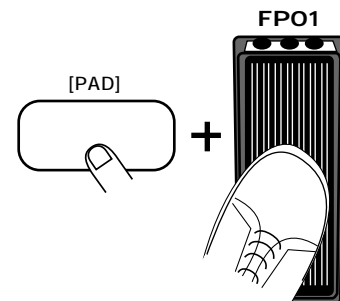
For information on the setting procedure, see page 45.

STEP 3 Use the [JAM FUNCTION] key to select the parameter you want to control with the pedal.

For information on the setting procedure, see page 13.

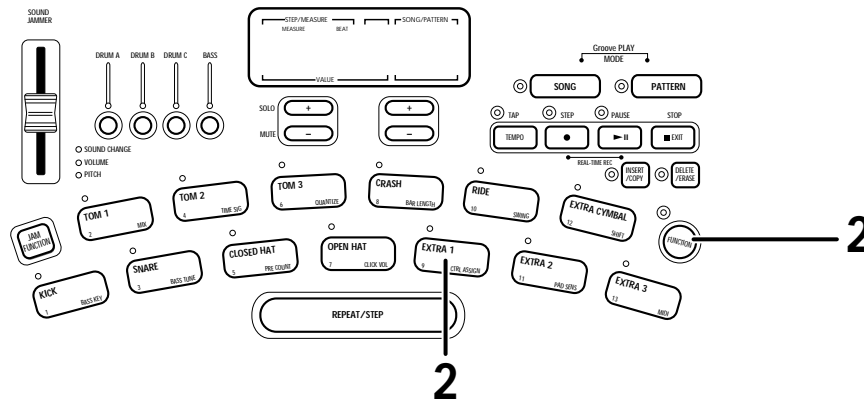
STEP 4 While playing the pads, move the FP01.

This has the same effect as moving the [SOUND JAMMER] slider.



Controlling the RhythmTrak ...234 with the FS01

When the separately available foot switch FS01 is connected to the [CTRL1 IN] or [CTRL2 IN] jack on the rear panel, it can be used to operate the bass drum or switch between open and closed hi-hat sound. The switch can also be used in place of the [START] key and [STOP] key to control operation of the RhythmTrak ...234 with your foot.



STEP 1 Connect the FS01 to the [CTRL1 IN] or [CTRL2 IN] jack on the rear panel.

For information on connections, see page 3.

STEP 2 Use the [FUNCTION] key and pad 9 (CTRL ASSIGN) to set the FS01 function.

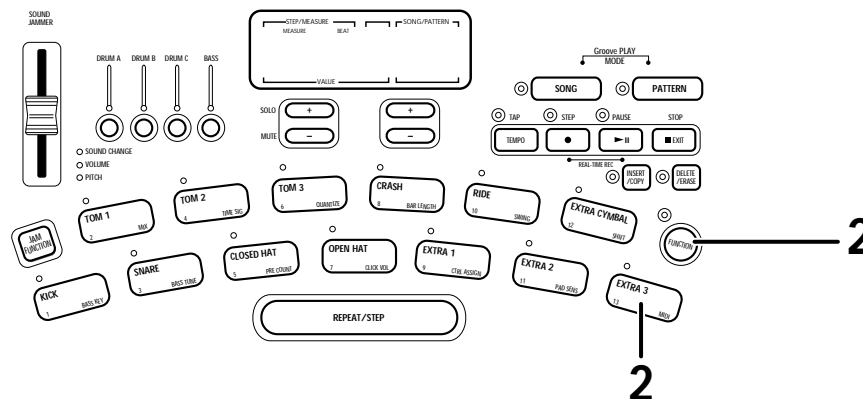
For information on the setting procedure, see page 45.

STEP 3 Use the FS01 in pattern mode or play mode.

Depending on the function selected in step 2, the FS01 activates the sound of a specific pad, switches between the sound of two pads, or controls playback start/stop of a song or pattern. For details, see page 46.

Synchronized MIDI operation

Operation of the RhythmTrak ...234 can be synchronized with a sequencer or other rhythm machine equipped with a MIDI jack. This allows playback of the patterns or songs of the RhythmTrak ...234 with the tempo determined by the sequencer.



STEP 1 Connect the MIDI OUT jack of the MIDI sequencer, rhythm machine, or other MIDI component to the [MIDI IN] connector of the RhythmTrak ...234, using a MIDI cable.

For information on connections, see page 3.



Verify that the external MIDI sequencer can send the MIDI clock, start, stop, and continue signals.

STEP 2 Use the [FUNCTION] key and pad 13 (MIDI) and set up the RhythmTrak ...234 so that it can receive the MIDI clock and other messages.

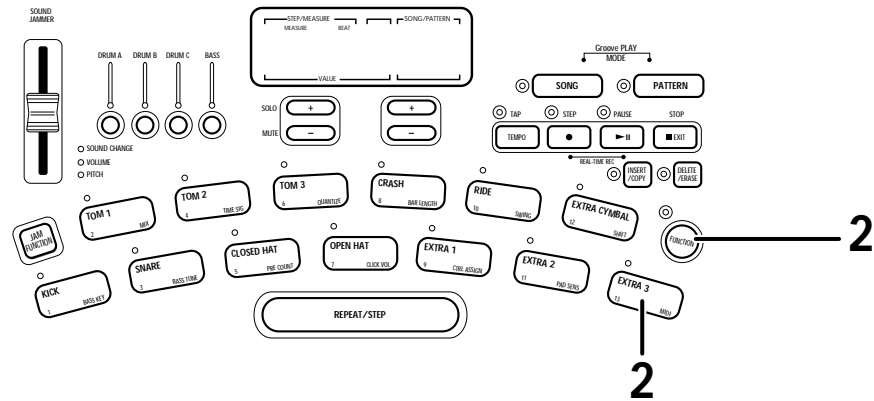
For information on the setting procedure, see page 47.

STEP 3 Start the external MIDI sequencer.

The RhythmTrak ...234 operates under control of the MIDI sequencer.

Using MIDI equipment to play the RhythmTrak ...234

Using a MIDI sequencer, MIDI keyboard, or similar MIDI Device you can play the built-in sound sources of the RhythmTrak ...234.



STEP 1 Connect the MIDI OUT jack of the MIDI sequencer or other MIDI component to the [MIDI IN] connector of the RhythmTrak ...234, using a MIDI cable.

STEP 2 Use the [FUNCTION] key and pad 13 (MIDI) to assign the tracks of the RhythmTrak ...234 to receive MIDI channels which are matched to the send channels of the external MIDI component.

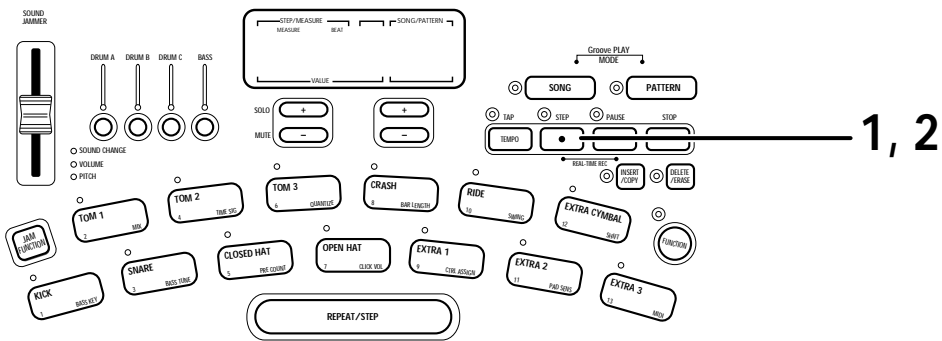
For information on the MIDI channel setting procedure, see page 47.

STEP 3 Play the MIDI sequencer or keyboard.

The RhythmTrak ...234 produces sound according to the note numbers received via the [MIDI IN] connector. Program change messages can be used to switch drum kits and bass programs of the RhythmTrak ...234. For information on program change numbers and corresponding drum kits and bass programs, please refer to the "Reference" section at the end of this manual.

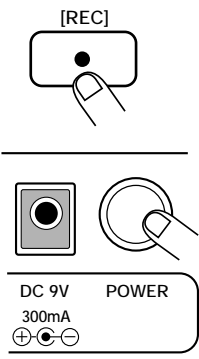
Returning the RhythmTrak ...234 to the factory default condition (initialization)

You can reset the RhythmTrak ...234 to the factory default condition. Use this function with care, because it will erase all patterns and songs that have been recorded by the user.



STEP 1 Turn power to the RhythmTrak ...234 on while holding the [REC] key down.

The indication "Init" flashes on the display.

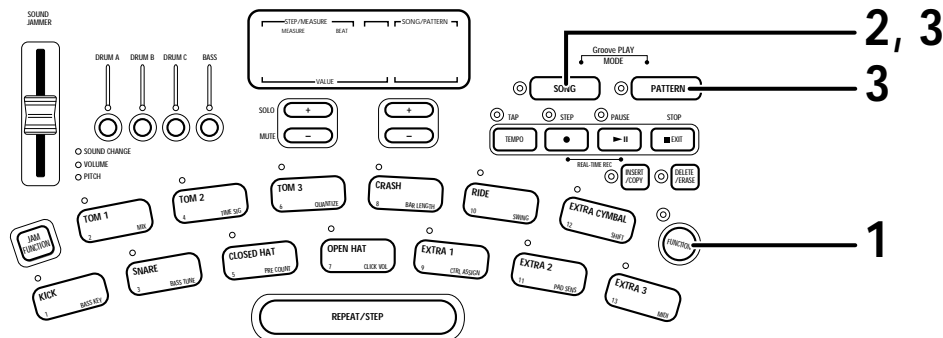


STEP 2 When wishing to go ahead with the initialization, press the [REC] key once more. To cancel the procedure, press the [STOP] key.

When initialization is carried out, all settings and data of the RhythmTrak ...234 are reset to the factory default condition, and then the unit starts up. If the process was canceled, the unit starts up normally.

RhythmTrak ...234 Application Examples

Listening to the demo



STEP 1 Press the [FUNCTION] key.

The [FUNCTION] key LED flashes.

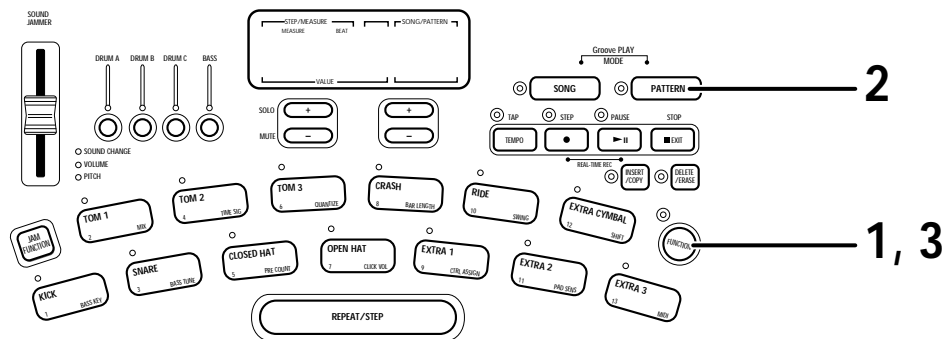
STEP 2 Press the [SONG] key.

Playback of the demo song starts. The demo continues to play until it is stopped by the user.

STEP 3 To stop the demo, press the [SONG] key or [PATTERN] key.

The RhythmTrak ...234 goes into song mode if the [SONG] key is pressed, and into pattern mode if the [PATTERN] key is pressed.

Checking the amount of remaining memory



STEP 1 Press the [FUNCTION] key.

The [FUNCTION] key LED lights up.

STEP 2 Press the [PATTERN] key.

The [FUNCTION] key LED remains lit and the [PATTERN] key LED flashes. The amount of free memory is shown in percent on the [VALUE] display.

STEP 3 To cancel the display, press the [FUNCTION] key once more.

The unit reverts to the previously active mode.

Troubleshooting

Check the following items first if there seems to be a problem with the RhythmTrak ...234.

Symptom	Check	Remedy
No sound or very low volume.	Is supplied AC adapter connected properly?	Connect AC adapter as described in "Getting Connected" (page 3). Use only the supplied AC adapter.
	Is [OUTPUT] jack connected correctly to the playback system?	Make connections as described in "Getting Connected" (page 3).
	Is there a problem with the shielded cable?	Try using another cable.
	Is the connected playback system operating normally?	Check the system and make sure that the volume level is adjusted properly.
	Is [VOLUME] control of RhythmTrak ...234 set correctly?	Set the control to a suitable position.
	Has volume been minimized with [SOUND JAMMER] slider or FP01?	Increase volume with [SOUND JAMMER] slider or FP01.
Sound is distorted or intermittent.	Is output level of RhythmTrak ...234 set too high?	Set [VOLUME] control of RhythmTrak ...234 to a suitable position.
Song cannot be recorded.	Is RhythmTrak ...234 set to mode other than song mode?	Activate song mode (page 34).
	Is memory capacity limit reached?	Delete unneeded patterns and songs.
[SOUND JAMMER] slider has no effect.	Was parameter to be controlled by [SOUND JAMMER] slider just switched?	Immediately after switching [SOUND JAMMER] slider control parameter, slider has no effect until it is moved past the currently active setting.
FP01/FS01 has no effect.	Is FP01/FS01 connected correctly to [CTRL1 IN]/[CTRL2 IN] jack?	Make connections as described in "Getting Connected" (page 3).
	Is desired function of FP01/FS01 activated?	Use [FUNCTION] key and pad 9 (CTRL ASSIGN) to select function (page 45).
	Was pedal or switch of FP01/FS01 not pressed when [FUNCTION] key was used to set the function?	Use [FUNCTION] key while pressing pedal or switch of FP01/FS01 (page 45).
Hitting the pads produces sound, but MIDI playback is not possible.	Is the MIDI receive function set to ON?	Use the [FUNCTION] key and pad 13 (MIDI) to change the setting from "Int" (MIDI receive disabled) to "Midi" (MIDI receive enabled).

SPECIFICATIONS

- Drum Kits: 124 (Including Percussion, SFX kit)
- Bass Programs: 50
- Rhythm Patterns: Preset; 99/User; 99/Preset Groove; 99
- Songs: 99
- Maximum Notes: 13,000 notes
- Maximum Polyphony: 32 voices
- Resolution: 96 PPQN
- Tempo: 40 to 250 BPM
- Pads: 13 with Velocity Sense
- Control Slider: SOUND JAMMER
- Control: MIDI in, Control in for FP01/FS01
- Display: 6-digit, 7-segment LED
- Input: Line; 1/4" jack (Mono)X 1, Impedance 10k Ω
- Outputs: Line (L/Mono, R); 1/4" jack (Mono)X 2, Impedance 2.2k Ω or less
Phones; 1/4" jack (Stereo)X 1, Output Power 50mW into 32 Ω
- Power Requirements: 9V DC/300mA (from supplied AC adaptor AD-0006)
- Dimensions: 297(W) X 215(D) X 43(H)mm
- Weight: 1.0kg (2.2lbs.)
- Accessory: Expression Pedal FP01, Footswitch FS01

* All specifications and appearance subject to change without notice.

Reference

MIDI ProgramChange# to DRUM/Percussion/SFX KIT Assign

PC	KIT#	KIT	PC	KIT#	KIT	PC	KIT#	KIT
0	9	Drum #9	43	36	Standard 7	86	82	Rap/HipHop 3
1	39	Standard 10	44	37	Standard 8	87	83	Rap/HipHop 4
2	0	Live Rock	45	38	Standard 9	88	84	Rap/HipHop 5
3	1	Studio	46	40	Funk Trap 1	89	85	Rap/HipHop 6
4	2	Standard	47	41	Funk Trap 2	90	86	Rap/HipHop 7
5	3	Funk Trap	48	117	Orchestral Set	91	87	Rap/HipHop 8
6	4	Epic Rock	49	42	Funk Trap 3	92	88	Rap/HipHop 9
7	5	Ballad	50	43	Funk Trap 4	93	89	Rap/HipHop 10
8	19	Live Rock 10	51	44	Funk Trap 5	94	90	Techno Beat 1
9	6	Modern	52	45	Funk Trap 6	95	91	Techno Beat 2
10	7	Rap/HipHop	53	46	Funk Trap 7	96	92	Techno Beat 3
11	8	Techno Beat	54	47	Funk Trap 8	97	93	Techno Beat 4
12	10	Live Rock 1	55	48	Funk Trap 9	98	94	Techno Beat 5
13	11	Live Rock 2	56	50	Epic Rock 1	99	95	Techno Beat 6
14	12	Live Rock 3	57	51	Epic Rock 2	100	96	Techno Beat 7
15	13	Live Rock 4	58	52	Epic Rock 3	101	97	Techno Beat 8
16	59	Epic Rock 10	59	53	Epic Rock 4	102	98	Techno Beat 9
17	14	Live Rock 5	60	54	Epic Rock 5	103	99	Techno Beat 10
18	15	Live Rock 6	61	55	Epic Rock 6	104	100	Drum Skins
19	16	Live Rock 7	62	56	Epic Rock 7	105	101	Lo Percussion
20	17	Live Rock 8	63	57	Epic Rock 8	106	102	Hi Percussion
21	18	Live Rock 9	64	58	Epic Rock 9	107	103	Velocity Switch
22	20	Studio 1	65	60	Ballad 1	108	104	Velocity Layers
23	21	Studio 2	66	61	Ballad 2	109	105	Single Percussion
24	99	Techno Beat 10	67	62	Ballad 3	110	106	Indian Percussion
25	89	Rap/HipHop 10	68	63	Ballad 4	111	107	Temple Blocks
26	49	Funk Trap 10	69	64	Ballad 5	112	108	Percussion Bazaar
27	22	Studio 3	70	65	Ballad 6	113	109	Agogo Gamelan
28	23	Studio 4	71	66	Ballad 7	114	110	Clicks and Sticks
29	24	Studio 5	72	67	Ballad 8	115	111	SFX/1
30	25	Studio 6	73	68	Ballad 9	116	112	SFX/2
31	26	Studio 7	74	70	Modern 1	117	113	SFX/3
32	9	Drum #9	75	71	Modern 2	118	114	SFX/4
33	27	Studio 8	76	72	Modern 3	119	115	SFX/5
34	28	Studio 9	77	73	Modern 4	120	116	Brush Snare Kit
35	29	Studio 10	78	74	Modern 5	121	117	Orchestral Set
36	30	Standard 1	79	75	Modern 6	122	118	Various Percussion 1
37	31	Standard 2	80	76	Modern 7	123	119	Various Percussion 2
38	32	Standard 3	81	77	Modern 8	124	120	Various Percussion 3
39	33	Standard 4	82	78	Modern 9	125	121	Various Percussion 4
40	69	Ballad 10	83	79	Modern 10	126	122	Various Percussion 5
41	34	Standard 5	84	80	Rap/HipHop 1	127	123	Cymbal Set
42	35	Standard 6	85	81	Rap/HipHop 2			

MIDI ProgramChange# to BASS PROGRAM Assign

PC#	PROGRAM#	PROGRAM	PC#	PROGRAM#	PROGRAM	PC#	PROGRAM#	PROGRAM
0	0	Live Bass	43	35	Picked Funk Bass	86	28	Digi Slap Bass
1	1	Studio Bass	44	36	Picked Jazz	87	29	Tumba Tones
2	2	Epic Bass	45	37	Picked Techno	88	30	Conga Keys
3	3	Funk Bass	46	38	Acoustic Techno	89	31	PowerTom Bass
4	4	Ballad Bass	47	39	Power Funk	90	32	Becoming Bass
5	5	Acoustic Bass	48	40	Pops/Pulls Split	91	33	Harmonics Bass
6	6	Modern Bass	49	41	EpicBass Jam/1	92	34	Bass with Harmonics
7	7	Synth Bass	50	42	Tribal Bass Jam/2	93	35	Picked Funk Bass
8	8	Techno Bass	51	43	Wooden Bass	94	36	Picked Jazz
9	9	Big Bottom Bass	52	44	Jazz Bass	95	37	Picked Techno
10	10	SubSlap Bass	53	45	Funk Pops	96	38	Acoustic Techno
11	11	Digital Acoustic	54	46	FunkPulls	97	39	Power Funk
12	12	Bass Harmonics	55	47	Picked Bass	98	40	Pops/Pulls Split
13	13	No Frets	56	48	Analog Bass	99	41	EpicBass Jam/1
14	14	Acoustic Jazz	57	49	Digi Bass	100	42	Tribal Bass Jam/2
15	15	Digital Pick	58	0	Live Bass	101	43	Wooden Bass
16	16	TechnoAnalog	59	1	Studio Bass	102	44	Jazz Bass
17	17	Tabla Bass Tones	60	2	Epic Bass	103	45	Funk Pops
18	18	Tight Analog	61	3	Funk Bass	104	46	FunkPulls
19	19	Analog Fifths	62	4	Ballad Bass	105	47	Picked Bass
20	20	Temple Tones	63	5	Acoustic Bass	106	48	Analog Bass
21	21	Quadra Bass	64	6	Modern Bass	107	49	Digi Bass
22	22	Analog Touch	65	7	Synth Bass	108	0	Live Bass
23	23	Picked Acoustic	66	8	Techno Bass	109	1	Studio Bass
24	24	Bass Dive	67	9	Big Bottom Bass	110	2	Epic Bass
25	25	AnalogOctaves	68	10	SubSlap Bass	111	3	Funk Bass
26	26	SynthTomBass	69	11	Digital Acoustic	112	4	Ballad Bass
27	27	Lo Sine	70	12	Bass Harmonics	113	5	Acoustic Bass
28	28	Digi Slap Bass	71	13	No Frets	114	6	Modern Bass
29	29	Tumba Tones	72	14	Acoustic Jazz	115	7	Synth Bass
30	30	Conga Keys	73	15	Digital Pick	116	8	Techno Bass
31	31	PowerTom Bass	74	16	TechnoAnalog	117	9	Big Bottom Bass
32	5	Acoustic Bass	75	17	Tabla Bass Tones	118	10	SubSlap Bass
33	44	Jazz Bass	76	18	Tight Analog	119	11	Digital Acoustic
34	1	Studio Bass	77	19	Analog Fifths	120	12	Bass Harmonics
35	13	No Frets	78	20	Temple Tones	121	13	No Frets
36	45	Funk Pops	79	21	Quadra Bass	122	14	Acoustic Jazz
37	10	SubSlap Bass	80	22	Analog Touch	123	15	Digital Pick
38	7	Synth Bass	81	23	Picked Acoustic	124	16	TechnoAnalog
39	8	Techno Bass	82	24	Bass Dive	125	17	Tabla Bass Tones
40	32	Becoming Bass	83	25	AnalogOctaves	126	18	Tight Analog
41	33	Harmonics Bass	84	26	SynthTomBass	127	19	Analog Fifths
42	34	Bass with Harmonics	85	27	Lo Sine			

Reference

DRUM KITS

0	Live Rock
1	Studio
2	Standard
3	Funk Trap
4	Epic Rock
5	Ballad
6	Modern
7	Rap/HipHop
8	Techno Beat
9	Drum #9
10	Live Rock 1
11	Live Rock 2
12	Live Rock 3
13	Live Rock 4
14	Live Rock 5
15	Live Rock 6
16	Live Rock 7
17	Live Rock 8
18	Live Rock 9
19	Live Rock 10
20	Studio 1
21	Studio 2
22	Studio 3
23	Studio 4
24	Studio 5
25	Studio 6
26	Studio 7
27	Studio 8
28	Studio 9
29	Studio 10
30	Standard 1
31	Standard 2
32	Standard 3
33	Standard 4
34	Standard 5
35	Standard 6
36	Standard 7
37	Standard 8
38	Standard 9
39	Standard 10

40	Funk Trap 1
41	Funk Trap 2
42	Funk Trap 3
43	Funk Trap 4
44	Funk Trap 5
45	Funk Trap 6
46	Funk Trap 7
47	Funk Trap 8
48	Funk Trap 9
49	Funk Trap 10
50	Epic Rock 1
51	Epic Rock 2
52	Epic Rock 3
53	Epic Rock 4
54	Epic Rock 5
55	Epic Rock 6
56	Epic Rock 7
57	Epic Rock 8
58	Epic Rock 9
59	Epic Rock 10
60	Ballad 1
61	Ballad 2
62	Ballad 3
63	Ballad 4
64	Ballad 5
65	Ballad 6
66	Ballad 7
67	Ballad 8
68	Ballad 9
69	Ballad 10
70	Modern 1
71	Modern 2
72	Modern 3
73	Modern 4
74	Modern 5
75	Modern 6
76	Modern 7
77	Modern 8
78	Modern 9
79	Modern 10

80	Rap/HipHop 1
81	Rap/HipHop 2
82	Rap/HipHop 3
83	Rap/HipHop 4
84	Rap/HipHop 5
85	Rap/HipHop 6
86	Rap/HipHop 7
87	Rap/HipHop 8
88	Rap/HipHop 9
89	Rap/HipHop 10
90	Techno Beat 1
91	Techno Beat 2
92	Techno Beat 3
93	Techno Beat 4
94	Techno Beat 5
95	Techno Beat 6
96	Techno Beat 7
97	Techno Beat 8
98	Techno Beat 9
99	Techno Beat 10
100	Drum Skins
101	Lo Percussion
102	Hi Percussion
103	Velocity Switch
104	Velocity Layers
105	Single Percussion
106	Indian Percussion
107	Temple Blocks
108	Percussion Bazaar
109	Agogo Gamelan
110	Clicks and Sticks
111	SFX/1
112	SFX/2
113	SFX/3
114	SFX/4
115	SFX/5
116	Brush Snare Kit
117	Orchestral Set
118	Various Percussion 1
119	Various Percussion 2
120	Various Percussion 3
121	Various Percussion 4
122	Various Percussion 5
123	Cymbal Set

BASS Programs

0	Live Bass
1	Studio Bass
2	Epic Bass
3	Funk Bass
4	Ballad Bass
5	Acoustic Bass
6	Modern Bass
7	Synth Bass
8	Techno Bass
9	Big Bottom Bass
10	SubSlap Bass
11	Digital Acoustic
12	Bass Harmonics
13	No Frets
14	Acoustic Jazz
15	Digital Pick
16	TechnoAnalog
17	Tabla Bass Tones
18	Tight Analog
19	Analog Fifths
20	Temple Tones
21	Quadra Bass
22	Analog Touch
23	Picked Acoustic
24	Bass Dive

25	AnalogOctaves
26	SynthTomBass
27	Lo Sine
28	Digi Slap Bass
29	Tumba Tones
30	Conga Keys
31	PowerTom Bass
32	Becoming Bass
33	Harmonics Bass
34	Bass with Harmonics
35	Picked Funk Bass
36	Picked Jazz
37	Picked Techno
38	Acoustic Techno
39	Power Funk
40	Pops/Pulls Split
41	EpicBass Jam/1
42	Tribal Bass Jam/2
43	Wooden Bass
44	Jazz Bass
45	Funk Pops
46	FunkPulls
47	Picked Bass
48	Analog Bass
49	Digi Bass

Preset Pattern List

Rock / Pops			Rock / Pops			Dance		
		BPM			BPM			BPM
P01	Rock 1	107	P42	Ska 1	144	P60	Dance 1	120
P02	Rock 2	120	P43	Ska 2	160	P61	Dance 2	118
P03	Rock 3	140	P44	Ballad 1	72	P62	Jungle	120
P04	Rock 4	136	P45	Ballad 2	79	P63	Techno 1	132
P05	Rock 5	137	P46	Ballad 3	80	P64	Techno 2	146
P06	Rock 6	107	P47	Ballad 4	132	P65	Techno 3	125
P07	Rock 7	117	P48	Ballad 5	114	P66	Techno 4	130
P08	Rock 8	125	P49	Blues 1	91	P67	Drum&Bass 1	163
P09	Hard Rock 1	130	P50	Blues 2	84	P68	Drum&Bass 2	153
P10	Hard Rock 2	113	P51	Jazz 1	148	P69	Trance 1	122
P11	Hard Rock 3	100	P52	Jazz 2	120	P70	Trance 2	106
P12	Hard Rock 4	96	P53	Jazz 3	125	P71	Ambient 1	114
P13	Metal 1	148	P54	Shuffle 1	172	P72	Ambient 2	129
P14	Metal 2	80	P55	Shuffle 2	120	P73	HipHop 1	69
P15	Thrash 1	135	P56	Country 1	116	P74	HipHop 2	104
P16	Thrash 2	120	P57	Country 2	175	P75	HipHop 3	100
P17	Punk 1	137	P58	Waltz 1	132	P76	Rap 1	91
P18	Punk 2	188	P59	Waltz 2	125	P77	Rap 2	112
P19	Punk 3	130						
P20	Punk 4	148						
P21	Fusion	112						
P22	Industrial 1	134						
P23	Industrial 2	103						
P24	Industrial 3	138						
P25	Industrial 4	132						
P26	Pop 1	168						
P27	Pop 2	142						
P28	Pop 3	104						
P29	Pop 4	130						
P30	Pop 5	108						
P31	R&B 1	92						
P32	R&B 2	126						
P33	R&B 3	116						
P34	R&B 4	114						
P35	R&B 5	104						
P36	Funk 1	112						
P37	Funk 2	146						
P38	Funk 3	113						
P39	Funk 4	117						
P40	Funk 5	110						
P41	Funk 6	116						
						World		
								BPM
						P78	Afro 1	117
						P79	Afro 2	101
						P80	Afro 3	100
						P81	Afro 4	123
						P82	Celtic	130
						P83	Indian 1	102
						P84	Indian 2	163
						P85	Latin 2	100
						P86	Latin 3	126
						P87	Latin 4	109
						P88	Latin 5	108
						P89	Latin 6	126
						P90	Latin 7	100
						P91	Latin 8	116
						P92	Persian 1	122
						P93	Persian 2	89
						P94	Reggae 1	72
						P95	Reggae 2	126
						P96	Reggae 3	145
						P97	Reggae 4	150
						P98	Poly Rhythm 1	104
						P99	Poly Rhythm 2	108

In the factory default condition, the user patterns have the same content as the preset patterns.

Preset Groove List

Groove Patterns				Default	bars	Groove Patterns				Default	bars
G01	JUNGLE	[PAD 1]	2	Drums	G53	KICK 1		2			
G02	FUNK		2		G54	KICK 2		2			
G03	REGGAE		4		G55	KICK 3		2			
G04	16BEAT		1		G56	KICK 4		2			
G05	ROCK		2		G57	KICK 5		2			
G06	PERSIAN		2		G58	KICK 6		2			
G07	RAP 1		2		G59	KICK 7		2			
G08	RAP 2		2		G60	SNARE 1		2			
G09	SKA 1		2		G61	SNARE 2		2			
G10	SKA 2		2		G62	SNARE 3		2			
G11	INDUSTRIAL 1		2		G63	HAT 16th 1		2			
G12	INDUSTRIAL 2	[PAD 2]	2		G64	HAT 16th 2		2			
G13	INDUSTRIAL 3		2		G65	HAT OPEN		2			
G14	TECHNO 1	[PAD 4]	2		G66	HAT & RIDE 1		2			
G15	TECHNO 2		2		G67	HAT & RIDE 2		2			
G16	TECHNO 3		2		G68	HAT & RIDE 3		2			
G17	TECHNO 4	[PAD 3]	2		G69	HAT & RIDE 4		2			
G18	KICK/SNARE & HAT		2		G70	RIDE 1		2			
G19	KICK & SNARE 1		2		G71	RIDE 2		2			
G20	KICK & SNARE 2		2		G72	RIDE & TAMBOURINE		2			
G21	KICK & SNARE 4		2		G73	TOMS 1		2			
G22	KICK & SNARE 5		2		G74	TOMS 2		2			
G23	KICK & SNARE 6		2		G75	TOMS 3		2			
G24	KICK & SNARE 7		2		G76	SHAKER 1		2		Percussion	
G25	KICK/SNARE & TOM 1		2		G77	SHAKER 2		2			
G26	KICK/SNARE & TOM 2		2		G78	SHAKER 3		2			
G27	KICK/SNARE & TOM 3		2		G79	SHAKER & TAMB		2			
G28	KICK & TOMS 1		2		G80	TAMBOURINE & HAT		2			
G29	MARCH TOM		2		G81	TAMBOURINE 1		2			
G30	SFX 1		2		G82	TAMBOURINE 2		2			
G31	SFX 2		2		G83	CLAVES		2			
G32	SFX 3		2		G84	AGOGO		2			
G33	PERCUSSION JAM 1	[PAD 6]	2	G85	TRIANGLE		2				
G34	PERCUSSION JAM 2		2	G86	CONGAS 1		2				
G35	TABLA JAM	[PAD 7]	2	G87	CONGAS 2		2				
G36	HIGH PERCUSSION		2	G88	CONGAS 3		2				
G37	TIMBALES & AGOGO		2	G89	CONGA & GUIRO 1		2				
G38	BASS 1		1	G90	CONGA & GUIRO 2		2	Hits&Riffs			
G39	BASS 2		2	G91	COWBELL 2		2				
G40	BASS 3		2	G92	KICK & SNARE RIFF		2				
G41	BASS 4		2	G93	SNARE RIFF	[PAD 5]	2				
G42	BASS 5		2	G94	HATS RIFF		2				
G43	BASS 6	[PAD 13]	2	G95	TOM RIFF		2				
G44	BASS 7		2	G96	COMBI-HIT 1		2				
G45	BASS 8	[PAD 9]	1	G97	COMBI-HIT 2		2				
G46	BASS 9	[PAD 11]	2	G98	COMBI-HIT 3		2				
G47	BASS 10		4	G99	COMBI-HIT 4		2				
G48	BASS 11		1								
G49	ARPEGGIO	[PAD 10]	1					Arpeggio &Chord			
G50	ETHNIC RIFF	[PAD 12]	2								
G51	SLOW ARPEGGIO		2								
G52	LONG PAD	[PAD 8]	8								

1. TRANSMITTED DATA

NONE.

2. RECOGNIZED DATA

1) CHANNEL VOICE MESSAGES

STATUS	SECOND	THIRD	Description
1000 nnnn	0kkk kkkk	0vvv vvvv	NOTE OFF (See NOTE 1) kkk kkkk : Note No. vvv vvvv : Note Off Velocity (ignored)
1001 nnnn	0kkk kkkk	0000 0000	NOTE OFF (See NOTE 1) kkk kkkk : Note No.
1001 nnnn	0kkk kkkk	0vvv vvvv	NOTE ON (See NOTE 1) kkk kkkk : Note No. vvv vvvv : Note On Velocity (not 0)
1011 nnnn	0ccc cccc	0vvv vvvv	CONTROL CHANGE ccc cccc : Control No. 7 Volume 11 Expression 83 SoundChange (See NOTE 2) vvv vvvv : Control Value
1100 nnnn	0ppp pppp	---- ----	PROGRAM CHANGE ppp pppp : Program Number (See NOTE 3)
1110 nnnn	0vvv vvvv	0vvv vvvv	PITCH BENDER CHANGE (See NOTE 4) vvv vvvv vvv vvvv Pitch Bend Value

NOTE: nnnn = MIDI Channel Number (0000 - 1111)

1. Note Off Messages on Drum Channel(s) will be ignored.
2. Default Control Value of SoundChange is 64.
3. Relationship between Program Numbers and Kit Numbers are assigned as described in Drum Kits/Bass Program List.
4. Pitch Bend values will be used only upper 7bits.
Pitch Bending will be effected continuously on Bass Channel.
Pitch Bender Message on Drum Channel(s) will change initial pitch at Note On.

2) CHANNEL MODE MESSAGE

STATUS	SECOND	THIRD	DESCRIPTION
1011 nnnn	0111 1000	0000 0000	ALL SOUNDS OFF
1011 nnnn	0111 1001	0000 0000	RESET ALL CONTROLLERS
1011 nnnn	0111 1011	0000 0000	All NOTES OFF
1011 nnnn	0111 1100	0000 0000	ALL NOTES OFF

NOTE: nnnn = MIDI Channel Number (0000 - 1111)

3) SYSTEM COMMON MESSAGE, SYSTEM REAL TIME MESSAGE

STATUS	SECOND	THIRD	DESCRIPTION
1111 0011	0sss ssss	---- ----	SONG SELECT sss ssss : Song No. 0-98
1111 1000	---- ----	---- ----	TIMING CLOCK
1111 1010	---- ----	---- ----	START
1111 1011	---- ----	---- ----	CONTINUE
1111 1100	---- ----	---- ----	STOP

NOTE:

Function ...	Transmitted	Recognized	Remarks
Basic Default Channel Changed		1-16 1-16	Memorized for every tracks
Mode Default Messages Altered	*****	3	
Note Number True voice	*****	0-127	
Velocity Note ON Note OFF		o x	
After Key's Touch Ch's		x x	
Pitch Bend		o	MS7bits
Control Change		7 11 83 120 121	Volume Expression SoundChange All Sounds Off Reset All Ctrls
Prog Change True #	*****	o 0-127	
System Exclusive		x	
System Song Pos Song Sel Common Tune		x o x	
System Clock Real Time Commands		o o	
Aux Local ON/OFF All Notes OFF Mes- Active Sense sages Reset		x o x x	
Notes	No transmitted messages.		

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO o : Yes
 Mode 3 : OMNI OFF, POLY Mode 3 : OMNI OFF, MONO x : No

Reference

MEMO

MEMO



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