

GENERATING GOOD KARMA

By Stephen Kay © 2001

Korg Karma owners are well aware of the dangers inherent in possessing a keyboard that mates the Korg Triton sound engine with a highly advanced algorithmic music generation system. Press a Chord Trigger button one last time on your way to bed, and you may end up in an unexpected all-night jam session, inspired by cascades of interactively generated notes and grooves.

The onboard KARMA Variable Performance Modeler will modulate, arpeggiate, interpolate, improvise, randomize, repeat, echo, transpose, strum, pick, slice, dice and nearly make you coffee out of the notes you give it. However, getting a handle on all of that power and complexity can be daunting at times.

Since the Karma shares the Korg Triton sound engine, and has the same sequencer, you can apply most of the tips n' tricks discussed in EM's Master Class: Taming The Triton (June 2001). So rather than discuss sequencer basics and program editing, I'll concentrate on using (and perhaps abusing) the KARMA function.

THANKS IN ADVANCE

Manual Advance is a powerful KARMA feature that wasn't used very much in the factory voicing, although it received prominent exposure in some of the online demos and marketing materials. If you're not sure what I'm talking about, try Program E004 Spanish Gtr C6 ->, Scene 1. Play a chord with one hand near Middle C (an "Input Chord"), and then advance the guitar picking pattern by striking "Trigger Notes" in the top or bottom octave with the other hand. This allows you to control the rhythm, velocity, and number of notes at a time (strums) that are generated by the way you play the Trigger Notes – but the actual pitches of the notes are determined by the chord you played and the internal processing of the algorithms. In Combination Mode, this effect can be used to control multiple KARMA Modules at the same time, as demonstrated by Factory Combis B007 and A039.

Other than these three examples, this fun-to-play and addictive feature remains relatively hidden. But in fact, nearly any GE in the Karma can have Manual Advance applied to it – it just requires several steps to set it up correctly.

Let's do this with one of the other guitar programs, B069 Strato-Chime. When you first call up this program, and press one of the Chord Trigger buttons, you hear a clean guitar with a picking pattern. To turn this into a Manual Advance controlled program, we first need to provide a zone (or zones) on the keyboard for the Trigger Notes. Let's assign both the bottom and top octave to be used, so that we can control the Manual Advance comfortably with either hand.

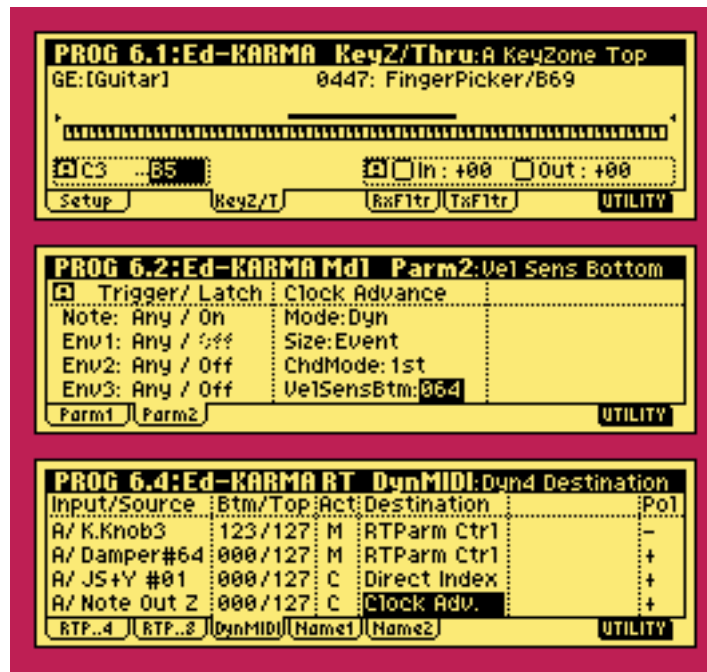


FIG. 1: The Karma can be configured to perform the addictive Manual Advance feature with nearly any Program.

On Edit Page (6.1-2a) [KARM] [KeyZ/T], set Key Zone Bottom to C3 and Key Zone Top to B5 (see Fig. 1, top). (Tip: an easy way to do this is simply cursor so that the field is highlighted, hold down the [Enter] key, and play the note on the keyboard – it is automatically assigned to the field. This also works in many other places on the edit screens – anywhere there’s a note number or velocity value to be input.) With KARMA on, play some notes in the top and bottom octave, and notice that nothing happens – but play a chord in the middle and the picking pattern starts.

Next, we need to disconnect the internal clock and set it so that it will respond to Trigger Notes. On Page (6.2-2b) [KMd1] [Parm2], set Clock Advance Mode to Dyn (Dynamic MIDI - see Fig. 1, middle). This disconnects the internal clock, which we can check by playing a chord in the center area – the picking pattern no longer starts.

Now, we’ll use Dynamic MIDI to route the top and bottom octaves to the Trigger Notes. On Page (6.4-3) [K RT] [DynMIDI], we’ll use row 4, which is currently set to Off – the other rows are already being used. Set Dyn4 Source to Notes Out Z (Notes Outside Of Zone), which means all of the notes that are *not* in the zone we set up previously – therefore, both the bottom and top octaves. Set Dyn4 Destination to Clock Advance (see Fig. 1, bottom), and play a chord in the middle of the keyboard – then try the notes in the top and bottom octave.

At this point, the basic Manual Advance effect should be working – but there are a few other adjustments we should experiment with. Currently, when you play the Input Chord no notes actually sound until you play some Trigger Notes in the top or bottom octave. This is similar to a guitarist changing the chord position of the left hand – it prepares a chord for the picking action of the right hand. However, wouldn’t it be more useful if the chord was strummed when you played it? Go back to (6.2-2b), and set Clock Advance ChdMode (Chord Mode) to 1st (see Fig. 1, middle) – and the whole chord will be strummed when you first play it. (1st indicates playing the first event of the Cluster Pattern, and in this case, a full chord is the first event. In other GEs, this might play only the first note, which is why there are other options for playing full chords.)

Play some Trigger Notes at different velocities, hard and soft – there's no difference to the output volume of the notes, is there? That's because Clock Advance VelSensBtm (Velocity Sensitivity Bottom) is set to 127. By varying this parameter, you can set the Velocity response however you like it. Set this to 001, and now you have maximum Velocity Sensitivity (1 to 127). Set this to 064, and you have half Velocity Sensitivity (64 to 127).

Experiment a bit with the KARMA Realtime Controls (K.RTC) at this point – twist Knob 5 all the way to the right, and greatly expand the octave range of the picking pattern. Knob 7 controls the tightness of the initial strum you get when you play the Input Chords, and Switch 1 adds an interesting Melodic Repeat effect. Knob 3 can take the pattern from long sustained notes to short plucky muted notes, and Knob 6 can even make it so you get full strums occasionally with each single Trigger Note.

For further experimentation, you can set Clock Advance Mode to Auto + Dyn1, and have automatic advancement along with the Trigger Note advancement at the same time. Auto + Dyn 2 allows you to trigger automatic advancement with the Input Chord, and the first Trigger Note stops it and you continue advancing manually.

DOING IT MANUALLY

Manual Advance can also be used to do some very interesting things with filter and effects control. Program E057 Power Saw uses GE 0919 Dr. Chopper 3/E57, a "Generated-Gated" GE Type, which means it generates CC Values to "chop up" a sustained sound, rather than generating repeated notes. Turning KARMA on and pressing one of the Chord Trigger Buttons, we hear a sliced n' diced gated effect on a sustained sawtooth pad – but also notice the "sample and hold" style filter modulation that's going on. This is also being produced by the GE – specifically, by CC-B, which is assigned to CC #16 (ribbon), which in turn is assigned internally in the Program to control Filter Cutoff Frequency. Wouldn't it be cool to control this filter-stepping with Trigger Notes?

Apply the exact same steps as in the previous example: set the KARMA Module's Key Zone to provide a trigger area (let's just use the bottom octave this time, so set the Key Zone Bottom to C3 and leave the top where it is.) Set Clock Advance Mode to Dyn, Chord Mode to 1st, and configure Dynamic MIDI to route Notes Outside of Zone to Clock Advance. This time, let's leave the VelSensBtm at 127 so we can just concentrate on the filter-stepping.

Now, you can play a chord with the right hand, and control the filter-stepping and chopping with the Trigger Notes in the left hand. KARMA Knob 3 can be used to dial in a length for each slice, while Knob 8 changes the sequence of steps that is applied to the filter (it's actually changing the CC16 Pattern).

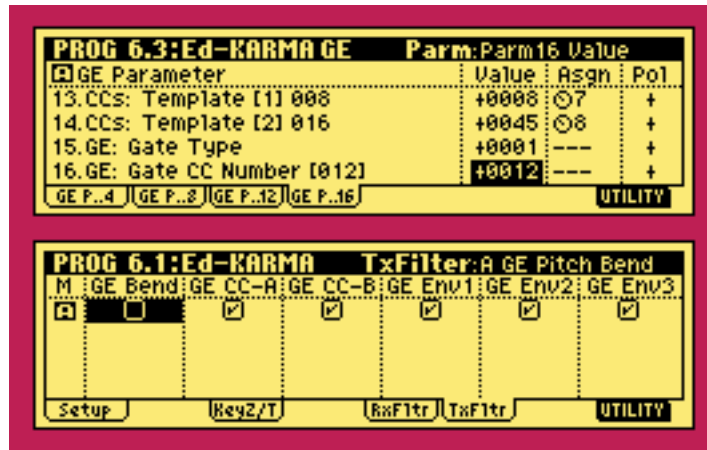


FIG. 2: Removing the “chop” from a pad-chopper (top), and the pitch bend effects as well (bottom).

At this point, it’s still chopping the sound each time you trigger it – want to make it a sustaining pad and just control the filter-stepping? Go to Page (6.3-4) [K GE] [GE P..16] and set GE Parameter 16 (Gate CC Number) to the value 12, instead of 11 (see Fig. 2, top). Controller 11 (Expression) was doing the chopping, but since CC 12 is not attached to anything in this program, this effectively disables it, and now the pad sustains while you advance the filter.

It seems we’ve uncovered a cool pitch bend effect that wasn’t noticeable before. I kind of like it, but if you want to get rid of it, go to Page (6.1-4) [KARMA] [TxFltr]. Here we can filter out various things that KARMA is generating. Uncheck GE Bend, and now you’ve got a straight pad with manually advanced filter-stepping (see Fig. 2, bottom).

GETTING BENT

Speaking of pitch bend, Program E113 Fusion Guitar uses the KARMA function to produce convincing lead guitar hammer-on bending techniques. This uses GE 0250 RT Bender/E113, a “Real-Time” GE Type, which means that the actual notes played on the keyboard are used as the starting point for various musical effects. In this case, an automatic pitch bend effect (in Scene 1), and a repeated note effect (in Scene 2). As this is the only Program in the factory voicing that used this GE, you might think that’s all there is to it. However, this GE was written to be a general-purpose automatic bender that is great for a number of useful effects that aren’t immediately obvious.

Let’s use it to create some realistic ethnic bending effects. Select Program B095 Koto, and copy the KARMA Function from E113. Go to Page (6.1-1) [KARMA] [Setup], press UTILITY, and select “Copy KARMA Module.” In the dialog that pops up, set it to Program E113 (a quick way is to cursor to the selection field and use the “E” bank key on the far right of the keyboard, followed by “1 1 3” and “Enter” on the 10-key pad). Then, cursor down and checkmark the KARMA RT&Panel Setting checkbox. This makes sure that we copy all related settings such as Dynamic MIDI and the actual configuration of the Realtime Knobs and Switches (see Fig. 3, top). Press OK.

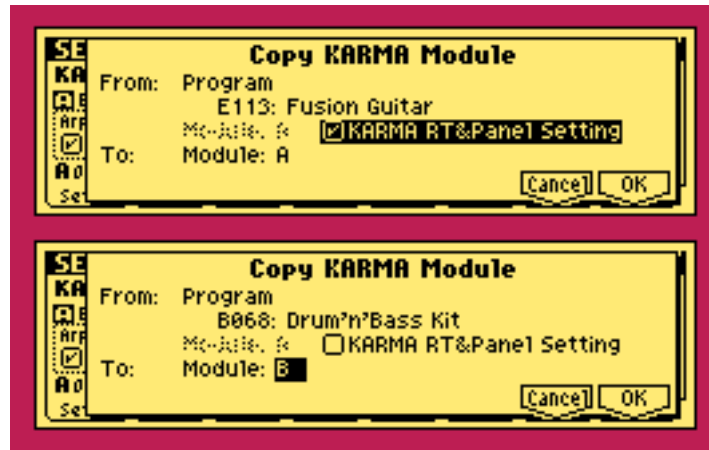


FIG. 3: Copying KARMA Module settings from a Program into Module A with RT&Panel Settings (top), and into Module B without (bottom).

Now let's adjust the GE to produce something other than a hammer-on, which isn't exactly sounding "politically correct" on this Koto. Press [Exit] [F5] to jump to Page (1.4) [K.RTC], so we can see what the KARMA Controls are assigned to. Knob 2 is Bend Shape – turn this all the way to the left, and it selects a Ramp shape for the bend rather than a Hammer. Now, as we play notes, instead of bending from the current pitch to the precious pitch and back again, it simply bends from the current pitch to the previous pitch and stays there. Play a simple pentatonic scale such as E-G-A-B-D up and down the keyboard – definitely more ethnic. However, currently it's bending from the note we play to the previous note. Switch 1 allows us to change the Bend Direction – turn it off, and now we bend from the previous note to the one that we are playing – a little more natural to play. It's almost like portamento, but more controllable. Use Knob 1 to shorten or lengthen the Bend Length – somewhere around 9 o'clock seems to work well. Knob 5 (Bend Start %) can be used to change the point at which the bend starts – if it is set far left, it starts immediately, and turning it to the right delays it so you hear more of the original pitch first before the bend starts. Knob 3, Bend Alternation, can be used so that it alternates between bending to or from the previous note with each note played.

Other programs that this technique works well on include A123 Sitar Sitar, B083 Indian Stars, and B099 Santur, among others. When using this on sounds that have a bit of a long release (like B083 Indian Stars), it sounds more realistic if you shorten the release somewhat using Realtime Knob 4A above the Joystick, so the release doesn't overlap the bending. Also, note that this type of bending effect sounds most realistic when the intervals between the notes are a 5th or less.

CHAIN GANG

Another powerful feature of KARMA that received relatively little use in the factory programming is the ability to "chain" KARMA Modules, so that one triggers the start of another. You can set up cyclic triggering of different riffs on different timbres, drum grooves that alternate, instrumental phrases that trade-off – I think you get the picture. Some Combis using this particular feature in the factory presets are:

A022: 4 Arp Cycle-TSig
 A107: 4 Gate Cycle SW1
 B012: 4 Arp Cycle-Note
 E007: TheHarpist LH/RH

In the first three examples, a single GE is used 4 times on 4 completely different timbres, with the result being a cyclic tone color change. In the case of The Harpist, the same riff in a different inversion allows some overlapping of the previous one, to simulate overlapping hands moving up/down the harp. Any of these four Combi's can be used as a study-tool to determine ways to set up and use this ability to chain KARMA Modules, which I call *Trigger By Percentage*.

This can be a tricky thing to set up correctly, because it involves parameter changes on several different screens, including the triggering options. You only want to trigger the first GE from the keyboard; the others are then triggered by various percentages of completion of the other GEs. To set up 4 GEs that trigger each other in succession, and loop continuously, you would need to make the following settings:

Page:	6.2-2a	6.2-2c	6.2-2c	6.2-2c
Parameter:	Note & Env Triggers	Trig By Mod	Module%	Cutoff Module
Module A	Any, AKR, 1st	D	80 *	B,C,D
Module B	Dyn	A	50 *	A
Module C	Dyn	B	40 *	B
Module D	Dyn	C	75 *	C

* set percentage to whatever works; also, you can assign this to a real-time control knob and vary the percentages in real-time, as we'll do later on. Try Knob 8 in the first 3 Combi Examples above, or Knob 2 in The Harpist.

With the above setup, Module A's Notes and Envelopes are triggered by the keyboard. Modules B,C & D have the Note & Env Triggers set to "Dyn" (and then nothing is assigned in Dynamic MIDI), essentially disconnecting the keyboard. Module B Trig By Mod (Trigger by Module) is set to "A", with a Module % of "50." This means that when Module A has completed half of its riff or pattern (as determined by the Time Signature and Phase Pattern of the GE), it will trigger the start of Module B. The Cutoff parameter determines whether the newly starting Module will cutoff any other Modules that happen to be playing at the time. If you want Modules to overlap, you would leave this off. In the above example, when Module B starts we want it to shut off Module A, so the two Modules perform a "hand-off." Likewise, Module C is triggered by Module B and cuts off B, and Module D is triggered by Module C and cuts off C. To cause this to loop all 4 Modules repeatedly, Module A is triggered by Module D in addition to the keyboard, and cuts off B,C and D when it starts (since it can be triggered by the keyboard at any time).

In the case of the Harp Combi, I didn't want it to loop continuously, so "Trig By Mod" for Module A is set to "Off." Also, in the Harp Combi, only the first 3 GEs are triggering each other. The 4th GE in Module D is a *Melodic Repeat* effect in the right hand, set to cutoff Modules A,B and C so that playing the right hand silences what was started by the left.

ALTERNATE REALITY

Now that you've got a bit of the theory behind how *Trigger By Percentage* works, let's create our own real-world application. We'll set up two different drum kits (played by two different KARMA GEs) to alternate with each other, with the alternation time controlled in realtime by one of the KARMA knobs.

Let's start by copying a Drum program and all associated effects into the Sequencer. Karma OS Version 2.0 (which should be available shortly after the time you read this) allows the following to be done in a single step, using a new "Copy From Program" UTILITY, but for now we'll do it the old-fashioned way:

Go to Sequencer Mode, and start with a new Song. Press [F2] [Prog...8] under the LCD, and set the Program for Track 1 to A052: Psycho Kit.

First, we need to copy all the Insert and Master Effects settings, so go to Page (7.2-1) [IFX] [Setup]. Use UTILITY to select "Copy Insert Effects," and in the resulting dialog select Program A052, checkmark "All" and press OK.

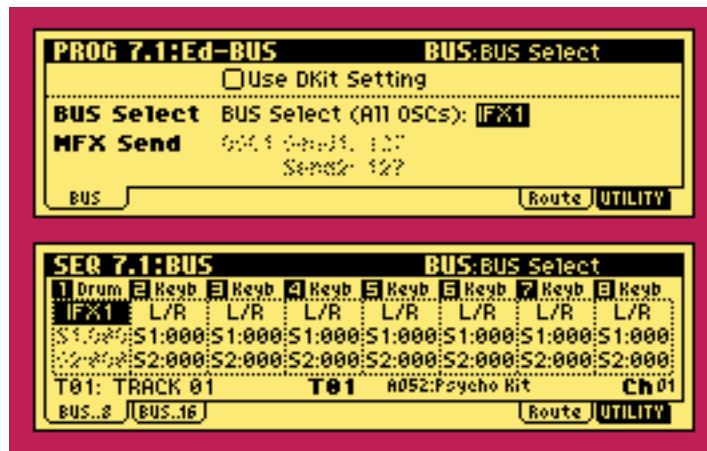


FIG. 4: Make sure to set the Bus Select for a Program in Sequencer Mode the same way it is set in Program mode when copying IFX and MFX.

Check what the Bus Select for the Program is set to, so that you can manually set it the same way. Switch to Program Mode, Program A052, and go to Page (7.1-1) [BUS]. Here we can see that Bus Select is set to IFX1, so go back to Seq Mode (7.1-1) [BUS] [BUS8] and set Bus Select for Track 1 to IFX1 (see Fig. 4). Most Drum Programs use "Use Drum Kit Setting" (DKit) and most other programs use IFX1, but it doesn't hurt to check, as this example illustrates – it almost got me!

Go to Page (7.3-1) [MFX] [Setup]. Use UTILITY to select "Copy Master Effects," select Program A052 again, checkmark "All" and press OK.

Next, we need to copy in the KARMA settings, so go to Page (6.1-1) [KARM] [Setup]. Use UTILITY to select "Copy KARMA Module," and in the resulting dialog, select Program A052 Psycho Kit. Make sure that KARMA RT & Panel Setting is checked, like our earlier example. Press OK.

The last step is to set the Tempo to 134 (same as the original Program), using the Tempo knob or the Tempo field on any of the upper level Sequencer Pages. Turn KARMA on and give it a test.

Now, let's add a second drum program and KARMA GE. This time, we don't want to copy all the IFX and MFX settings again, since this would overwrite the current settings. We'll add our second drum kit and let it use the same FX settings as the first one.

Return to (1.1-2) [Prog...8] and set the Program for Track 2 to B068: Drum'n'Bass Kit. Move to (7.1-1) [BUS..8] and set Bus Select for Track 2 to IFX1. Go to (6.1-1) [KARM] [Setup] and use UTILITY to "Copy KARMA Module" again. This time, we'll set it to Program B068 Drum'n'Bass Kit and turn off KARMA RT & Panel Setting (since we don't want to overwrite the settings we already copied in for the first Module). Then set the Destination to Module B and hit OK (see Fig. 3, bottom).

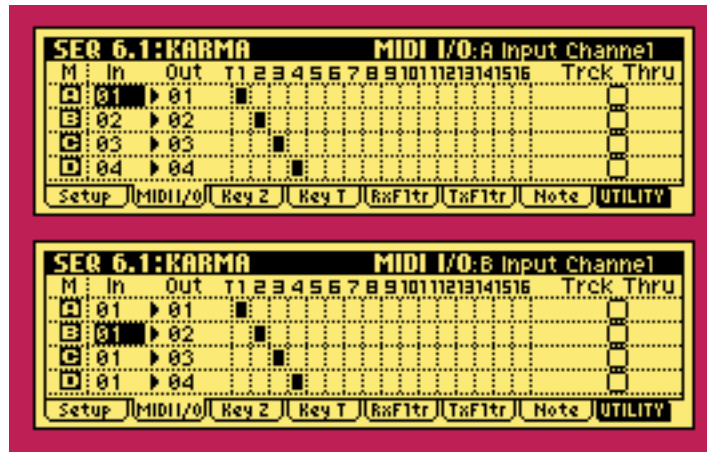


FIG. 5: Setting the MIDI I/O matrix to allow the separate use of different GEs on each track (top), or layered triggering from a single track (bottom).

Now we've got a different drum GE on Track 2, which you can play by setting Track Select (1.1-1a) to Track 2. Turn KARMA On and we hear a chopped gated drum beat. Switch back to Track 1 and we have the other drum groove. In order to make them alternate with each other, we need both of them to be triggered by the same Track.

KARMA's MIDI Routing matrix can be found on page (6.1-2) [KARM] [MIDI I/O]. Here we can see that Module A's Input Channel is 1, while Module B's is 2 (see Fig. 5, top). Change Module B to channel 1 (Fig. 5, bottom) and set your Track Select back to Track 01 (if it isn't already). Now when you play the keyboard, you trigger both drum GEs at the same time, on top of each other. Hey, wait - that's pretty cool already! But file away that idea for another time – the goal here is to make them to alternate.

Head for Page (6.2-2) [K.Mdl] [Parm2], and set Module A Trig By Mod to "B." For now, set Module % to 50. Since we want Module B to stop when Module A is triggered, checkmark "B" for Cutoff (see Fig. 6, top).

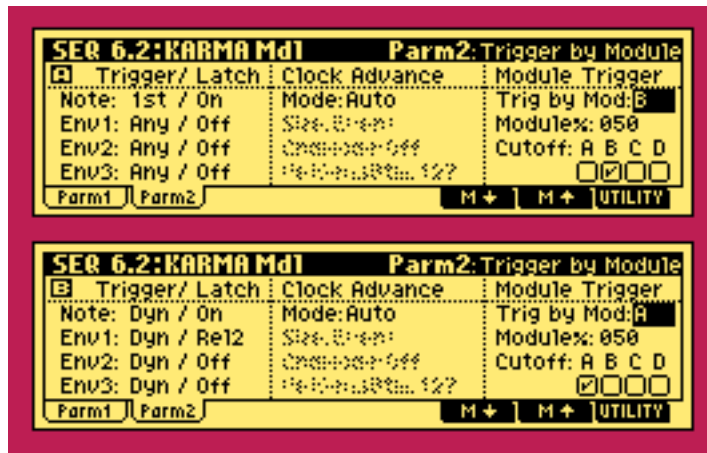


FIG. 6: Setting Module A (top) and Module B (bottom) Trigger Parameters to allow them to alternate with each other.

Using [F7], switch the display to Module B, and input the same settings in a complimentary fashion. Set Module B Trig By Mod to “A,” Module % to 50, and checkmark “A” for Cutoff. One other main difference for Module B: set Note and Env Triggers to “Dyn,” since we don’t want it to be triggered by the keyboard (see Fig. 6, bottom).

Now turn KARMA On and hit a Chord Trigger button – Groove A plays on Psycho Kit for 2 bars, then switches to Groove B on Drum’n’Bass Kit for 2 bars, then loops back to Psycho Kit – cool!

LOOP THE LOOP

Now that we’ve got them looping and alternating, let’s set up a KARMA knob to control the alternation time. However, since we copied in the KARMA RT&Panel settings previously, all of the knobs are already assigned to do something. Let’s free up Knob 8.

Go to Page (6.3-1) [K GE] [GE P..4], and make sure we are looking at Module A (use [F6]/[F7]). Nothing set to Knob 8 here, so go to the next tab [GE P..8]. Here we find GE Parameter 7 is assigned to Knob 8, so set it to off (---) (see FIG. 7, top). Check the other two tabs for anything else set to Knob 8 (which there isn’t). Switch the display to Module B using [F7] and perform the same steps – locate anything assigned to Knob 8 and turn it off (GE Parameter 11).

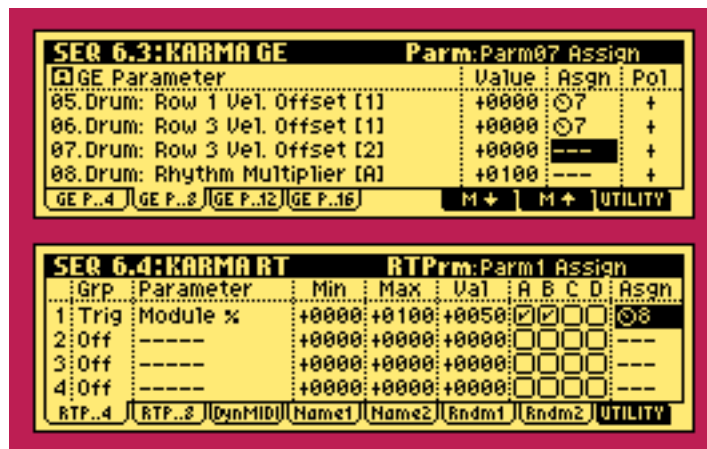


FIG. 7: Removing a GE Parameter from KARMA Knob 8 (top), and setting the knob to vary the alternation time between two GEs (bottom).

Now that we've got a free knob, go to Page (6.4-1) [K RT] [RT P..4]. In row 1, set Grp (Group) to Trig (Trigger), and Parameter to Module %. Min will automatically set to 0 and Max to 100. Checkmark Modules A & B (since we want to vary the loop time for both at the same time). Value will automatically set itself to 50, which is the current setting we input for Module % a few steps earlier (see Fig. 7, bottom). This is an important setting to understand – it represents the center of the knob. Whatever you enter here will be the setting at the center position, while the rest of the range between Min and Max will be scaled accordingly. This can let you set up non-linear scaling if you desire, but for now we'll leave it at 50 (which will produce an even, linear scaling).

The last step is to set Asgn (Assign) to Knob 8 (see Fig. 7, bottom). Put Knob 8 in the center position, and it should trade off every 2 bars, same as before. Twist it all the way to the right, and the two grooves will alternate every 4 bars. Twist it all the way to the left, and they'll alternate in a machine-gun fashion every 16th note, with all sorts of weird time signatures in between those settings.

If the knob is slightly off-center in its calibration (mine was) you may need to adjust the Value setting – I found that a setting of 56 worked fine. Also, try this – set Min to 0, Max to 50, and Value to 12. Now, center is a 2 beat alternation, and right is an 8 beat (2 bar) alternation – an example of a non-linear scaling of the knob.

TRIGGER HAPPY

To put some icing on this cake, let's set the drum groove to be retriggered by the Joystick, a handy and fun effect. Go to Page (6.4-3) [K RT] [DynMIDI] and set Dyn1 Source to JS +Y #01. Destination should be Trig Nt&Env (Trigger Notes and Envelopes), Module A checked, with an Act (Action) setting of M (Momentary) (see Fig. 8).

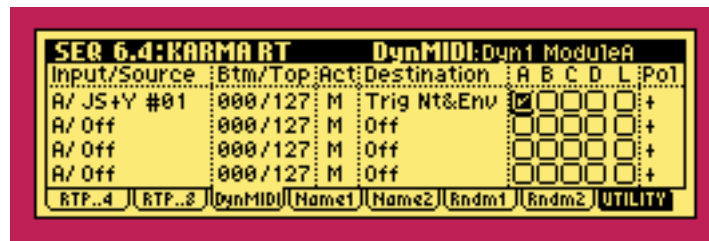


FIG. 8: Using the Joystick to retrigger a drum groove is an effective and easy setting to make.

Now, the joystick can be pushed forward quickly while the drum groove is playing, for stuttering sample-like retriggerings of the whole groove, while playing on the keyboard does not retrigger it. This can be especially useful if another sound is being controlled from the keyboard, such as other KARMA melodic GEs, or a pad. Combi A000 =Voice Of KARMA= is a perfect example (although it uses the joystick in the downwards direction, accomplished by setting Dyn Source to JS -Y #02).

NOT THE END

I've only scratched the surface, but hopefully you've gotten a bit more comfortable with configuring the KARMA function, copying modules and effects around, and exploring some of the more esoteric features in the Korg Karma. And be careful with those Chord Trigger buttons around bedtime...

AUTHOR BIO

Stephen Kay is the inventor of KARMA (Kay Algorithmic Realtime Music Architecture). He spends his free time dreaming up acronyms, and the technology to go with them.
