

# POWER USER

## MUSIC PRODUCTION and PERFORMANCE With the RS7000

### RS7000: Mode Definitions and Concepts

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YAMAHA RS7000 Concepts

## SONG MODE

**SONG; 20 total**

A linear structure with 16 data tracks plus a BPM track and a SCENE track. A song is a recording of MIDI events including changes in tempo and time signature. Scenes are snapshots of all knob settings and parameters – those that offset the sequence data itself and those that effect the synth sound directly. Scenes also memorize BPM, mute status and current program change. Scenes and Mute memories are instantaneously recallable during Song playback and can be recorded. Song mode uses Song Position Pointer which allows your music to synchronize via MIDI TIME CODE[1] (MTC) with external Multi-track recorders, like the AW4416 or AW2816. Song mode will be able to chase/lock (auto-locate and sync) when slaved to a device that is sending MTC. Maximum length of a Song is 999 measures. Being a linear structure this allows for various time signatures and BPM to be used at particular measures within the composition. MMC (MIDI Machine Control) and MTC ensure that the RS7000 synchronizes speed and location of the external control device. This is contrasted to Pattern mode, where shorter cycling segments of music are used – Pattern mode does not follow Song Position Pointer (by definition) and therefore the location of precise measure and beat is not automatic, although speed of patterns can be synced by MIDI clock.

## PATTERN CHAIN MODE

**PATTERN CHAIN; 20 total**

Pattern data can be converted to Song data via the Pattern Chain function. Pattern Chain mode lets you assemble your pattern Sections into an automated linear mix. This intermediate step lets you *intuitively* record the order of Pattern Section playback (on the PATTERN track), tempo changes (on the BPM track) and the track status (on the SCENE track) in separate passes. You also can create/edit this list via PATTERN CHAIN EDIT mode. Once you have recorded and edited your Pattern Chain you can execute the JOB function CONVERT TO SONG. Which will write the data out on linear tracks in Song mode, complete with Program Change and initial settings. The feature is designed to work best with a single PATTERN STYLE in a Chain – using up to 16 Sections. If you need to use data from more than one PATTERN STYLE in the creation of your PATTERN CHAIN, the results may become unreliable, here's why: your SCENES and MUTES, which are PATTERN STYLE specific, can easily be mixed up. Other reasons why you may get unexpected results include the MIDI setup, which can be unique to a Pattern Style. Also knob assignments can be a problem, if not the same in each Pattern Style. This is not to say that you can't use multiple Pattern Styles to make up your chain, however, just be aware of how much data is being changed and which data is not being changed, when you switch between Styles. If you are going to break the rule, know the consequences.

## PATTERN MODE

**PATTERN STYLE; 64 total**

At the top of the Pattern mode hierarchy is the 'Pattern Style', which should be understood as the components that will become a Song (a linear structure). The advantage of having the Song divided into this form is so that you can rearrange the order of playback by sections, in real time. A Pattern Style is a collection of up to 16 musical segments, called Sections. Musicians will know these as Intro, Verse, Chorus, Interlude, Vamp, Solo, Ending, etc. They are completely user definable. It is the habit of jazz (and other) musicians to refer to a section of a song by a letter, 'A', 'B', 'C', etc. This is how the sections of a Pattern Style are referred to when constructing your song. A Pattern Style has up to 16 Sections A-P. It has a basic tempo shared by all. It has 5 Mute Memories and 5 Scene Memories. Although you can do other things with it, a **Pattern Style**

[1] MTC is SMPTE signal in RS-232 form that can be sent down a MIDI cable. It is accurate to one quarter frame.

typically represents a Song broken into its component sections. Each Pattern Style can also store a basic MIDI track transmit configuration, a complete MIXER configuration (this includes setups for 3 system effects, 16 sounds and their edits, EQ settings per track, etc.), and it recalls a complete set of sequencer PLAY FX settings. All of these things are recalled when a Pattern Style is recalled.

**SECTION; 16 per Pattern Style**
A Section is defined as one of sixteen musical segments that make up a Pattern Style. It is user definable as to content, purpose and length from 1 to 256 measures. Each Section has coincidentally, 16 tracks (one for each part of the multi-timbral tone engine), one per MIDI channel, initially. You define a Section by how you want to control your composition. In other words, if you divide your song into A= Intro, B= Verse 1, C= Chorus 1, D= Solo, and E= Vamp out, you can intuitively restructure the arrangement as it plays back. 'ABBCBDABBE' could be your arrangement this time and 'ABCCBDECE' the next time through. Sections are lettered A through P. Sections can be recalled while in Pattern mode at any time via dedicated buttons A-J and/or knob 2 from the main Pattern screen. You do not need to re-record a Section to make it repeat – you simply select it to play in real time. Not only does this save memory but allows for audible 'try-outs' of the song arrangement. You can later document this in a Pattern Chain, which in turn, can be converted to a linear Song.

**TRACK; 16 Per Section**
A Track is defined as one of sixteen locations to store MIDI channel data. Each track is assigned a MIDI channel from 1-16 to transmit on. Any channel message that appears on a track will effect all connected MIDI devices on that MIDI channel. For example, if you set the Reverb Send, control change message 91, to a value of 55. It will be set the reverb send to 55 for this track in all Sections of the current Pattern Style. Tracks always contain MIDI data, even when that MIDI data is controlling the playback of audio samples. Audio samples are assigned MIDI notes and the data to control them is recorded on a specific track. Yamaha Pattern mode automatically places your recorded data in an entity called a Phrase. So behind the scenes when you place a track in record, the RS will place that data in a user Phrase – this will allow you to recall the note data and the current settings as one unit. Tracks can contain **a** Phrase per Section. For example, you record a piano part by placing Track 1 of Section A in record, the RS will automatically place this data in USER Phrase 001. That Phrase will 'remember' what sound was called at the time you recorded – it will recall the sound whenever the phrase is recalled (unless you override this in the MIXER). When using internal sounds, you never have to worry about inserting program changes in the pattern data – the phrase 'remembers' this data in a special Phrase header.

**PHRASE; 1 Phrase per Track per Section**
Any data recorded to a Track in a Pattern mode Section gets stored in a namable, recallable and numbered User Phrase. In addition to the 256 possible User Phrases in each Pattern Style (16 Sections times 16 Tracks = 256 User Phrases), the RS gives you access to 5,980 Preset Phrases. These Phrases categorized as Bass Drum, Snare/Clap, HH&Ride, Crash Cymbals, Percussion on tracks 1-8, with Bass, Synth Lead, Synth Seq., Synth Chord, Synth Pad, Synth Efx, Sound Effects, Keyboard, Guitar, Classical/Wind, and Ethnic phrases on tracks 9-16. Preset Phrases can be offset in real time via the PLAY FX, Real Time Loop Remix, and the other knob functions. However, Preset Phrases can be permanently event edited only after copying the data to a User Phrase. Each Phrase will recall the original sound or kit that was used, unless you override it in the MIXER. As mentioned earlier, each Pattern Style has a MIXER for its settings. If the MIXER shows "***PHRASE***" as the selected BANK/PGM you can be assured the original sound that was programmed with this musical passage is playing back the data. You override this for **all** Sections by changing the setting in the MIXER. When using internal RS7000 sounds the bank select / program change information for the Voice will automatically recalled if "Phrase" is assigned in the Mixer. This means you can easily have a different sound on a track from Section to Section without inserting messages in the event list. When you override this by selecting a different sound, the track will remain on the new sound from Section to Section.

The Phrase concept makes it possible to activate a musical passage in a Section without having to copy or replay the data. It also does not use additional memory, either MIDI or sample. This is accomplished in what is called a Pattern Patch – press PATTERN a second time to view the PATCH screen. Although you do not have to name each phrase, you can. If you want to make a copy of the data, you can freely do so. It is also possible to export (to Song) and/or import (from Song) any musical passage up to 256 measures in length. These jobs are called PUT PHRASE and GET PHRASE. They allow you to move seamlessly between Song mode (linear mode) and Pattern mode (loop based sections).

Creatively speaking, Phrases within a Section can be of various lengths. In other words, not all Phrases that are activated in a Section need be the exact same length. This allows for Pattern Sections to evolve as they play back. A 12 measure bass line playing alongside an 8 measure drum part, with a 6 measure piano part will create a special 24 measure cycle of their own.

All that said, nothing says you can't bend these structures to your needs. But an understanding of how it works musically can only help. Talking as a musician you can understand the words used in the RS7000 interface. A "Pattern Style" – used like in the sense that all sections of a Pattern Style will be related – most likely as a part of the same song – but calling it song would be confusing because of the other Song mode. The word Style from the use, "style of music", like Bossa Nova, or Detroit Techno or House. In general, all parts (Sections) of a PATTERN STYLE share the same tempo and probably instrument layout (MIXER) settings. A "Section" – the word is used just as musicians would use it – a section of music – verse, chorus, intro, solo, etc. A "Track" is just what you have always known it to be – a place to store MIDI data. Remember even 'audio' tracks contain the MIDI data that controls their playback. The "Phrase" is a recallable bit of data – it is the data on a track. This allows you to recall your own recordings from a phrase data base – you have 256 phrases per Pattern Style and access to the units 5,980 Preset Phrases. The "Phrase" innovation is what is new to many. It is like a computer librarian approach to all your MIDI recordings – it automatically remembers (writes to a header) what sound is selected, what the length of the Phrase is, what the time signature is, and whether or not the Phrase will transpose when that PLAY FX is applied. You never have to insert Program Change events in looping patterns because the PHRASE concept memorizes the Voice used. Placing Program Changes in the event list would only cause timing errors, especially if you are recalling 16 sounds every cycle. By placing this setup data in a header that accompanies the phrase, the RS is able to recall the sound without any timing glitch. Once understood you will love phrases. Importing (GET) and Exporting (PUT) Phrases from and to Song Mode is also very cool. Things like Twiddly Bits MIDI Files and any SMF data becomes data you can import and use in the sequencer. In fact, it doesn't matter what sequencer was used originally to create the data, if there is a way to save it as a Standard MIDI File (SMF) you can import the data to the RS. Once in the RS you have all the hands-on control and functionality for the remix. You can create your own drum patterns/grooves and export them as SMF, as well - market them, trade them with friends.

Tip: When using Pattern Chain mode's CONVERT TO SONG Job, it may become necessary for you to move (or remove) Bank Select/Program Change events to musically convenient clock pulses. If you use several different sounds on a track (changing from Section to Section) the RS7000 will place the Bank Select and Program Change event on the first clock tick of the measure where that Section is to begin playback. Moving the event a few ticks early will normally take care of any glitch problems. When converting a PATTERN CHAIN to Song – start it at measure 2: M002. That way you can move all the initial program changes back to measure 1 – this ensures a glitch-free start. Actually, when you convert the data to Song the RS automatically stores the initial mix. So the Program change data is redundant – it is included only because you may wish to export the Song data as a SMF for use elsewhere.

## Applications

**Pattern → Pattern Chain → Song**

How you use the RS7000 will depend on your goal for the finished product. If you are into 'live' performance, you may find PATTERN mode as the perfect vehicle with all of its real time arranging functions. If you are linking the RS7000 via MTC to an external MTR (multi-track recorder), you will need, at some point, to convert your Patterns to a SONG. SONG mode has the distinct advantage of being able to sync with chase/lock auto-locate. Pattern mode can follow MIDI clock but it cannot, by definition, follow Song Position Pointer. This means that because Patterns are usually short cycling segments it is not suitable to chase (find the measure-beat-clock location within a linear structure, like with a song recorded on a MTR). This is a principal reason to convert to SONG: 'intelligent' synchronization with external MIDI devices. Pattern Chain is the intermediate step that allows you to either record your Section changes intuitively in real time, or via an event list. There are 3 tracks in Pattern Chain Mode: one to record Pattern Section changes, a second for BPM (tempo) changes and the third for SCENE/MUTE activity. Once you have performed, edited and placed an 'END' command in your Pattern Chain, you can use the CONVERT TO SONG job to create a linear event listing of your data. The RS7000 will not only convert the note-on and controller data but it will recreate your complete mixer settings. It will also place the necessary Bank Select/Program Change data in the event list. You may find it necessary to move these events if they interfere with the timing of playback. If you use lots of program changes within your data, remember that the RS7000 is able to embed its own bank select/program change data per Phrase while in Pattern mode. This is handled in a system exclusive header since it is talking directly to the internal tone generator. When the data is converted to a linear structure, the SONG, the bank select and program change information is inserted in the track data as standard MIDI events. Inserting Bank Select/Program Change messages is never done in Pattern mode because it would interfere with the playback timing – besides who wants the program change event happening every time the pattern cycles? You can use the EDIT VIEW filter to isolate just the program change events so that you can easily move them to an appropriate clock pulse so that they do not interrupt smooth playback.

You may find it prudent, for example, to start in Pattern mode, create a Pattern Chain, then convert to Song. When you get to Song mode, you can 'overdub' your audio tracks, vocals, guitars etc., just like you would with any multi-track recorder. When all of your audio overdubs are complete you can return to Pattern mode via the SPLIT SONG TO PATTERN job or leave the Song in linear mode.

Of course, you do not have to convert the entire Pattern to Song. The RS7000 has job functions to PUT PHRASE data into a linear Song and to GET PHRASE data from a linear song. The PUT PHRASE job lets you move pattern data (phrases) into a Song. Then you can cut and paste it and take advantage of the obvious advantages of Song mode (MTC, chase/lock auto location, automated time signature and tempo changes, etc.) The GET PHRASE job allows you to "sample" (import) MIDI phrases from any SMF. The potential is awesome.

**SCENES and MUTES**

The Mute concept is probably not new to you if you have been around any digital mixers or recording gear in the last 15 years. There are 5 MUTE MEMORY locations per Pattern Style that can be used to recall track playback status (on/off). Oft time you can get more mileage out of a Pattern Section by artfully working the Mute memories. They can be stored with the Pattern or Song and can be updated while the unit plays back. Scenes are also a concept from our digital mixers. There are also 5 SCENE MEMORY locations. A Scene is a 'snapshot' of all the knob function settings, including the MUTE status of the track, the tempo, and current Program Change information. Artful use of Scenes can greatly increase the sonic possibilities within your Pattern or Song. It is recommended that you take an 'initial' Scene snapshot to memorize the start condition of your mix – this way you can twist away at the knobs yet can return to the original sound at the touch of a button.

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