



YAMAHA

POWER USER

Motif Music Production and Performance

Working with the Motif Arpeggiator

Phil Clendeninn
Digital Products Support Group
©Yamaha Corporation of America

Topics: demystifying "some" of the Dark Art of Arpeggios
Recording the Motif Arpeggiator to an external sequencer
Recording the Motif Arpeggiator to the Motif sequencer
Arpeggios in Voice, Performance and Song/Pattern modes
Fixed Note Mode arpeggios: Drum Grooves as arpeggios
Recording a Performance with a "DR" arpeggio to a Song/Pattern
Controller arpeggios explained

Working with the MOTIF Arpeggiator and an external sequencer

We receive many queries about how to record the MOTIF arpeggiator. While this may seem a simple thing at first, it has stumped many a MIDI user. There are several things to understand about the MOTIF arpeggiator before you attempt to record it to an external sequencer.

- The arpeggiator is a device that can typically take your sustaining note-ons and turn them into a running scale or a complex pattern of notes.¹ This is referred to as a "SQ" or sequence type. Let's start with this type.
- There are two things going on here: the sustaining note-ons themselves and the resulting arpeggio notes. They are separate and you can treat separately when transmitting to external gear. You can transmit each on a separate channel to your sequencer.
- The arpeggiator is located directly between the MOTIF keyboard and the MOTIF tone generator. And LOCAL must be ON in order for the MOTIF to send notes to the tone generator then out via MIDI.

In other words, let's say you have a basic up&down pattern for the arpeggiator. You press and hold a Cmajor triad for 4 beats. You have the C - E - G arriving, simultaneously, at the sequencer, as sustaining whole notes. Of course, these note-ons go out via MIDI - they are the notes you actually fingered. But also there are the individual notes played one after the other (the arpeggio). Recognize that although you do not hear the sustaining whole notes when the arpeggio is active, they are note-ons and your external sequencer will 'see' and record them. You can choose to transmit (record) these note-ons or not, along with the arpeggiated notes, if you follow the following tips.

¹ The Motif arpeggiator is capable of sending in FIXED NOTE mode (where it plays back exactly the notes programmed in regardless of the notes fingered - "DR" Drums) and it has a mode where it does not have note data at all. It sends Controller data, like PB, MW, Effects Send, Pan, Filter Cutoff and Resonance (CT = Controller). Of course, there are arpeggio Phrases (PH).

In the MOTIF you have a main Transmit Channel found in **UTILITY/ F5 MIDI/ SF1 CH**. The main Transmit Channel is the MIDI channel that will be transmitted by the Motif when you are in Voice mode or Performance mode.² Motif provides a separate transmit channel for the arpeggiator from Voice mode. ARP CH (Arpeggio transmit out channel) parameter found at **UTILITY/ F3 VOICE/ SF2 ARP CH**. This determines the transmit channel for the results (output) of the arpeggio while in Voice mode.³

While the ARP transmit channel is set globally for Voice mode, each Performance is its own world. The arpeggiator or ARP Channel is set independently for **each** Performance. Whether in Voice mode or Performance mode the OUTPUT SWITCH parameter must be turned ON in order for the Motif to transmit the resulting data from the arpeggiator to your external device.

If you do not have the arpeggiator OUTPUT SWITCH ON you will not be transmitting the arpeggio notes you want out via MIDI (only the regular note-ons - the sustained notes will be sent) via the main transmit channel - naturally, that is how it defaults. But if you want to record the results (output) of the arpeggio to your external sequencer - simply turn the OUTPUT SWITCH ON for the mode you are in and direct it to the MIDI channel you wish.

If you do not want to record the sustaining note-ons to your external sequencer while in Voice or Performance, you should actually turn OFF the main Transmit Channel (in UTILITY mode). The main Transmit channel is responsible for the notes you actually finger.

The Arpeggiator Output Switch and Channel settings are found in a Performance: Press **EDIT/ COMMON/ F3 ARP/ SF4 Out Ch**

If you want to record the sustained notes, as well, you can actually transmit them on another MIDI channel. Set the Main MIDI Transmit channel to 1 and the ARP CH to 2, for example. Place both channels in record in your sequencer.

² When MASTER mode is activated, then you are transmitting on the channels programmed in the Master setup, overriding the main Transmit CH.

³ If you do not see VOICE as the choice over F3 it means you did not enter UTILITY from VOICE mode.

The one other mode you can use the arpeggiator is SONG/PATTERN. When you are in a Song MIX or Pattern MIX you are transmitting out via MIDI based on the track you have selected and its MIDI channel assignment. The arpeggiator, which is setup in **MIXING/ EDIT/ COMMON/ F3 ARP/ SF1-SF4**, will allow you to play your "note-ons" on one MIDI channel and transmit the results of the arpeggio on another. Each MIX will have an Output Switch and Arpeggio Channel parameter. When you are working in a MIX you can additionally have an internal Motif PART respond to the results of the arpeggio. This individual PART switch for the arpeggiator is found in **MIXING/ EDIT/ Touch a TRACK [1]-[16]/ F1 VOICE/ SF2 Mode**

- If you are working in Performance mode you can apply the arpeggiator to up to 4 internal Parts. From the main Performance screen press F6 ARP. Here you can set which Parts respond to the selected arpeggio pattern, which pattern, set a velocity range that will start the arpeggio, etc. You can have a Performance that layers a Piano and strings, for example, where the strings sustain and the Piano is arpeggiated. Or you can have all the parts in the Performance dancing to the same arpeggio.
- If you are working in Voice mode you set ARP OUT to ON, set an ARP MIDI CHANNEL and every Voice will respond to the global Voice arpeggio settings.
- If you are working in a MIX (Song or Pattern) you can apply the arpeggiator to a single internal Part.

The other **very** important thing to understand about an arpeggiator. It is physically located between the keyboard and the MOTIF tone generator. The keys you press go to the arpeggiator before they hit the tone generator - logical and simple enough. LOCAL OFF disconnects the MOTIF keyboard from the MOTIF arpeggiator and tone generator.

Most users who use an external MIDI sequencer operate the MOTIF with LOCAL OFF and they echo back (THRU) the notes from the sequencer back to the keyboard. This will **not** work when you want to record the arpeggio out via MIDI, because of the signal routing. Therefore, when you want to setup to record the

output of the arpeggiator - set the parameters as mentioned above, make sure that LOCAL is ON in [UTILITY] Mode and that you are **not** echoing notes back to the MOTIF from your sequencer. You may need to refer to the instructions of your sequencer to make sure that notes are not echoing back to the MOTIF.

When you finish recording your arpeggios you can go back to using LOCAL OFF and echoing back the signal to the MOTIF. (Create a separate setup for recording arpeggios and one for normal recording...most sequencers will let you).

Warning - Remember to turn the ARPEGGIATOR OFF when you playback the results from the external sequencer, otherwise you will be arpeggiating the arpeggio.

You can work out the sync issues by setting the external sequencer to either MASTER or SLAVE clock, depending on how you wish to work. If you make your external sequencer MASTER clock then you must set the MOTIF SYNC to MIDI clock. This is set in [UTILITY]/ F5 MIDI/ SF3 Sync. If all this is too complicated you can use my favorite method outlined below.

A much simpler method

Since the Motif has a special function that makes it extremely easy to record arpeggios to its internal sequencer. Simply record the arpeggio you want to the Motif internal sequencer, then setup to transfer it real time to your external sequencer. To record the Motif arpeggiator to a Motif track:

Press the REC button to enter REC stand-by

Setup to record via the Function buttons

- F1 Setup - Select Record type Overdub or Replace; set Quantize to OFF; Select Record track; etc.
- F2 Voice - Select VOICE; Make basic setting
- F3 ARP - Set up the Arpeggio pattern; Switch = ON; HOLD = your preference; Part Switch = ON
- F4 ARP (icon) - When the little eighth note icon appears the track is armed to record the "*results of the arpeggio*". Not your note-ons just the results of the arpeggiator.
- Press PLAY and go for as many measures as you need the arpeggio pattern.

- When finished press STOP and turn OFF the ARP ON/OFF LED before playing back.

Link your Motif to your external sequencer, set MIDI clock master/slave as appropriate and transfer.

More Magic with Arpeggios
How'd they make those DRUM pattern arpeggios and how do I create my own arpeggio drum patterns?

The coolest thing about the arpeggio drum patterns is that you can use them in a Performance like Procession and RStreet. If you ever played these and wanted to create your own drum groove for the factory Performances...read on.

The thing to know about these DRUM ARPEGGIOS is they use what is called a "FIXED NOTE MODE" rather than the cascading cycle of notes.⁴ Fixed Note Mode means that the arpeggio will play exactly the notes input, as input and it will do this regardless of the notes you play on top.

Let's create a drum pattern for use as an arpeggio. The job that converts data to the arpeggio is found in SONG mode. You can create your drum groove directly in Song mode or you can use PATTERN mode if that is more familiar and comfortable for you. You will simply transfer the groove to Song mode when you are satisfied with it.

SONG Mode:

- Select a blank Song.
- Select track 1.
- Press REC to go to standby.
- F1 SETUP - Select the Record type = Overdub; Quantize; Time Signature; Tempo as necessary.
- F2 VOICE - Select the Drum Voice use Category Search for quick selection.
- Press PLAY and record your pattern

If in PATTERN Mode

- Select a blank Pattern.
- Select track 1.
- Press REC to go to standby.
- F1 SETUP - Select the Record type = Overdub; Quantize; Time Signature; Tempo as necessary.
- F2 VOICE - Select the Drum Voice use Category Search for quick selection.

⁴ The Motif arpeggiator is also, as we'll learn next, capable of creating control data arpeggios, as well.

- Press PLAY and record your pattern
- When finished transfer the results to a blank song using the PUT PHRASE JOB.
 - Press JOB/ F4 Phrase/ cursor down to Job 7 "PUT PHRASE TO SONG"
 - Setup dialog box and press ENTER and YES to execute.

Now that we have our drum pattern in SONG mode we are ready to create the arpeggio pattern. From the SONG mode screen:

- Press JOB/ F5 TRACK
- Cursor down to JOB 7 "PUT PHRASE TO ARP"
 - Set the Source: Track 1
 - Set the Measures: 001-004 for a 4 measure drum pattern.
 - Set Destination ARP...there are 128 user locations.
 - The Track parameter in the lower right corner refers to the 4 tracks in the arpeggiator⁵
- Press ENTER and YES to execute.
- You can now assign this arpeggio pattern just like any of the other.

Go to RStreet and replace the arpeggio in that Performance with yours, which should now be in the USER 001 location.

Press Performance and select Performance 003 RStreet. Press F6 ARP and change the BANK to USER and dial up USER 001. Set the tempo to your liking. Press F3 and select the drum kit you like. Notice that you inherited the delay effect and drum kit from the Performance but it is quick and easy to make changes to your liking.

How do I record a Performance to a SONG or PATTERN?

This is the next logical question. The answer, like all things that have to do with the arpeggiator, may be a mystery, at first. We all ready know enough about arpeggiators to figure this out. Here are the clues:

In an earlier section of this article we learned that there are two important parts to the arpeggio; the actual notes that you play and the results of the arpeggio. We somehow automatically ignore the fact that the notes that we play and hold are not heard directly...you hear the pattern that they cause. And we learned that these two

⁵ Of course these are not normal tracks (what is normal about an arpeggiator?). In a later experiment we will discover these tracks.

different types of events can be transmitted on separate MIDI channels.

From this we should now realize that when you record into the Motif sequencer any arpeggio data by arming the ARP function while the ARP is ON, this will result in recording only the output of the arpeggiator and not the sustaining note-on data. Therefore when we attempt to record our new RStreet Performance it will actually take two passes to do it. On the first pass we will record the drum groove arpeggio and on the next we will record you playing on top of the groove.

When recording a Performance with a drum arpeggio in it, use the PF COPY function to move the Performance to the SONG or PATTERN MIX. This assigns all parts to MIDI channel 1 of your MIX (the basic Receive Channel as set in UTILITY).

- Press MIXING/ JOB/ F5 PF COPY

When you are set to record make sure you have the REC arpeggio function ON. You can find this when you press REC, the F4 button says ARP with a little eighth note symbol, if it is not there press F4 once so that it appears. This will prepare to record the drum groove (arpeggio) into your SONG or PATTERN. You can play along while it records but we will not be recording what you play on this pass...we are just recording the arpeggio (drums). Remember the Arpeggio Record function only records the output of the arpeggiator not what you play. And since our Drum arpeggio is in FIXED NOTE MODE, we know exactly what it will record...just the drum groove.

Perf 003: RStreet. This Performance has our new DRUMS arpeggio in Part 1, a lead sound called "Hip Voice" at the top of the keyboard in Part 2, Bass in Part 3 and a Rhodes in Part 4.

When you have completed the recording of the first pass, turn the ARP ON/OFF button to OFF and make the following edits to your MIXING setup **before you play it back**:

- Press MIXING
- Press EDIT
- Press TRACK 1 to see the individual MIXING PARTS
- Select F1 VOICE/ SF2 MODE

- Set Part 2, 3 and 4 each to MIDI channel 2.
- This will leave the drums to playback the data on track 1.
- Select TRACK 2. When you now play on track 2 you will hear the bass in the left hand, the Rhodes in the middle and that lead sound at the top. All three parts can be played live (when you select Track 2).

Now record yourself jamming over the drums again. It should feel exactly the same, only this time we are actually recording your note-on data to track 2 (which will trigger parts 2, 3 and 4)

ARPEGGIO RECORD HINT: When setting up to record an arpeggio into a PATTERN, it is best to set the LOOP function OFF for RECORD mode. From REC Standby set LOOP to OFF. This will stop recording at the end of the Pattern length so you do not record on top of yourself as it cycles.

STILL OTHER TYPES OF ARPEGGIOS

One of the most intriguing types of arpeggios are the CT or CONTROLLER type arpeggios. Instead of note data, or fixed note data, this type is simply controller data. Now this is fun. See if your brain can follow this scenario. Call up the sound called "Co: WEIRD SCAR" User 030 (B14). This Voice has a CT type arpeggio. That is doing the rhythmic filter chops. It is controller 74 Filter Cutoff (or Brightness) that is being altered by the arpeggio. You can defeat its contribution by turning the ARP switch OFF, temporarily.

From the main Voice screen press F6 ARP. Here we learn that the arpeggio assigned is Pre1 "CT: Gate Cut B". Tempo is 120bpm. Now to learn more about this type of "controller data" arpeggio, let's try and record this Voice with its arpeggio active. Go to a PATTERN, set the length to whatever you require and set up to record the arpeggio as per usual.

- Press REC to enter record standby
- F1 SETUP
 - Make RECORD TYPE = OVERDUB
 - Set LOOP to OFF
 - Set Quantize to OFF
 - Set tempo to 120bpm
- F2 VOICE – Use Category Search to find Combination sound/ "Seq" sub-category Weird Scar.
- F3 ARP – Use this screen to set the arpeggio to Pre1 CT: Gate Cut B (it's the next to the last one in Preset 1)
 - Turn Switch = ON
 - Hold = ON

- Part Switch = ON

When you turn the Part Switch ON the sound disappears...what's up with that? You will not hear anything, quite naturally, because what does controller 74 sound like by itself? ...nothing. (Remember we are hearing just the results of the arpeggio, not the note-ons. With the PART SWITCH ON, record the 'silent' arpeggio. Press Play and touch a note (we have HOLD ON so the action will continue without us having to hold down a note. So let's say you need 4 measures of filter chop...record 4 measures of the 'silent arpeggio'. When you have finished. Go back and if you view the track in Event Edit you will see controller 74 throughout. Turn OFF the ARP switch. Place the sequencer in OVERDUB (very important) because you will be adding note data this time. Now play the sound, like you know it can sound. Your controller data (the filter sweep) will already be on the track and now you are adding (overdubbing) the note data. It will feel exactly the same as if you were recording it all at once.

What is going on?

Recording and playing Arpeggios is different than recording and playing normally. Consider this: when you are recording a so-called 'regular' up & down type arpeggio, actually you only record the result (or output) of the arpeggiator. You do not hear your actual note-ons (your key presses and held notes)...those are ignored by the recording track - otherwise they would be droning in the background constantly. Same thing is happening here with Controller-type arpeggios. On the first pass, you record just the output of the arpeggiator - the control data-, not your note-ons (key presses). On the second pass overdub your note-ons normally. This time we can record the note-on data to the *same* track because it will not interfere as it would in our Performance example.

To fully understand this call up the VOICE Co: Weird Scar and go to EDIT/ COMMON/ F3 ARP/ SF1 TYPE. Here you will also see that the KEY MODE is set to "DIRECT" meaning it will playback the controller data and apply it to the notes you hold down. See the manual pages 132-133 for details on the different Key Modes of the arpeggiator.

RECORD YOUR OWN CONTROLLER ARPEGGIO

You can record your own control arpeggios...here's how:

- Go to a blank Song.
- Use the KNOB CONTROL FUNCTION buttons to select CUT and REZ on knobs A and B
- Go into record and record yourself moving the Cutoff and Resonance knobs to create your pattern. You can hold notes (it won't matter for this arpeggio type).
- When you have recorded the sweep motion you like, press JOB. Song JOB 7 under the F5 TRACK heading is called "PUT PHRASE TO ARP". It will take your controller data and make an arpeggio out of it.

You can store it in one of 128 User ARPEGGIO positions. Now you can apply it like any other arpeggio.

- Go to the Voice you want use it on.
- Press EDIT/ COMMON/ F3 Arp/ SF1 Type
- Apply your USER ARP and make sure you set KEY MODE to DIRECT.

Store your work...

You can record 4 tracks of data. You can go back and record yourself PANNING using the KNOB CONTROL FUNCTION set to PAN. When you go to the PUT PHRASE TO ARP job notice that after you set the target USER ARP you can select one of four destination tracks. You can "PUT" your PAN data on to track 2. Go back record Pitch Bend and "PUT" it to track 3. Record reverb send level and "PUT" it to track 4.

In the future you may see an Arpeggio Editor which will let you get at more of the 'hidden' features of the mysterious art of arpeggiating. Currently the four tracks have limited use.

Phil Clendeninn
Digital Product Support Group
Pro Audio and Combo Division
©Yamaha Corporation of America