

POWER USER

MUSIC PRODUCTION and PERFORMANCE With the RS7000

Understanding the Basic Concepts
PATTERN MODE: PHRASES-TRACKS-COPY

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YAMAHA RS7000 Music Production Studio

If you are new to Yamaha Sequencers and even if you are not, this document will clear the air (hopefully) about the Phrase structure and how to use it, wisely, in your RS7000. A Phrase in the Integrated Sampling Sequencer is any recording that is done while in Pattern mode. A Phrase always contains MIDI data – it can be the result of you recording from the keys/pads or sampling with Note (KIT+NOTE, SLICE+SEQ) data. MIDI data is recorded on Tracks, just like in every other sequencer you've ever used, however, the Phrase structure adds something that will allow the Yamaha sequencer to manipulate your data more efficiently in real time. For example, you are in PATTERN mode and you press [RECORD] arming the current track – behind the scenes, the RS7000 has placed the lowest numbered available USER Phrase on that track to house the data. All User Phrases can be named, if you wish, and are automatically numbered. The RS will document that you have a specific Voice selected – also documented is the basic condition of the sound on that track. This data is housed in a 'header' that accompanies the Phrase whenever you recall it. A track has its data contained in a phrase. There are 256 possible User Phrases per Pattern Style[1]. Here is how you figure that out: There are 16 Tracks and 16 Sections. Each can contain a different phrase. However, if you wish you could recall the same phrase in many Sections – you **do not have to copy it**. Simply recall the phrase number on a special grid called the Pattern PATCH.

The PATCH is simply *what* phrase is assigned to *what* track in this Section. Press [PATTERN] a second time to see the Patch screen. Here is a simple example:

In **Section A** you set up to record a 4-measure intro section

On	**You record**	**it goes into**
Track 1	a drum groove	User Phrase 001
Track 2	a bass line	User Phrase 002
Track 3	a clav part	User Phrase 003
Track 4	an audio guitar	User Phrase 004

For **Section B**, the first verse, you need the same exact drum groove but a different bass, clav and guitar part

On	**You record**	
Track 1	nothing, simply recall	User Phrase 001
Track 2	a new bass line	User Phrase 005
Track 3	a new clav part	User Phrase 006
Track 4	a new audio guitar	User Phrase 007

A Phrase can be activated in any of the 16 Sections of the current Pattern Style **without having to copy it**. All you need do is PATCH it into the Section. The thing to realize here is that it is the exact same phrase – if you edit it you will change it in every Section it is used. If you want the same data but wish to make changes in it for each Section it is used – you will need to learn about the COPY functions. Read on…

COPY:
There are many options for copying. For example, you can copy at the *Event* level, you can copy at the *Phrase* level, you can copy at the *Track* level, and you can copy at the *Pattern* level. It may seem all so confusing at first but not to worry, we will sort this out.

[1] Every Pattern has access to the 5,980 Preset Phrases. Tracks 1-8 can access the Drum/perc Phrases, and tracks 9-16 have access to the musical instrument phrases. All Preset Phrase data can be copied (then edited) and moved to any track, as necessary.

Types of COPY

Copy Event (pg 141): Specify region of a Phrase in measure-beat-clocks, set the destination measure-beat-clock and the number of times to copy. Use COPY EVENT when you wish to extend (lengthen) the current phrase. For example, to turn a 4-measure Phrase into 16 measures, you would set "M001:1:000 ~ M005:1:000 → M005:1:000 x03". This says copy everything between the start of the phrase and the first beat of measure 5 (that defines 4 complete measures) to Measure 5 and do it 3 additional times. 5-8, 9-12 and 13-16 – making the Phrase 16 measures long.

Copy Phrase (pg144): Copies the current source Phrase to a User Phrase location. If the track contains an audio phrase check the box for 'sample' when you wish to have the destination phrase associated with the local sample voice of the original. If no sample is involved this setting will be meaningless and you can ignore it. The thing to be careful about here is the target destination will be overwritten by this job. You will have to be certain (on your own) that the target phrase is empty. This is one way to make a copy of a phrase when you want to edit differently in another section – there is another…read on.

Copy Track (pg 148-9): Specify Style, Section and Track, set whether Seq Events, PLAY/FX, MIXER/VOICE EDITS, and/or Sample data are associated and copied to the resulting destination. Use when you need to 'clone'[2] data on a specific track to a new Section and you want to edit it differently. You can individually select the types of events you are copying. This powerful job will search automatically for the lowest numbered empty user phrase – there is no risk of overwriting existing data. This is an ideal way to clone a Phrase because there is zero risk of overwriting existing data in the target. Also you have the option of copying all or just some of the events to the target location.

Copy Pattern (pg 151) Specify the Style and the Section. This will 'duplicate'[3] the current Section in another Section - Great for Copying between PATTERN STYLES. If ALL is set for the Source, ALL will automatically be set as the Destination. You are given the option of converting any Preset Phrases used to User Phrases – converting to User Phrases will allow you to fully edit the data contained in these Phrases. Preset Phrases can not be destructively edited so use COPY PATTERN to make Preset Phrases into User Phrases.

Now, lets apply this knowledge in an actual situation. It is a common scenario where you wish to use part or all of a phrase in another Section but you want to make a copy because you need to add or subtract some of what you have done. For example, if you want to copy the drums from one section into the next section but you want to do something slightly different to the drum pattern data, you need to naturally make a new phrase. If you are new to the RS and don't understand how 'Phrases' work, you may activate the same Phrase in two Sections, then when you attempt to edit it in section B you might be surprised that you also edited the Phrase assigned to Section A, as well. What you want to do in this instance is make a copy of the MIDI data in the phrase to a new phrase. It may not be initially apparent as to which of the copy jobs is the correct one for the task. To get the RS to create a new phrase (number) use the COPY TRACK function (one level above the Phrase level). When you COPY the contents of TRACK 1, Section A **to** TRACK 1 of Section B the RS7000 will *automatically* find the lowest numbered empty User Phrase and make a new one (same name, different number). Cool! Now you can edit the two Phrases differently. Here is an example of this difference between the copy functions using a real world situation:

Example: You want to use the basic data of USER Phrase 001 to build on. Your goal is to add a double time hi-hat pulse to what already is happening in **usr**001. You need to add additional data to this Phrase for Section B, yet keep it **as is**, in Section A. If you COPY PATTERN you will not get the results you want…you want to clone the data so you can edit it separately. Use either COPY PHRASE or COPY TRACK. We recommend COPY TRACK. Here's the difference:

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[2] A clone is a copy that looks (sounds) like the original but will not cause the original to bleed when you cut it. What? You will **not** edit the original, when you edit the clone.

[3] The duplicate will actually **be** the original – just activated in the target Section. If you then change (edit) an event in the duplicate Phrase the original Phrase will change – if they are still in the same Pattern Style. Obviously, if you point the results to an entirely different Pattern Style the results can be edited without interfering with the original data.

PATTERN STYLE 01 SECTION [A]

1 **usr 001**	5 **usr 005**	9 -------	13 -------
2 **usr 002**	6 -------	10 -------	14 -------
3 **usr 003**	7 -------	11 -------	15 -------
4 **usr 004**	8 -------	12 -------	16 -------

If you execute a COPY PATTERN where: **STYLE= 01**; **Sec = [A]**; → **STYLE= 01**; **Sec = [B]**
Your results will be an exact duplicate layout of Section A to Section B:

PATTERN STYLE 01 SECTION [B]

1 **usr 001**	5 **usr 005**	9 -------	13 -------
2 **usr 002**	6 -------	10 -------	14 -------
3 **usr 003**	7 -------	11 -------	15 -------
4 **usr 004**	8 -------	12 -------	16 -------

However, if you execute a COPY PHRASE instead, your results would be very different. You would need to identify the Source Phrase and know whether or not the target is empty. You would need to check manually. Point the results to usr006 (the lowest numbered empty User Phrase). This is why using COPY TRACK is much better for this purpose.

When you execute a COPY TRACK you do not have to concern yourself with what is empty – the RS automatically looks for the lowest numbered empty user location:
Here's the original Section data again

PATTERN STYLE 01 SECTION [A]

1 **usr 001**	5 **usr 005**	9 -------	13 -------
2 **usr 002**	6 -------	10 -------	14 -------
3 **usr 003**	7 -------	11 -------	15 -------
4 **usr 004**	8 -------	12 -------	16 -------

Set COPY TRACK as follows: **STY= 01**; **Sec=[A]**; **TR=01**; to **STY=01**; **Sec=[B]**; **TR=01**
Your results will be that the Phrase is placed in the lowest numbered empty user Phrase **usr006**. This Phrase can be edited independently of usr001. Activate usr006 in Section B

PATTERN STYLE 01 SECTION [B]

1 **usr 006**	5 **usr 005**	9 -------	13 -------
2 **usr 002**	6 -------	10 -------	14 -------
3 **usr 003**	7 -------	11 -------	15 -------
4 **usr 004**	8 -------	12 -------	16 -------

If you had named the usr001 Phrase: 'My_drums', usr006 would also be called 'My_drums' but you would know it is a clone because the number is now different, 006. This system will work well for you. Name your important phrases so that it is easy to know what they are. That is, descriptive names like drums or dmsVerse, and bass or bsChorus, will help you identify parts when copying.

Phrases that control Audio:
The fact that we refer to a track as being an 'audio track' is matter of convenience. Actually, all tracks contain MIDI data. Even those with the little waveform icon over the track number, actually contain the MIDI data that is used to trigger (control) playback of the audio sample. Audio data, the samples, are actually contained in a Voice, similar to the Preset sounds. The difference is the audio Voices are in one of two User sample banks: Sample Local 064/000, or Sample Common 064/001. What we refer to as a regular 'MIDI track' is one that contains a Phrase that triggers an internal RS7000 preset Voice. [A Voice is a sound that is assigned a Bank Select and Program Change number].

When a Phrase is initially recorded, the RS7000 automatically memorizes (embeds in a 'header' or setup table) what Voice Program location is currently selected among other parameters. This means that anytime you recall a Phrase, the sound will automatically be recalled, also. You do not have to insert any Program Changes, which would slow down

playback especially in looping objects like Pattern Phrases. This is a key advantage and allows you to change internal sounds without having to put clumsy program change messages in the event list. A track is considered an *audio* track, **if and when** it has a Sample-associated Phrase currently called by the Pattern PATCH[4]. The Pattern PATCH can be viewed by pressing the [PATTERN] button a second time – it actually toggles between the main Pattern Play screen and the Pattern Patch screen – because you will be using it that much. The PATCH shows you what Phrases, whether USER **(usr)** or PRESET **(pre)** are active in the current Section. One Phrase per Track per Section.

You can view the Voice assigned to each Phrase, when you press the [MIXER]x1 button and select a track. It is a very important thing to realize that you **can** change the assigned Voice at any time on the MIXER screen by dialing a new Bank and PGM for the track. This will override the embedded program change.

When you are viewing the [MIXER] Voice Select screen, if the Bank Select/PGM box shows the word "***Phrase***", then you are hearing the sound originally associated with that data. If, on the other hand, you are viewing a Bank Select number (063/000 ~ 063/009, GM, 126/000, or 127/000) and a program name, then you have re-voiced the track without having made the change permanent. Make it a habit to embed the program information into the Phrase when you have decided that this is ***the*** sound you want to be recalled when that Phrase is activated. It is very important to recognize that you **can** change the Program associated with any Phrase (any User Phrase)[5]. When using internal sounds it is possible to change the Voice on a track from Section to Section – because each Phrase that uses an internal sound can use this special embedded selection. It is not available for external MIDI modules - as it is a system exclusive bank select/program message in the header.

How to 'lock in' (embed) a Program to the Phrase.

- Navigate to the Pattern Patch screen. Press [PATTERN]x2
- Press the sequencer REC button to enter RECORD STANDBY
- Use knobs 1 and 2 to select the Bank and Program
- You can also set the transpose function. Whether the track transposes when TRANSPOSE function is activated. Drums default to OFF, Musical tracks to ON.
- Press REC button again to lock in your selections.

You can still re-voice the Phrase to try out new sound by going to the [MIXER]x1. If you turn knob 1 fully counterclockwise you will recall the associated program. ***PHRASE***

Take care to associate your Programs with your Phrases because this will give you more freedom when assigning internal sounds to tracks – you can decide to change an instrument on a track just for a particular Section. In other words, you do not have to have the same bass sound in every Section. By embedding the Program data in the Phrase, each Section could be a different bass sound. If you change the assignment *temporarily* via the MIXER, you will assign the same sound on that track throughout all Sections. **When you change the Voice assigned to a Phrase via the MIXER you are changing it for all Sections [A]-[P].** This will override its associated Phrase until you either reselect "***Phrase***" in the MIXER Voice Select window or you embed a new Program in the Phrase. This little routine is an advantage you gain because the RS7000 has an internal tone generator that can be addressed directly via the Phrase Setup Table – glitch free program changes of internal sounds even in Pattern mode.

What happens to the sample data when you execute a COPY job?

In most cases you will prompted in a dialog box to associate the Sample data with the copy. In the event you are working with Phrase data that does not offer a chance to associate the sample with the result, you can manually assign the program to the phrase – this may occur when you are splitting or appending Phrase data that controls audio data. Sometimes your action here will (can) be illogical. For example, if you have a sample that is 4 measures in length and you are triggering it with a note-on at the top of every 4 bars cycle (KIT+NOTE

[4] A Pattern PATCH is a collection of Phrases assigned to the current Section.

[5] Of course, Preset Phrases can be copied to user locations and then re-associated as necessary.

style)– then splitting this pattern phrase in half at measure 3 will not make the audio split. If you attempt to play the results of the split (measures 3 and 4) will contain no data – because the sample data was not split - only the MIDI data at the top of the phrase will appear. But when you understand what you are splitting, this will not be a problem or a mystery. If you split a Phrase that has been SLICED both sections will play properly because each segment has its own MIDI note-on. Obviously care must be taken to maintain groove integrity.

Phrase Length Tip

Loyal Star Trek fans will recall that Capt. Kirk was able to out smart Khan at helm of a starship because poor, 20th Century Khan could only think about navigating two-dimensionally. At Spock's suggestion, Kirk maneuvered in three dimensions and was able to think "outside of the box" that limited Khan's thinking. Okay, where am I going with this. As a rule "Think outside of the box". You have been getting used to the RS7000's Section architecture. Sections are musical entities that the user defines and can play as many times as required – freeing you to do real time rearrangements of your song. A Section being a collection of 16 Tracks containing individual musical parts called PHRASES. The Phrase can be any length from 1 to 256 measures in length – but, "Did you know…" that each of the 16 Phrases can have an independent length. Why have all the phrases of a Section set to the same length? Of course, you can, if you always think 'inside the box'. But thinking outside the box for a moment, what if you have bass line that is a 4 measure Phrase and a piano comping part that is 6 measures in length? Every time they reach a number that is both divisible by 4 and 6 they will start their cycle again. Like at measure 12, measure 24 and 32…cool! Now add a Kick drum pattern that is 8 measures, a snare that has a 12 measure cycle and a hi-hat with a 7 measure cycle…you get the idea. Your Section does not have to be constantly the same. Close observers will have noticed that the PATTERN PATCH screen indicates the exact length of a selected Phrase in the lower right corner of the PATCH screen. The Length of a particular Phrase is always set **before** you enter REC mode. On the main PATTERN screen use the [F3] button to highlight the Length parameter – set to any length 001-256. You cannot alter this afterwards by simply changing this parameter, however, you do have JOB options to SPLIT or APPEND to change the Phrase's fundamental length.

It is possible to place a Phrase in a Section and have that phase occur if and when you let the Section cycle a certain number of times. Here's how that might happen: the Pattern Section is an 8 bar section, principally, but on this one particular track you have a phrase that is 40 measures long with a musical part that begins in measure 33. Well, only when you let this Section play 5 times through will you hear the hidden phrase. It will happen for 8 measures and then layout for another 32 measures…That's thinking outside the box. That special phrase could contain a solo riff or special cue – you don't want to hear it every time but only when you are using that Section as the solo section. Of course, another way to think outside the box is to use the MUTES and the SCENES to 'hide' certain parts. Many people use up too many Sections because they don't realize that if you leave some tracks muted, you can have an entirely different groove happening within the same Section – simply by muting some tracks and activating others during a Section playback. Storable MUTES and SCENES are powerful tools. The RS7000 is designed so that you work within a single PATTERN STYLE. If you recall Sections from more than one Pattern Style you will have to deal with potential glitches in timing when entire MIXES, Effect routing and MIDI setups are switched. Don't go there if you can avoid it. Remember that each Pattern Style has its own setup for MIDI routing, 3 system effects processors, EQ etc, etc. If you think you can switch from one Pattern Style to another without hearing an audible glitch, then you understand very little about how MIDI works, so therefore you will have to trust us when we recommend that you don't do that. It is a case of "sure you can" but don't … do you know the joke, Patient: "Doctor, doctor it hurts when I do this" he said sticking a red hot poker in his eye. Doctor: "Don't do that!"

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