tinyloops.com - Programming the Roland TB-303

This very likely means the Pattern uses triplets 🎶 for timing and the drumcomputer does not, or vice versa.

quick results
I don't wanna read the manual and I want results NOW - a.k.a. "The One Page Manager's Guide" ©
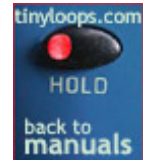
We are dealing here with an unmodified and unmidified TB-303.

The TB-303 has to tell you the exact contents of the sequence of a Pattern. It communicates with LEDs.

Preparation:
- get a pencil and a piece of paper (or <u>download the sequencer sheet</u>)
- STOP the sequencer
- you probably already selected the proper PATTERN GROUP (I, II, III or IV) and a funky Pattern (A/B, 1..8)
- select MODE: PATTERN - WRITE
- the Pattern number you want to backup is now blinking (in the selected TEMPO rate)
- the LED above NORMAL MODE is turned on.

1st note: TRIPLETS
Check whether the Pattern is programmed in **triplets** or not.
Hold the FUNCTION button, and check the LED above 🎶
- on: the Pattern is in triplets mode.
- off: it is not.

2nd note: TIME
Write down the **timing of the notes** and the **length of the Pattern**.
Press the TIME MODE button, only this LED lights up, others go off.
The Pattern can hold 16 steps or less, each step contains a ● ♪ (note on), a ○ ♪ (note sustain) or a – ♯ (rest).
For each step:
A - press and hold down the WRITE/NEXT button and write down which one of these 3 LEDs is turned on:
B - release the WRITE/NEXT button
C - is the TIME MODE light still turned on?
--- on: there is another step in this Pattern - repeat A
--- off: this was the last step.

● ♪ | ○ ♪ | – ♯

To prevent making mistakes in the next steps:
- cross out the remaining steps in the time line. Now you know the step length of the Pattern.

- cross out the columns below the $\circ$ ♪ and the – ♮ , because they do not hold pitches, accents or slides.

3rd note: PITCH, ACCENT, SLIDE
Write down the **pitches of the notes** and the **pitch properties** of every note.
Press the PITCH MODE button, only this LED lights up, others go off.
The pitches only reside at the • ♪ (note on) positions, and not at the sustain or rest positions.
A - press and hold down the WRITE/NEXT button and write down which one of these LEDs is turned on,
    below each subsequent "note on" position:
    the pitch [C..C'], and the pitch properties DOWN/UP, ACCENT, SLIDE
B - release the WRITE/NEXT button
C - are there any more "note on" positions in this Pattern (check the sheet)?
--- yes: get the next pitch - repeat A
--- no: you're done, press the NORMAL MODE button. (If instead, you decide to keep pressing the WRITE/NEXT button just for kicks, you hear the remaining pitches in memory for this Pattern. These are not used. Moreover: it is impossible to use other pitches than the first 16 ones. You can actually press the WRITE/NEXT button 48 times, before the TB-303 loops back to the first pitch).

How to interpret the sheet:
- if DOWN *and* UP are turned on: same as DOWN
- SLIDE: this note slides to the next. A SLIDE on the last note slides to the first one.

Check the sheet:
- turn the TEMPO knob to the lowest setting
- start the sequencer and try to count and read along with every step and check if it sounds like you expected.

Select a Pattern you're not using, because you are going to sacrifice this Pattern.
You can use the pattern location sheet *(alternative panel version)* to note where "sacrificable" Patterns are located.
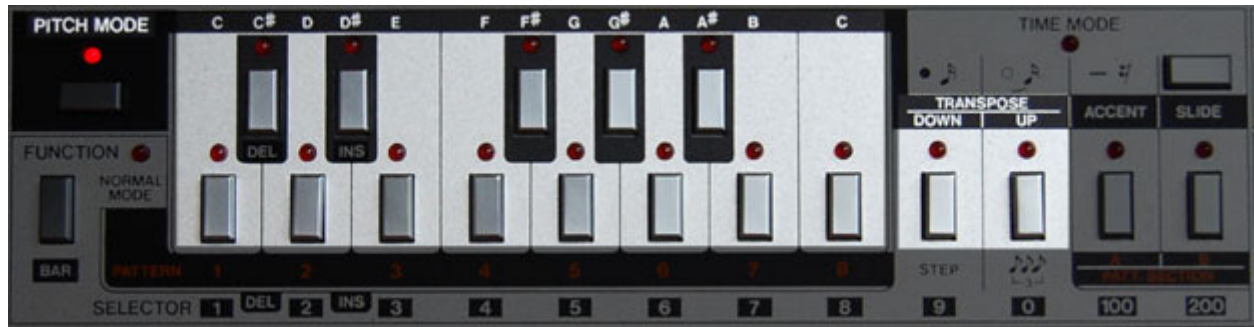
- STOP the sequencer
- select a PATTERN GROUP (I, II, III or IV) and a Pattern (A/B, 1..8)
- select MODE: PATTERN - WRITE
- press PITCH MODE

Start playing the keyboard-like buttons [C..C'] as long as you wish. To use the transpose-buttons, keep them pressed during play.

Benefits:
- when the buttons are old and faulty, you get nice flams, or no sound, making the results jazzy and unpredictable. try not to correct, just keep playing in sync with whatever you're playing in sync with. try "classical fm" too, and "jazz fm".
- you're now the master of the GATE time! turn the DECAY button and enjoy the effects by pressing the keys longer or shorter. you're gonna love this.

While playing live during step 2, you discover that you created a really great bass line. You want to keep it. The TB-303 is probably already in PATTERN WRITE mode.

Press NORMAL MODE
- reset the Pattern first by holding down the flashing Pattern number button [1..8] and pressing PATTERN CLEAR
- you now have 16 steps in 4/4

Press PITCH MODE
- enter the pitches **[C..C']** in order
- press NORMAL MODE to store the pitches

Press TIME MODE
- enter the timing of the notes by pressing in sequence
- press NORMAL MODE to store the timing

Press RUN/STOP to start playing the Pattern. Redo time or pitch when unhappy.

The TB-303 is very likely already in PATTERN PLAY mode, and you selected a nice random Pattern or made one by yourself.

Possibilties:
A. you start, the rest of the band follows you:

A1: you start the sequencer (RUN).
- slave the TB-303 to a drumcomputer so you have a click track for the band. some of the random patterns in the TB-303 can be very hard to follow, without some kind of a click track, in the form of, say, a simple kick drum on the first beat. Stay very sparse on the percussion, so the live drummer has just enough to keep time, but is not replaced by your beats.
- avoid the triplet patterns (that's why some preparation at home, converting all the triplet Patterns in a Group to 4/4, might be a smart thing to do)
- stay away from the TUNING knob.

- let the band members react on the weird patterns (they all will at some point), so keep the patterns running and don't switch too much between the different patterns (except in a predictable way)
- during RUN, to change the key: hold down the PITCH MODE button and press one of the [C..C'] buttons.
- switching PATTERN GROUP during RUN will have no effect, unfortunately.

B. you have to follow the band or a dj:

B1: play live on the TB-303 (see answer to question 2)
- tune the TB-303 to the band or to the dj: select PATTERN PLAY and press the TAB button. the TB-303 generates the C+UP pitch, so you can tune the TB-303 to the band or to the vinyl with the TUNING knob.
be careful though (1): when you switch from PATTERN WRITE to PATTERN PLAY, also switch to NORMAL MODE by pressing that button (that is: leave the pitch mode or time mode), or else you will just stay in pattern write - oops.
be careful though (2): when you entered pitches or played live in PATTERN WRITE mode (just before switching to PATTERN PLAY), you will not hear the C+UP pitch when you press TAP, but always the last played pitch+UP that you played. you can correct the TB-303 by running and stopping the sequencer once.

B2: you want to use the sequencer. this is hard work and concentration for you but lots of fun.
- put your private mixer between the TB-303 and the main mix panel.
- first: mute the feed to the main mixer and listen privately to the TB-303 with headphones and try to sync the TB-303 as close to the tempo of the band as possible. this also works when you hook up with a dj.
- also, try to search for a matching key, by turning the TUNING knob.
- or don't tune at all. some of the patterns are so weird, they will fit in anyway.
- when it feels right, STOP the sequencer, open the feed to the main mixer, with the volume half way (or at least too soft)
- RUN the sequencer and give it a few tries. when it gets out of sync with the band or the dj, STOP the sequencer immediately and press RUN again on the first beat. when you're good and feel confident, open the volume some more.
- make very small changes with the TEMPO knob when trying to re-sync the tempo. keep in time by using the RUN/STOP key at any time.
- you'll notice that the TB-303 adds a lot of drive and power to the whole energy of the music, even at small volumes. the crowd loves it, even when they can't pinpoint where the sound you generate is coming from. you can also do solos, but never overdo it, after all you're not a guitar player.

actually you *can* overdo it. give'em hell!

Some theory first (you can skip this paragraph).

*Triplet Patterns only sync to the 4/4 beats at the 1st, 4th, 7th, 10th and 13th step (**1**-2-3, **4**-5-6, **7**-8-9, **10**-11-12, **13**-14-15). That's why triplet Patterns must have lengths of 3, 6, 9, 12 or 15 steps in order to stay in sync with a 4/4 beat. So if you have, for example, a 5-step triplet Pattern, you immediately have a sync problem. And these kind of Patterns do exist in the TB-303, because the machine makes random Patterns on it's own. This happens when you leave the machine without batteries or the adapter for more than one hour. This is a great feature, because most of the time, the TB-303 creates "instant funk" on its own! But this can also go wrong, when a Pattern with broken triplets is created. Or a Pattern consisting only of rest notes: silence. When you go search for it, you will find a few unusable Patterns, somewhere between the 64 possible Patterns:*
8 patterns (1..8) x 2 pattern sections (A/B) x 4 pattern groups (I..IV)

4/4 beat steps	1	2-3-4	5	6-7-8	9	10-11-12	13	14-15-16		
triplets beat steps 🎶	1	2 - 3	4	5 - 6	7	8 - 9	10	11 - 12	13	14 - 15	*(you can't have 16 steps in a triplet beat)*
--sync--	**x**		**x**		**x**		**x**		**x**		

If you want to change a Pattern in the TB-303 from triplets to 4/4, unfortunately you also clear the timing data in the process. Don't worry, you can enter new timing data quickly and have some fun too. Even seconds before going on stage, because you're going to enter the timing data in real time recording.

You probably are in PATTERN PLAY mode, which is good.
If you are in TRACK PLAY, switch to PATTERN PLAY first and search for the misbehaving triplet Pattern. That's easy with a drumpcomputer hooked up with a sync cable, because it will be out of sync.

When you have selected the right (wrong) Pattern, switch to PATTERN WRITE mode.
- press STOP (sequencer is not running)
- reset to 16 steps in 4/4 by holding the flashing Pattern number button [1..8] and pressing PATTERN CLEAR
- this also clears the timing data, which you will now enter in real time. fun starts here.

press RUN
A. press PATTERN CLEAR: the metronome starts beeping in a loop, the low beep marks the start of the Pattern
B. wait for your brain to sync with the metronome
C. press TAP (=WRITE/NEXT) in time for every note: the sequencer starts recording your taps and finishes recording after it has reached step number 16 (so start tapping *on* or shortly *after* the low beep).

D. after this, the metronome beep disappears automatically, and the sequencer keeps running in play mode, so you can directly listen to your tapping results.
E. when unhappy, repeat from a. (you can leave the TB-303 running)

You can not.

You can change the number of steps for a Pattern, but then you also have to re-enter the timing data.
See the "Pattern Write" page, scroll to Normal Mode -> General Pattern Settings -> "STOP" to change the number of steps.

When the sequencer is *RUNning*, you can have some fun. Three tips during RUN time.

> TRACK JUMP
when you are in TRACK PLAY, by turning the TRACK number switch (1..7), you chain the running Track to another Track. It jumps to Bar 1 of the new Track when *D.C.* of the current Track is reached.

> TRACK FREEZE
when you are in TRACK PLAY, you can switch to PATTERN PLAY. The Track remembers the Bar it left off and the Pattern keeps looping. You can even change the Pattern. Switch back to TRACK PLAY and the song continues from the Bar following the one it left off - say you froze during Bar 5, switching back continues from Bar 6.

> SWITCH PATTERN GROUP
when you are in PATTERN PLAY and the sequencer is running, switching PATT.GROUP does not work. You first have to STOP the sequencer, switch the Pattern Group, and than RUN again.

But there is a backdoor. You can instead switch to TRACK PLAY mode, where you are allowed to change to a TRACK number that belongs to a whole different Pattern Group. The downside is, you have to wait for the *D.C.* pointer of the current Track, before the jump to first Bar of the new Track occurs. So, go to TRACK WRITE and place the *D.C.* pointer on the second Bar (the first Bar is not allowed for *D.C.*), and you're done.

In simple steps:
- you are in PATTERN PLAY but want another Pattern Group, without stopping the sequencer
- switch the MODE to TRACK PLAY and switch to a TRACK number in another Pattern Group
- wait for the *D.C.*-jump (e.g. hold the BAR button to see when the jump to Bar 1 occurs)
- switch the MODE back to PATTERN PLAY
- enjoy the new Patterns

8. How can I create a Pattern that consists of 2 melody lines?

I am building a Digital Pattern Sheet and Track Sheet web-application for the TB-303, based on the design of the paper sheets you can download from this page. At the moment the app is finished and I'm using it myself. The user interface is equal to the sequencer interface in the tb303 (!), with the addition of a few things:
- less error prone and a more accessable interface than a piece of paper,
- better overview of your tb303 sequencer contents and also printable for live sets,
- usage of text markers for patterns/tracks to aid in convenience.

The initial programming work was done from november 2011 to january 2012. Momentarily it's in testing phase. The link will appear when it's finished. Meanwhile you can look at the progress and to do list.