



# EXPLORATION PATCHBOOK

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MOTHER-32 & DFAM & SUBHARMONICON



## **Welcome to the Magical World of Moog Sound Studio**

These patches and tutorials were originally developed for the Moog Sound Studio experience. As a current owner of Mother-32, DFAM, and/or Subharmonicon, we think you may also find inspiration in this new set of exploratory patches designed for interconnectivity.

As you experiment with these patches, we'd love to hear what you create. Share your explorations with us on Instagram @moogsynthesizers, Twitter @moogmusicinc, or Facebook @moogmusicinc!

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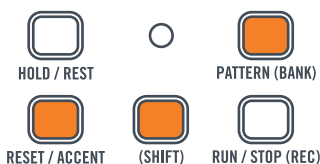
**Moog Music Is An Employee-Owned  
Company In Asheville, NC USA**

This is a tutorial that will walk you through the sequencing capabilities of your Mother-32 in Keyboard (KB) mode. KB mode is the default mode and the best place to start while learning to use the sequencer. This mode is used for playing directly from the panel, entering and editing notes in a pattern using the Record function, and transposing patterns during sequencer playback.

A sequencer is used to play notes or rests on a synthesizer from a pattern in memory, typically at a steady tempo. Each note or rest in the pattern is called a “step.” The sound you hear when using the sequencer is determined by the note value, front panel settings, and any patch cables on the patchbay.

### Step 1 - Clear Sequence

Press these buttons simultaneously to clear the current sequence and initiate a new pattern:



### Step 2 - Enter Keyboard Mode

Enter Keyboard mode by holding **SHIFT** and pressing the **KB** button.



### Step 3 - Enable Record

Press these buttons simultaneously to start recording your sequence.



### Step 4 - Select an Octave

Use the left and right arrows to select the octave for the step you're on.



### Step 5 - Add a Note or a Rest

Play your desired note for the active step or press **HOLD/REST** button to add a rest.



### Step 6 - Humanize Your Sequence

These modifications are optional. While the step LED is blinking, you can modify any of the parameters for that step. Below are just a few examples.

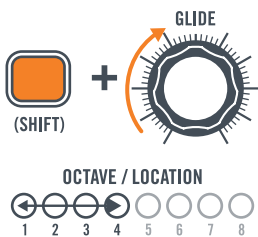
#### Accent

Press to add an accent to the current step.



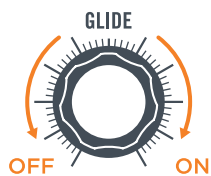
#### Ratchet

While holding **SHIFT**, rotate the **GLIDE** knob to select a value 1-4 shown by the octave LEDs.



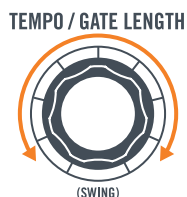
#### Glide

Rotate the **GLIDE** knob clockwise to turn it **ON** for a step. Rotating fully counterclockwise turns **Glide OFF** for a step.



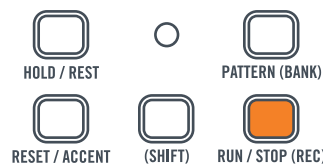
#### Gate Length

Rotate the **GATE LENGTH** knob to modify the Gate Length (note duration) of the current step.



### Step 7 - Finish Recording

When you've completed your sequence, press the **RUN/STOP** button to exit the Record mode function.



### Step 8 - Begin Playback

Adjust the **TEMPO** knob to the speed you want, and press **RUN/STOP**. The sequencer will advance through each step in the pattern. When it reaches the end, it loops back to step 1.



#### Try This!

Experiment with the Tips & Tricks at the back of this patchbook and play the synth card game, Circuitous Connections, to further explore sound design and creative patching.

Step mode is used for interacting with a pattern by enabling, muting, and editing steps, even during playback. In Step mode, the 13-note keyboard and arrow-shaped (KB) and (STEP) buttons have different functions than when operating in Keyboard mode.

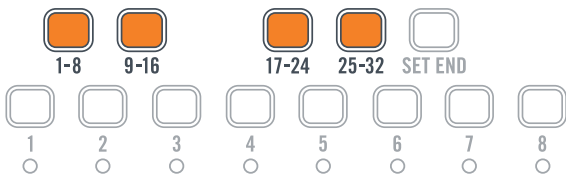
**Step 1**

Hold (SHIFT) and press the (STEP) button to enter Step mode on Mother-32.



**Step 2**

Use the sequencer 'black keys' labeled 1-8, 9-16, 17-24, and 25-32 to select a specific group of eight steps within a 32-step sequence.



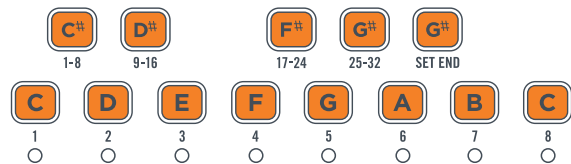
**Step 3**

Select a step you wish to edit by holding (SHIFT) and pressing a step button (1 through 8).



**Step 4**

Once a step is selected, press any of the keyboard buttons to change the note for that step. ACCENT, GLIDE, RATCHET, and GATE LENGTH settings can also be edited once a step is selected.



**Step 5**

Once you're satisfied with the settings of that step, you can move on to editing a new step by holding (SHIFT) and pressing the next step button you want to edit or exit by once again holding (SHIFT) and pressing the edited step button.

**ASSIGN** The ASSIGN output on your Mother-32 can be used in many ways to open up a plethora of new options and techniques that can be achieved through creative patching. To access this wide range of settings on your Mother-32, complete the following steps:



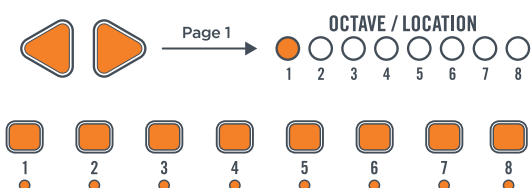
**Step 1**

Enter SETUP MODE by holding RESET/ACCENT + (SHIFT) + SET END + 8 on Mother-32.



**Step 2**

Use the LEFT/RIGHT arrows to select PAGE 1, as indicated by the yellow OCTAVE/LOCATION LEDs. You can switch the modes of the ASSIGN output now by pressing keys 1 through 8. As you press the buttons, the green OCTAVE/LOCATION LEDs will tell you which function is activated. For a complete list of available assign output modes, see page 52 of the Mother-32 User's Manual.



**1 Accent**

This outputs a 0 to +5V filtered pulse signal from accented pattern steps only.

**2 Sequencer Clock (Default)**

This outputs a 0 to +5V clock signal at the internal clock tempo, one pulse per step.

**3 Sequencer Clock / 2 (Half Tempo)**

This outputs a 0 to +5V clock signal at half the clock rate of the internal clock tempo.

**4 Sequencer Clock / 4 (Quarter Tempo)**

This outputs a 0 to +5V clock signal at one quarter of the clock rate of the internal clock tempo.

**5 Sequencer Step Ramp**

This outputs a -5 to +5V ramp wave that increases in value equally across the number of steps in the current pattern.

**6 Sequencer Step Saw**

This outputs a -5 to +5V saw wave that decreases in value equally across the number of steps in the current pattern.

**7 Sequencer Step Triangle**

This outputs a -5 to +5V triangle wave that alternates between an increase in value across all steps and a decrease in value across all steps.

**8 Sequencer Step Random**

This outputs a random voltage between -5V and +5V per step while the sequencer is running.

TEMPO



The TEMPO input is configurable for modulating the internal clock tempo or for replacing the internal clock signal. The TEMPO input has four available modes, which are assigned using the SETUP mode.

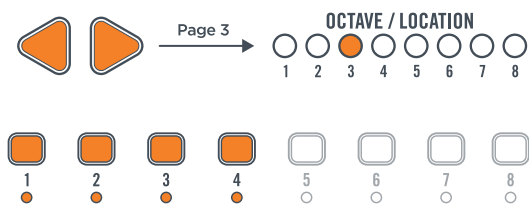
Step 1

Enter SETUP MODE by holding RESET/ACCENT + (SHIFT) + SET END + 8 on Mother-32.



Step 2

Use the LEFT/RIGHT arrows to select PAGE 3, as indicated by the yellow OCTAVE/LOCATION LEDs. You can specify the mode for the TEMPO input jack now by pressing keys 1 through 4. As you press the buttons, the green OCTAVE/LOCATION LEDs will tell you which function is activated.



Mode 1 Tempo CV

The input is summed with the position of the TEMPO panel knob.

Mode 2 Single Clock Advance (Default)

When the input of a clock's rising edge is detected, the internal clock is suppressed and the tempo LED is lit green. The pattern is advanced one step for each rising edge detected. The TEMPO knob is ignored.

Mode 3 Analog Clock

This mode is used to synchronize any regular analog clock signal applied to the TEMPO input. While the TEMPO input is in Analog Clock mode, a clock detected at the TEMPO input will override both the internal clock and MIDI sync. Stop the external clock or disconnect it from the TEMPO input in order to use internal clock or MIDI sync again.

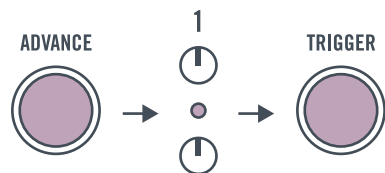
Mode 4 Step Address CV

In this mode, the sequencer isn't driven by a clock. Instead, individual sequence steps are selected and played directly based on the CV level received at the TEMPO input. The total CV input voltage range is evenly divided across the number of sequence steps in the pattern. Experiment with patching in different modulation sources to find new playing techniques.

*NOTE: While in Step Address CV mode, a changing voltage at the TEMPO input overrides normal playback. Press RUN/STOP to restore normal playback until the voltage at the TEMPO input changes again.*

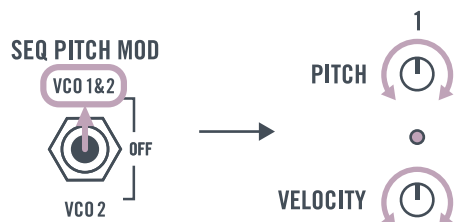
Step 1

Use the ADVANCE button to set the sequencer to step 1. Press the TRIGGER button to audition the selected step.



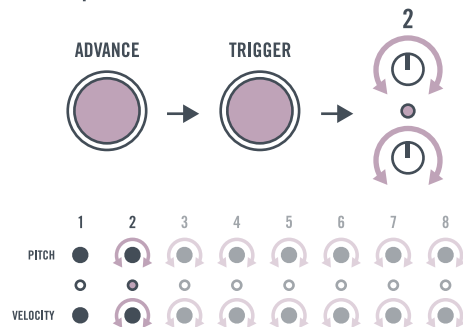
Step 2

Set the SEQ PITCH MOD switch to VCO 1&2. Adjust the PITCH knob for step 1 of your sequence until you reach your desired note. Then, adjust the VELOCITY knob for that step until you reach your desired volume.



Step 3

Use the ADVANCE button to repeat this procedure for each step.



Step 4

Press RUN/STOP to listen to your sequence.

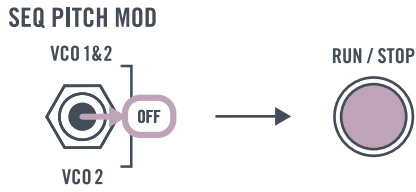


Try This!

Further adjustments can be made to pitch and velocity while the sequencer is running.

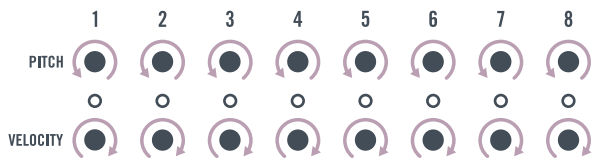
Step 1

Begin by making sure the **SEQ PITCH MOD** switch on DFAM is set to **OFF**. Next, press **RUN/STOP** to start a sequence.



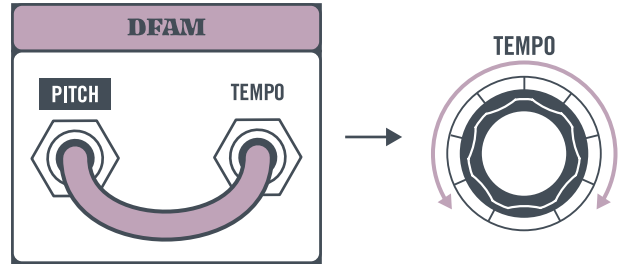
Step 2

In the sequencer section, turn the **VELOCITY** knobs all the way up so that you can hear a note on each step, then turn the **PITCH** knobs all the way down.



Step 3

Next, patch a cable from the **PITCH** output to the **TEMPO** input on DFAM. You'll notice that the tempo will slow down considerably. Use the **TEMPO** knob to readjust the sequencer speed to your liking.



Turn any of the **PITCH** knobs all the way up to "skip" steps of your sequence. This behavior allows for all sorts of interesting techniques like odd-numbered sequence lengths, unique swing patterns, and different time signatures.

Try This!

Patch DFAM's **VELOCITY** output to one of Subharmonic's **RHYTHM** inputs (1-4) for interrelated rhythmic variation.

Step 1

Select an octave range and quantizer setting for the sequencer using the **SEQ OCT** and **QUANTIZE** buttons. Refer to Lesson 8 to learn more about octave range and quantizer settings.



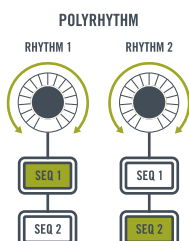
Step 2

Use the **SEQ ASSIGN** buttons to assign **SEQUENCER 1** to control **VCO 1 (OSC 1)**, and **SEQUENCER 2** to control **VCO 2 (OSC 2)**.



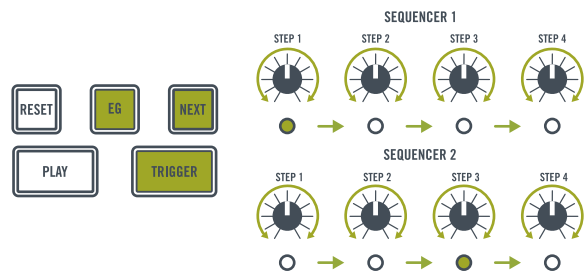
Step 3

In the polyrhythm section, assign **RHYTHM 1** to control **SEQUENCER 1**, and **RHYTHM 2** to control **SEQUENCER 2**, then adjust both **RHYTHM** knobs to find your desired tempo divisions.



Step 4

Use the **NEXT** button to advance to the next step. Pressing the **TRIGGER** button will allow you to hear your selected notes. Adjust each sequencer's steps to your desired pitches.



Step 5

Press **RESET** and then press **PLAY** to listen to your sequence, and make adjustments as needed.



Try This!

Keep exploring. Try different octave ranges, quantization settings, rhythm combinations, and sequencer assignment settings to craft your perfect sequence.

Sequencer Range

- ±5
- ±2
- ±1



This function specifies the octave range available for each of the STEP knobs in the sequencers. There are three values for this parameter. Repeatedly pressing the SEQ OCT button will cycle through the available options, with an LED indicating the current selection.

±5

This option provides five octaves above and five octaves below the current VCO FREQ knob value for each individual step.

±2

This option provides two octaves above and two octaves below the current VCO FREQ knob value for each individual step.

±1

This option provides one octave above and one octave below the current VCO FREQ knob value for each individual step.

**NOTE:** By default, the SEQ 1 and SEQ 2 output jacks will output a control voltage that reflects the current Seq Oct settings. This behavior can be altered by pressing and holding the SEQ OCT button until the LED flashes, at which point the SEQ 1 and SEQ 2 output jacks will output at 5, regardless of the Seq Oct setting. In this mode, the oscillators will continue to respect the Seq Oct settings. Press and hold the SEQ OCT button until the LED stops flashing to return to the default.

Quantize Settings

- 12-ET
- 8-ET
- 12-JI
- 8-JI



Pitch Quantization is used to restrict the voltages that control the pitch of an oscillator so that they only play notes within a specific musical scale. Pressing the QUANTIZE button will cycle through the four available settings, with an LED indicating the current selection. When all LEDs are off, the function is off.

12-ET

This option selects a Chromatic (12-step) scale using Equal Temperament (ET), which is the basis for Western keyboard music.

8-ET

This option selects a Diatonic (8-step) scale using Equal Temperament (ET).

12-JI

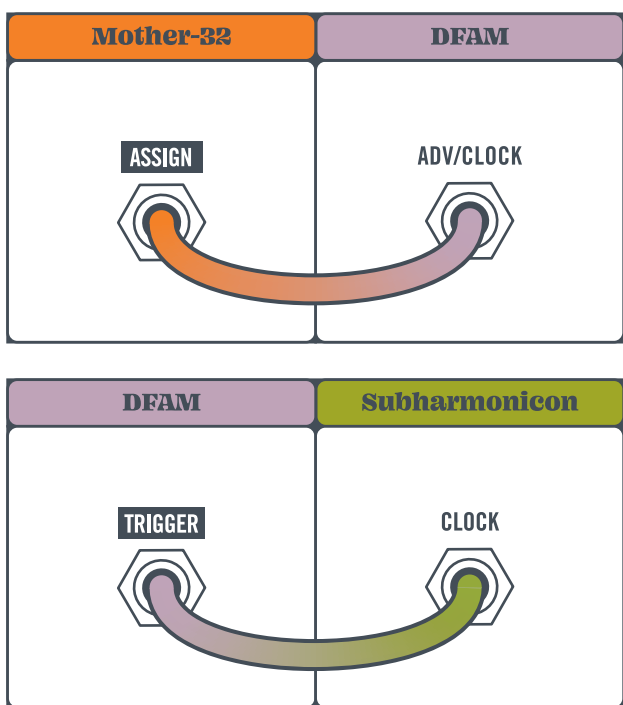
This option uses a Chromatic (12-step) scale using Just Intonation\* (JI).

8-JI

This option uses a Diatonic (8-step) scale using Just Intonation\* (JI).

**NOTE:** By default, the SEQ 1 and SEQ 2 output jacks will output control voltages that follow the internal Quantize settings. This behavior can be altered by pressing and holding the QUANTIZE button until the LED flashes, at which point the SEQ 1 and SEQ 2 output jacks will output unquantized voltages, regardless of the internal quantizer settings.

Patch Connections



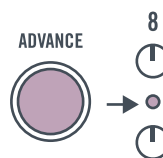
Try This!

Try patching the Mother-32 ASSIGN output into the MIX 2 input. Then take the Mother-32 VC MIX output and patch it to another instrument's CLOCK input. Try modulating the VC MIX.

Prepare for Playback

Set Mother-32's assignable output to Function 2 (clock). This is the default setting. If you want the synced instruments to follow slower clock divisions, you can use assignable output Function 3 (clock/2) or Function 4 (clock/4).

Use the ADVANCE button on DFAM to set the sequencer to STEP 8.



Arm DFAM for external sync by pressing RUN/STOP.



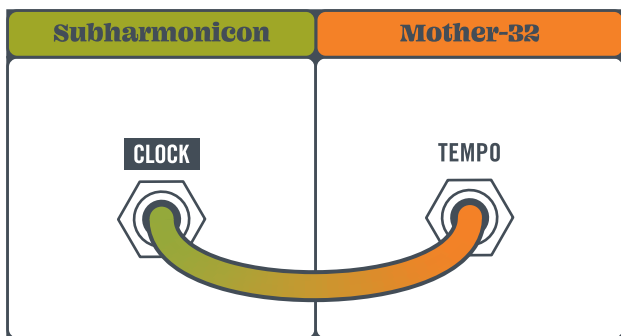
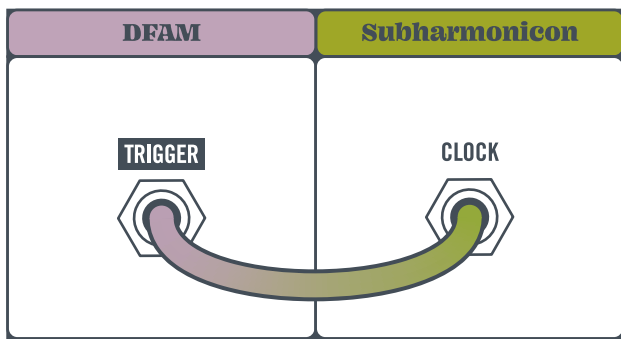
Arm Subharmonicon for external sync by pressing RESET and then PLAY.



Press the Mother-32 RUN/STOP button and all three instruments will start in sync.



Patch Connections

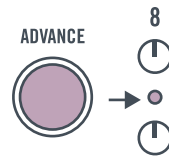


Try This!

Try patching DFAM's TRIGGER output to Mother-32's MULT input. Then patch Mother-32's MULT 1 output to another instrument's CLOCK input, and Mother-32's MULT 2 output to DFAM's VCA CV input for clicky hi-hats.

Prepare for Playback

Use the ADVANCE button on DFAM to set the sequencer to STEP 8.



Arm Subharmonic for external sync by pressing RESET and then PLAY.



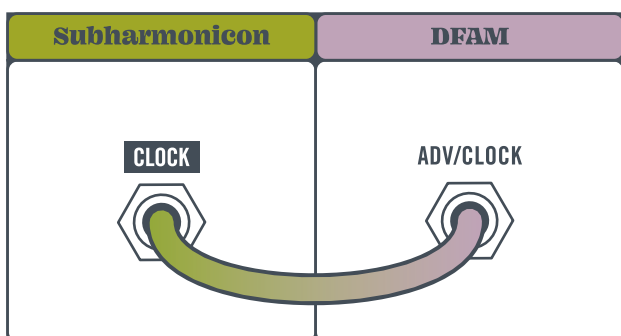
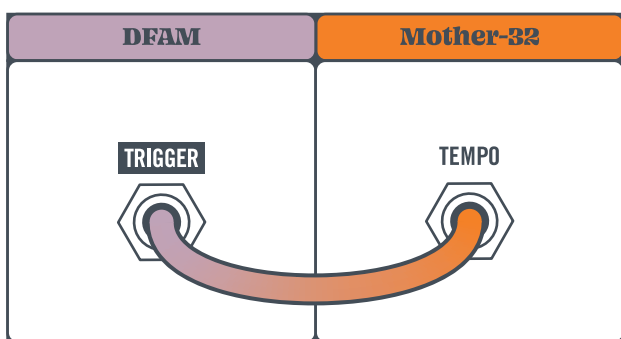
Arm Mother-32 for external sync by holding down the (KB) and (STEP) buttons while pressing RUN/STOP.



Press the RUN/STOP button on DFAM and all three instruments will start in sync.



Patch Connections

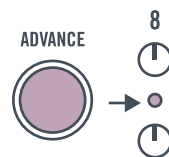


Try This!

Try switching from Subharmonic's CLOCK output to Subharmonic's SEQ 1 CLK or SEQ 2 CLK for nonlinear rhythms.

Prepare for Playback

Use the ADVANCE button on DFAM to set the sequencer to STEP 8.



Arm DFAM for external sync by pressing RUN/STOP.



Arm Mother-32 for external sync by holding down the (KB) and (STEP) buttons while pressing the RUN/STOP button.



On Subharmonic, press RESET and then press PLAY. All three synths will start in sync.





# Jumping-off Point

## Notes:

- Mother-32 controls **TEMPO**; prepare all synths for playback (*Lesson 9*).

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## Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	4	4	3	4	4	5	4	3	4	4	3	4	6	5	4	3	4	4	3	4	4	5	4	3	4	4	3	3	4	4	3
NOTE/REST	D	D	D	D	D	D	D	D	C	C	C	C	C	C	C	C	F	F	F	F	F	F	F	F	G	G	G	G	E	E	E	E
ACCENT	X		X			X		X	X		X			X		X	X		X			X		X	X		X			X		X

SET END ↗

**DFAM | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER**

Control panel for DFAM synthesizer. Includes knobs for VCO DECAY, SEQ PITCH MOD, VCO 1 EG AMOUNT, VCO 1 FREQUENCY, VCO 1 WAVE, VCO 1 LEVEL, VCF HP, CUTOFF, RESONANCE, VCA EG, VOLUME, TRIGGER, IN / OUT, VCA CV, VCA DECAY, VCA EG, VCF DECAY, VCF EG, VCO DECAY, VCO EG, VCO 1 CV, VCO 2 CV, VCO 1, VCO 2, 1-2 FM AMT, HARD SYNC, VCO 2 EG AMOUNT, VCO 2 FREQUENCY, VCO 2 WAVE, VCO 2 LEVEL, VCF DECAY, VCF EG AMOUNT, NOISE / VCF MOD, VCA DECAY, TEMPO, TRIGGER, RUN / STOP, ADVANCE, VELOCITY, and buttons for PITCH, 1, 2, 3, 4, 5, 6, 7, 8.

**MOTHER-32 | SEMI-MODULAR ANALOG SYNTHESIZER**

Control panel for MOTHER-32 synthesizer. Includes knobs for FREQUENCY, VCO WAVE, PULSE WIDTH, MIX, CUTOFF, RESONANCE, VOLUME, GLIDE, VCO MOD SOURCE, VCO MOD AMOUNT, VCO MOD DEST, VCF MODE, VCF MOD SOURCE, VCF MOD AMOUNT, VCF MOD POLARITY, TEMPO / GATE LENGTH, LFO RATE, LFO WAVE, ATTACK, SUSTAIN ON, DECAY, VC MIX, MIDI IN, HOLD / REST, PATTERN (BANK), OCTAVE / LOCATION, RESET / ACCENT, (SHFT), RUN / STOP (REC), (KB), (STEP), and buttons for C, D, E, F, G, A, B, C.

**SUBHARMONIC | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER**

Control panel for SUBHARMONIC synthesizer. Includes sequencer controls (SEQUENCER 1, 2, POLYRHYTHM), oscillator controls (VCO 1, 2, SUB 1, 2), and envelope controls (CUTOFF, RESONANCE, VOLUME, VCF EG AMT, VCF ATTACK, VCF DECAY, VCA ATTACK, VCA DECAY). Includes buttons for PLAY, TRIGGER, and various sequence and rhythm controls.

# Edge of Night

### Notes:

- Mother-32 controls **TEMPO**; prepare all synths for playback (*Lesson 9*).
- Set Mother-32's **ASSIGN** output to Clock/4 (Mode 4) (*Lesson 3*).

- Patch DFAM's **VCF EG** output into DFAM's **NOISE LEVEL** input for snare-like accents.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	3	3	4	3	3	3	3	3	4	3	3	3	4	3	3																
NOTE/REST	A	A	A	A	E	A	A	A	A	A	A	A	E	A	A	A																
ACCENT					X								X																			

SET END ↓

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

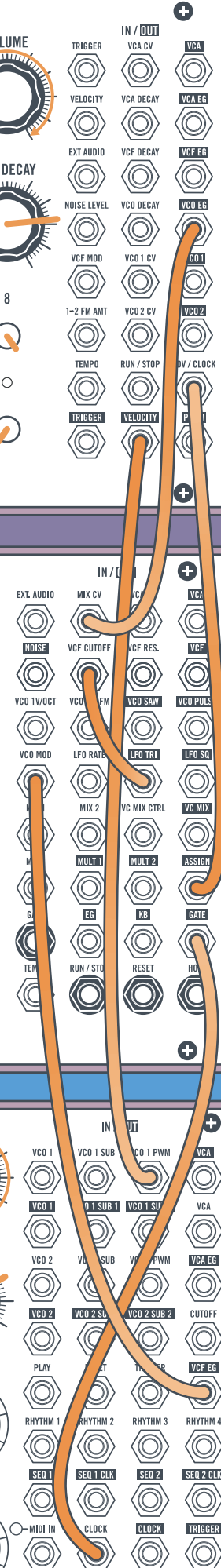
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**MOTHER-32** | SEMI-MODULAR ANALOG SYNTHESIZER

meaog

**SUBHARMONICON** | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER

meaog



# 3-Voice Stereo

## Notes:

- DFAM controls **TEMPO**; prepare all synths for playback (*Lesson 10*).
- Set Mother-32's **ASSIGN** output to Step Ramp (Mode 5) (*Lesson 3*).

- Try patching from Mother-32's **ASSIGN** output to the **VCF CUTOFF** input for interesting filter modulation.

## Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4																	
NOTE/REST	C	C	C	C	C	C	C	C	C	F	G	A#	G	F	D#																	
ACCENT	X								X			X			X																	

SET END ↑

**DFAM | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER**

Parameters include: VCO DECAY, SEQ PITCH MOD, VCO 1 EG AMOUNT, VCO 1 FREQUENCY, VCO 1 WAVE, VCO 1 LEVEL, VCF HP, CUTOFF, RESONANCE, VCA EG, VOLUME, TRIGGER, IN / OUT, VCA CV, VCA DECAY, VCA EG, VELOCITY, VCA DECAY, VCA EG, EXT AUDIO, VCF DECAY, VCF EG, NOISE LEVEL, VCO DECAY, VCO EG, VCF MOD, VCO 1 CV, VCO 1, 1-2, VCO 2 CV, VCO 2, TEMPO, RUN / STOP, ADVANCE, ADV / CLOCK, TRIGGER, VELOCITY, PITCH.

**MOTHER-32 | SEMI-MODULAR ANALOG SYNTHESIZER**

Parameters include: FREQUENCY, VCO WAVE, PULSE WIDTH, MIX, CUTOFF, RESONANCE, VCA MODE, VOLUME, GLIDE, VCO MOD SOURCE, VCO MOD AMOUNT, VCO MOD DEST, VCF MODE, VCF MOD SOURCE, VCF MOD AMOUNT, VCF MOD POLARITY, TEMPO / GATE LENGTH, LFO RATE, LFO WAVE, ATTACK, SUSTAIN ON, DECAY, VC MIX, MIDI IN, HOLD / REST, PATTERN (BANK), OCTAVE / LOCATION, RESET / ACCENT, (SHFT), RUN / STOP (REC), (KB), (STEP), C, D, E, F, G, A, B, C.

**SUBHARMONICON | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER**

Parameters include: SEQUENCER 1, SEQUENCER 2, POLYRHYTHM, RHYTHM 1, RHYTHM 2, RHYTHM 3, RHYTHM 4, TEMPO, OSCILLATORS, VCO 1 WAVE, VCO 1 FREQ, VCO 2 WAVE, VCO 2 FREQ, SUB 1 FREQ, SUB 2 FREQ, VCO 1 LEVEL, VCO 2 LEVEL, SUB 1 LEVEL, SUB 2 LEVEL, CUTOFF, VOLUME, RESONANCE, VCF EG AMT, VCF ATTACK, VCF DECAY, VCA ATTACK, VCA DECAY.

# Bender

### Notes:

- DFAM controls **TEMPO**; prepare all synths for playback (*Lesson 10*).
- Set Mother-32's **ASSIGN** output to Step Saw (Mode 6) (*Lesson 3*).

- Patch Mother-32's **LFO TRI** output to Subharmonic's **VCO 2 PWM** input for extended modulation.
- Try incorporating **RHYTHM 3** and **RHYTHM 4** to clock either sequencer on Subharmonic.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
OCTAVE	4	4	4	4																														
NOTE/REST	D	A	A#	A																														
ACCENT																																		

SET END ↑

**DFAM | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER**

Parameters shown include: VCO DECAY, SEQ PITCH MOD, VCO 1 EG AMOUNT, VCO 1 FREQUENCY, VCO 1 WAVE, VCO 1 LEVEL, VCF HP, CUTOFF, RESONANCE, VCA EG, VOLUME, TRIGGER, IN / OUT, VCA CV, VCA DECAY, VCA EG, VELOCITY, VCA DECAY, VCA EG, EXT AUDIO, VCF DECAY, VCF EG, VCF EG, VCO DECAY, VCO EG, VCF MOD, VCO 1 CV, VCO 1, 1-2 FM AMT, VCO 2 CV, VCO 2, HARD SYNC, VCO 2 EG AMOUNT, VCO 2 FREQUENCY, VCO 2 WAVE, VCO 2 LEVEL, VCF DECAY, VCF EG AMOUNT, NOISE / VCF MOD, VCA DECAY, TEMPO, TRIGGER, PITCH, VELOCITY, RUN / STOP, ADVANCE.

**MOTHER-32 | SEMI-MODULAR ANALOG SYNTHESIZER**

Parameters shown include: FREQUENCY, VCO WAVE, PULSE WIDTH, MIX, CUTOFF, RESONANCE, VOLUME, GLIDE, VCO MOD SOURCE, VCO MOD AMOUNT, VCO MOD DEST, VCF MODE, VCF MOD SOURCE, VCF MOD AMOUNT, VCF MOD POLARITY, TEMPO / GATE LENGTH, LFO RATE, LFO WAVE, ATTACK, SUSTAIN ON, DECAY, VC MIX, MIDI IN, HOLD / REST, PATTERN (BANK), OCTAVE / LOCATION, RESET / ACCENT, (SHFT), RUN / STOP (REC), (KB), (STEP), C, D, E, F, G, A, B, C.

**SUBHARMONIC | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER**

Parameters shown include: SEQUENCER 1, SEQUENCER 2, POLYRHYTHM, RHYTHM 1, RHYTHM 2, RHYTHM 3, RHYTHM 4, TEMPO, OSCILLATORS, VCO 1 FREQ, VCO 1 WAVE, VCO 2 FREQ, VCO 2 WAVE, SUB 1 FREQ, SUB 2 FREQ, SUB 1 FREQ, SUB 2 FREQ, CUTOFF, VOLUME, RESONANCE, VCF EG AMT, VCF ATTACK, VCF DECAY, VCA ATTACK, VCA DECAY, SEQ 1, SEQ 2, RHYTHM 1, RHYTHM 2, RHYTHM 3, RHYTHM 4, SEQ 1 CLK, SEQ 2 CLK, MIDI IN, CLOCK, TRIGGER.

# Cornerstones

## Notes:

- DFAM controls **TEMPO**; prepare all synths for playback (*Lesson 10*).
- Set Mother-32's **ASSIGN** output to Step Ramp (Mode 5) (*Lesson 3*).
- Bring up Mother-32's **MIX** knob for hi-hat accents.
- Try switching Subharmonic's **CUTOFF** modulation source from Mother-32's **ASSIGN** output to the **VC MIX** output in Mother-32's patchbay for a different flavor of modulation.

## Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
OCTAVE	4		3	3		4		3	3																								
NOTE/REST	C	-	A#	C	-	C	-	F	G	-	-	-	-	-	-	-																	
ACCENT																																	

SET END ↓

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

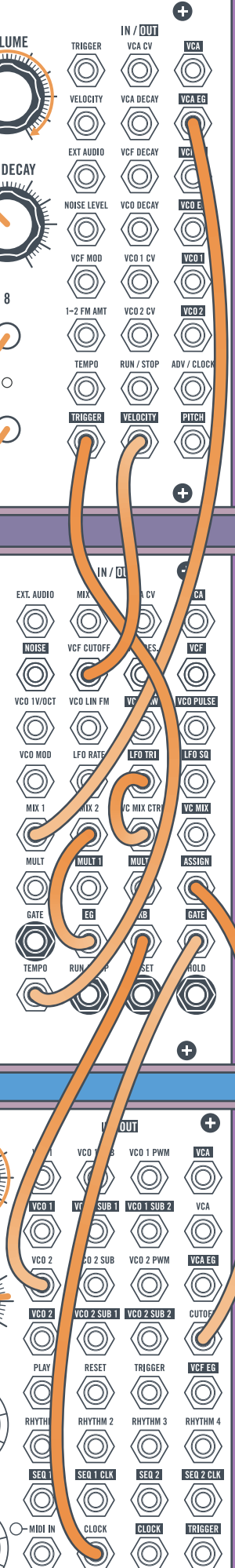
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**MOTHER-32** | SEMI-MODULAR ANALOG SYNTHESIZER

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**SUBHARMONIC** | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER

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# Standing on Shoulders

## Notes:

- Subharmonic controls **TEMPO**; prepare all synths for playback (*Lesson 11*).
- Set Mother-32's **TEMPO** mode to Single Clock Advance (Mode 2) (*Lesson 4*).
- Set Mother-32's **ASSIGN** output to Step Random

(Mode 8) (*Lesson 3*).

- Mother-32's **VC MIX** knob controls the hi-hats on DFAM.
- Try adjusting the filter **CUTOFF** knobs on Subharmonic and Mother-32 while playing.

## Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	2	3	3	3	3	2	3																								
NOTE/REST	C	C	C	C	F	G	G	G																								
ACCENT	X			X		X		X																								

SET END ↑

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

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# Deep Bubbles

### Notes:

- Subharmonic controls **TEMPO**; prepare all synths for playback (*Lesson 11*).
- Set Mother-32's **ASSIGN** output to Step Random (Mode 8) (*Lesson 3*).
- Subharmonic's **SEQ 1** controls all of its VCOs.

- Adjust DFAM's Pitch Sequencer for filter variations on Subharmonic.
- Try adjusting the filter **CUTOFF** knobs on Mother-32 and Subharmonic while playing.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	2			2				3		3			4		4		3		4		4		3			3		3			4	
NOTE/REST	C	-	-	F	-	-	G	-	-	F	-	-	D	-	C	-	A	-	A	-	F	-	F	-	-	D	-	C	-	-	D	-
ACCENT	X						X			X					X		X					X				X					X	

SET END ↗

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

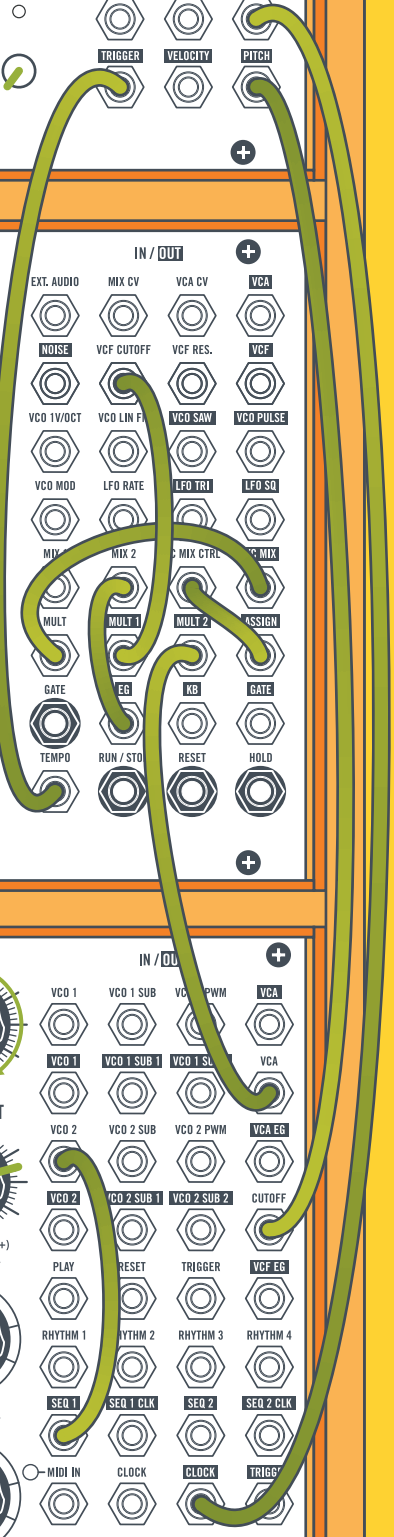
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**MOTHER-32** | SEMI-MODULAR ANALOG SYNTHESIZER

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# Cross Currents

### Notes:

- DFAM controls **TEMPO**; prepare all three synths for playback (*Lesson 10*).
- Set Mother-32's **ASSIGN** output to Step Ramp (Mode 5) (*Lesson 3*).

- Patch Mother-32's **KB** output to Subharmonic's **RHYTHM 4** input for variation of patterns.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	3	4	4	3	3	4	4	3	3	4	4	3	3	4	4																
NOTE/REST	C	C	C	C	G	G	C	C	F	F	C	C	D#	D#	C	C																
ACCENT			X				X				X		X																			

SET END ↴

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# Dancing Birds

## Notes:

- Subharmonic controls **TEMPO**; prepare all synths for playback (*Lesson 11*).
- Set Mother-32's **ASSIGN** output to Step Random (Mode 8) (*Lesson 3*).
- Mother-32's **VC MIX** knob controls random pulse width

- modulation of Subharmonic's **VCOs**.
- Try adjusting the filter **CUTOFF** knobs on Mother-32 and Subharmonic while playing.
- Try adjusting the envelope controls on all three synths.

## Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	3					3	3								3	4	4					3	3				3				2
NOTE/REST	C	C	-	-	-	-	F	F	-	-	G	-	-	-	-	A	C	C	-	-	-	-	A	A	-	-	G	-	-	-	-	A
ACCENT																																

SET END ↗

**DFAM | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER**

Key controls include: VCO DECAY, SEQ PITCH MOD, VCO 1 & 2, VCO 1 EG AMOUNT, VCO 1 FREQUENCY, VCO 1 WAVE, VCO 1 LEVEL, VCF HP, CUTOFF, RESONANCE, VCA EG, VOLUME, TRIGGER, IN / OUT, VCA CV, VCA, VELOCITY, VCA DECAY, VCA EG, EXT AUDIO, VCF DECAY, VCF EG, NOISE LEVEL, VCO DECAY, VCO EG, VCF MOD, VCO 1 CV, VCO 1, 1-2 FM AMT, VCO 2 CV, VCO 2, TEMPO, RUN / STOP, ADVANCE, VELOCITY, TRIGGER, VELOCITY, PITCH.

**MOTHER-32 | SEMI-MODULAR ANALOG SYNTHESIZER**

Key controls include: FREQUENCY, VCO WAVE, PULSE WIDTH, MIX, CUTOFF, RESONANCE, VOLUME, GLIDE, VCO MOD SOURCE, VCO MOD AMOUNT, VCO MOD DEST, VCF MODE, VCF MOD SOURCE, VCF MOD AMOUNT, VCF MOD POLARITY, TEMPO / GATE LENGTH, LFO RATE, LFO WAVE, ATTACK, SUSTAIN ON, DECAY, VC MIX, MIDI IN, HOLD / REST, PATTERN (BANK), OCTAVE / LOCATION, RESET / ACCENT, (SHIFT), RUN / STOP (REC), (KB), (STEP), C, D, E, F, G, A, B, C.

**SUBHARMONIC | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER**

Key controls include: SEQUENCER 1, SEQUENCER 2, POLYRHYTHM, RHYTHM 1, RHYTHM 2, RHYTHM 3, RHYTHM 4, VCO 1 FREQ, VCO 1 WAVE, VCO 2 FREQ, VCO 2 WAVE, CUTOFF, VOLUME, SUB 1 FREQ, SUB 2 FREQ, SUB 1 FREQ, SUB 2 FREQ, RESONANCE, VCF EG AMT, VCF ATTACK, VCF DECAY, VCO 1 LEVEL, VCO 2 LEVEL, VCO 1 LEVEL, VCO 2 LEVEL, VCA ATTACK, VCA DECAY, SEQ 1, SEQ 2, PLAY, TRIGGER, RHYTHM 1, RHYTHM 2, RHYTHM 3, RHYTHM 4, SEQ 1, SEQ 2, SEQ 1 CLK, SEQ 2 CLK, MIDI IN, CLOCK, TRIGGER.

# Sunlight

### Notes:

- DFAM controls **TEMPO**; prepare all synths for playback (*Lesson 10*).
- Set Mother-32's **ASSIGN** output to Step Random (Mode 8) (*Lesson 3*).

- Play the Mother-32 keyboard. This will trigger both KB voltages for Mother-32 and Subharmonic.
- Patch Mother-32's **LFO TRI** output to Subharmonic's **RESET** input for variations of patterns.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	3	4	4	3	3	3	3																								
NOTE/REST	C	C	C	C	F	G	F	D																								
ACCENT	X		X	X																												

SET END ↑

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

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**SUBHARMONIC** | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER

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# Ese Sabor

### Notes:

- Subharmonic controls **TEMPO**; prepare all synths for playback (*Lesson 11*).
- Set Mother-32's **TEMPO** mode to Single Clock Advance (*Lesson 4*).
- Set Mother-32's **ASSIGN** output to Step Random

- (Mode 8) (*Lesson 3*).
- Adjust Mother-32's **VC MIX** knob to turn the hi-hats into a wall of noise on DFAM.
- Subharmonic's **RHYTHM 2, 3, and 4** knobs control Mother-32 clocking.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	2	3	3	2	3	4	3	3	2	3	3	2	3	4	3	3	2	3	3	2	3	4	3	3	2	3	3	2	3	4	3
NOTE/REST	E	E	E	E	E	E	E	E	F	F	F	F	F	F	F	F	D	D	D	D	D	D	D	D	C	C	C	C	C	C	C	C
ACCENT	X			X			X		X			X			X		X			X			X		X			X			X	

SET END ↗

**DFAM | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER**

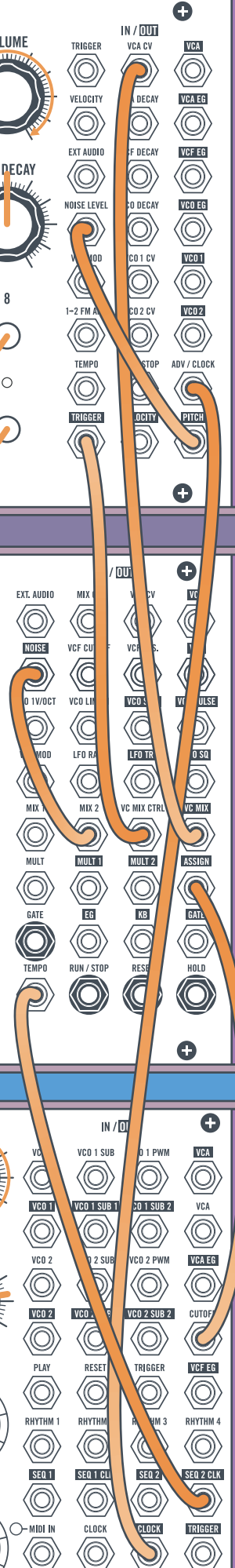
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**MOTHER-32 | SEMI-MODULAR ANALOG SYNTHESIZER**

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**SUBHARMONIC | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER**

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# Mind Police

### Notes:

- Subharmonic controls **TEMPO**; prepare all synths for playback (*Lesson 11*).
- Set Mother-32's **ASSIGN** output to Step Random (Mode 8) (*Lesson 3*).
- Subharmonic's **SEQ 1** controls all of its VCOs.
- Try adjusting Mother-32's **VC MIX** knob to add randomized rhythmic accents.
- Try adjusting the envelope **DECAY** on Mother-32.
- Try adjusting the **VCO FREQUENCY** knobs on DFAM for different drum tones.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	3	3	3																												
NOTE/REST	C	C	C	C																												
ACCENT			X																													

SET END ↴

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

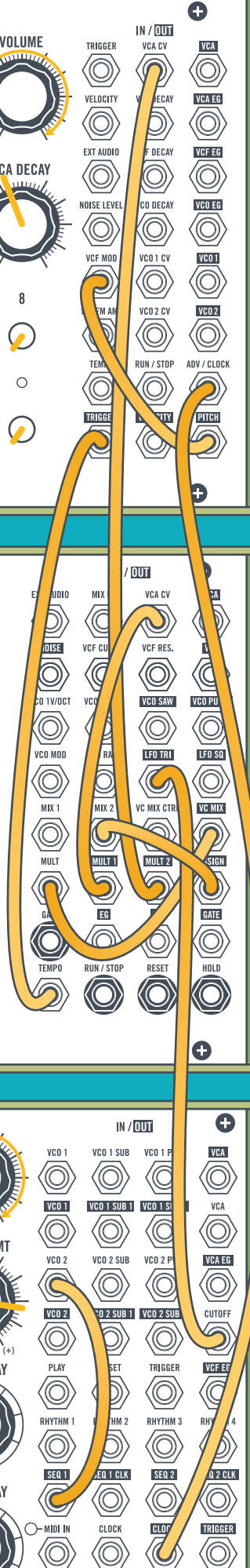
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**MOTHER-32** | SEMI-MODULAR ANALOG SYNTHESIZER

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**SUBHARMONIC** | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER

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# Sliding Scale

### Notes:

- Subharmonic controls **TEMPO**; prepare all synths for playback (*Lesson 11*).
- Set Mother-32's **ASSIGN** output to Step Random (Mode 8) (*Lesson 3*).
- Mother-32's sequencer controls pitch of its own voice

- and Subharmonic.
- Try adjusting the filter **CUTOFF** knobs on Mother-32 and Subharmonic while playing.
- Try adjusting **RHYTHM 2, 3, and 4** knobs on Subharmonic to shift clocking of DFAM.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	2	3	4	3	2	3	3	2	4	3	4	3	4	3	2	4																
NOTE/REST	F	F#	A#	G#	D#	C#	C	C#	F	F#	A#	D#	G#	C#	C	D#																
ACCENT																																

SET END ↴

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

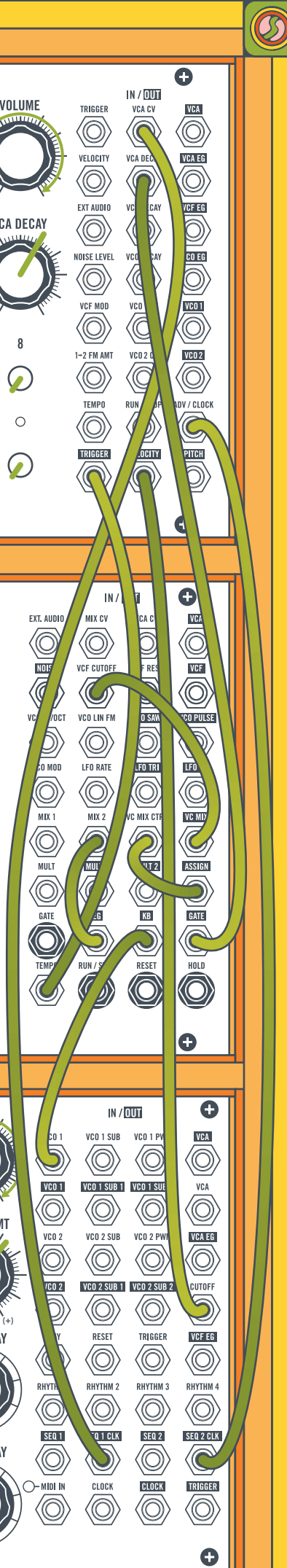
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**MOTHER-32** | SEMI-MODULAR ANALOG SYNTHESIZER

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**SUBHARMONIC** | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER

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# Super-System

### Notes:

- DFAM controls **TEMPO**; prepare all synths for playback (*Lesson 10*).
- Set Mother-32's **ASSIGN** output to Step Random (Mode 8) (*Lesson 3*).
- Slight adjustments to Subharmonicon's sequencer

- setting can be made to taste.
- Try adjusting DFAM's **VCF MOD** for random filter modulation on DFAM.
- Patch DFAM's **PITCH** output into Subharmonicon's **RHYTHM 4** input for variation of patterns.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	4	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4	3	3	3	3												
NOTE/REST	G#	G#	G#	G#	G#	G#	G	G	F	F	F	F	F	F	D#	D#	G	G	G	G												
ACCENT	X	X			X	X			X	X			X	X			X	X														

SET END ↑

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

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**MOTHER-32** | SEMI-MODULAR ANALOG SYNTHESIZER

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**SUBHARMONICON** | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER

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# Another Trip to the Freq Zone

## Notes:

- Subharmonic controls **TEMPO**; prepare all synths for playback (*Lesson 11*).
- Set Mother-32's **ASSIGN** output to Step Random (Mode 8) (*Lesson 3*).
- Mother-32 and Subharmonic are using their filters

- as oscillators in this patch.
- Mother-32's **VC MIX** knob controls random modulation of LFO rate.
- Mother-32's **VCF MOD AMOUNT** knob controls depth of FM patch on Mother-32.

## Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
OCTAVE	7	6	8	7	8	6	7																													
NOTE/REST	F	F#	F#	A#	A#	F	D#																													
ACCENT	X			X																																

SET END ↑

**DFAM | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER**

Parameters shown include: VCO DECAY, SEQ PITCH MOD, VCO 1 EG AMOUNT, VCO 1 FREQUENCY, VCO 1 WAVE, VCO 1 LEVEL, VCF HP, CUTOFF, RESONANCE, VCA EG, VOLUME, TRIGGER, IN / OUT, VCA CV, VCA DECAY, VCA EG, VELOCITY, VCF DECAY, VCF EG, EXT AUDIO, VCF DECAY, VCF EG, NOISE LEVEL, VCO DECAY, VCO EG, VCF MOD, VCO 1 CV, VCO 1, FM AMT, VCO 2 CV, VCO 2, RUN / STOP, ADV / CLOCK, TRIGGER, VELOCITY, PITCH.

**MOTHER-32 | SEMI-MODULAR ANALOG SYNTHESIZER**

Parameters shown include: FREQUENCY, VCO WAVE, PULSE WIDTH, MIX, CUTOFF, RESONANCE, VOLUME, VCA MODE, IN / OUT, VCA CV, VCA, GLIDE, VCO MOD SOURCE, VCO MOD AMOUNT, VCO MOD DEST, VCF MODE, VCF MOD SOURCE, VCF MOD AMOUNT, VCF MOD POLARITY, VCO 1V/O, VCO LIN FM, VCO SAW, VCO PULSE, VCO N, LFO RATE, VCF CUTOFF, VCF RES., VCF, VCF, MIDI IN, TEMPO / GATE LENGTH, LFO RATE, LFO WAVE, ATTACK, SUSTAIN ON, DECAY, VC MIX, HOLD / REST, PATTERN (BANK), OCTAVE / LOCATION, C, D, E, F, G, A, B, C, RESET / ACCENT, (SHIFT), RUN / STOP (REC), (KB), (STEP), C, D, E, F, G, A, B, C, GATE, EG, KB, GATE, TRIGGER, VELOCITY, PITCH.

**SUBHARMONICON | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER**

Parameters shown include: SEQUENCER 1, SEQUENCER 2, POLYRHYTHM, RHYTHM 1, RHYTHM 2, RHYTHM 3, RHYTHM 4, TEMPO, OSCILLATORS, VCO 1 FREQ, VCO 2 FREQ, VCO 1 WAVE, VCO 2 WAVE, SUB 1 FREQ, SUB 2 FREQ, SUB 1 FREQ, SUB 2 FREQ, CUTOFF, VOLUME, VCO 1, VCO 1 SUB, VCO 1 PWM, VCA, VCO 1, VCO 1 SUB 1, VCO 1 SUB 2, VCA, VCO 2, VCO 2 SUB, VCO 2 PWM, VCA EG, VCO 2, VCO 2 SUB 1, VCO 2 SUB 2, CUTOFF, PLAY, RESET, TRIGGER, VCF EG, RHYTHM 1, RHYTHM 2, RHYTHM 3, RHYTHM 4, SEQ 1, SEQ 2, SEQ 1 CLK, SEQ 2 CLK, VCF ATTACK, VCF DECAY, VCA ATTACK, VCA DECAY, MIDI IN, CLOCK, TRIGGER.

# Omni-Phaser

### Notes:

- DFAM controls **TEMPO**; prepare all synths for playback (*Lesson 10*).
- Set Mother-32's **ASSIGN** output to Clock/2 (Mode 3) (*Lesson 3*).
- Adjust Mother-32's **RESONANCE** for different kinds of phase shifting.
- Patch DFAM's **VCA EG** output to Subharmonic's **VCO 1 PWM** input for some colorful modulation.

### Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE	3	4	4	4	3	4	4	4	3	4	4	4	3	4	4	4																
NOTE/REST	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C																
ACCENT	X				X				X			X																				

SET END ↴

**DFAM** | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER

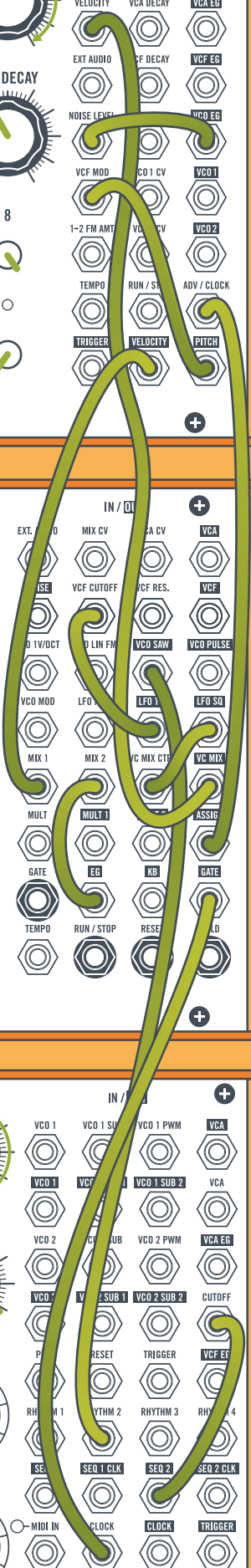
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**MOTHER-32** | SEMI-MODULAR ANALOG SYNTHESIZER

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**SUBHARMONIC** | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER

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Notes:

- Share your patches using #MoogSoundStudio.

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Mother-32 Sequence

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
OCTAVE																																
NOTE/REST																																
ACCENT																																

**DFAM | DRUMMER FROM ANOTHER MOTHER | SEMI-MODULAR ANALOG PERCUSSION SYNTHESIZER**

Control knobs and buttons include: VCO DECAY, SEQ PITCH MOD, VCO 1 EG AMOUNT, VCO 1 FREQUENCY, VCO 1 WAVE, VCO 1 LEVEL, VCF HP, CUTOFF, RESONANCE, VCA EG FAST, VOLUME, TRIGGER, IN / OUT, VCA CV, VCA DECAY, VCA EG, VCF DECAY, VCF EG, VCO DECAY, VCO EG, VCF MOD, VCO 1 CV, VCO 1, VCO 2 CV, VCO 2, 1-2 FM AMT, VCO 2, TRIGGER, VELOCITY, PITCH, RUN / STOP, ADVANCE, VELOCITY, PITCH.

**MOTHER-32 | SEMI-MODULAR ANALOG SYNTHESIZER**

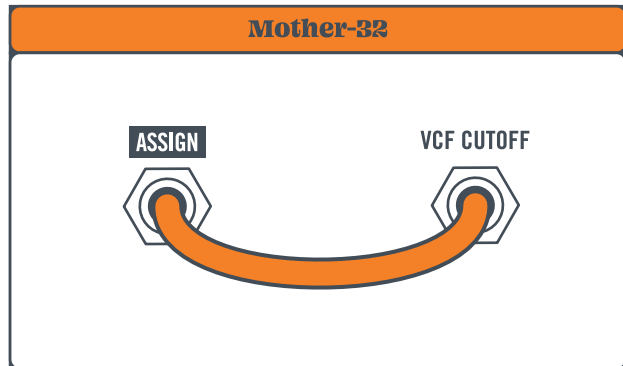
Control knobs and buttons include: FREQUENCY, VCO WAVE, PULSE WIDTH, MIX, CUTOFF, RESONANCE, VOLUME, VCA MODE ON, EXT. AUDIO, MIX CV, VCA CV, VCA, NOISE, VCF CUTOFF, VCF RES., VCF, VCO 1V/OCT, VCO LIN FM, VCO SAW, VCO PULSE, VCO MOD, LFO RATE, LFO TRI, LFO SO, VCF MOD SOURCE, VCF MOD AMOUNT, VCF MOD POLARITY, LO / MIX 1, HI / MIX 2, MIDI IN, HOLD / REST, PATTERN (BANK), OCTAVE / LOCATION, RESET / ACCENT, (SHIFT), RUN / STOP (REC), (KB), (STEP), C, D, E, F, G, A, B, C.

**SUBHARMONICON | SEMI-MODULAR ANALOG POLYRHYTHMIC SYNTHESIZER**

Control knobs and buttons include: SEQUENCER 1, SEQUENCER 2, POLYRHYTHM, RHYTHM 1, RHYTHM 2, RHYTHM 3, RHYTHM 4, TEMPO, VCO 1 WAVE, VCO 1 FREQ, VCO 2 FREQ, VCO 2 WAVE, CUTOFF, VOLUME, VCO 1, VCO 1 SUB, VCO 1 PWM, VCA, VCO 2, VCO 2 SUB, VCO 2 PWM, VCA EG, VCF EG AMT, VCF EG, VCF ATTACK, VCF DECAY, VCF EG, VCO 1, VCO 1 CLK, VCO 2, VCO 2 CLK, VCA ATTACK, VCA DECAY, VCA EG, VCO 1, VCO 1 CLK, VCO 2, VCO 2 CLK, TRIGGER.

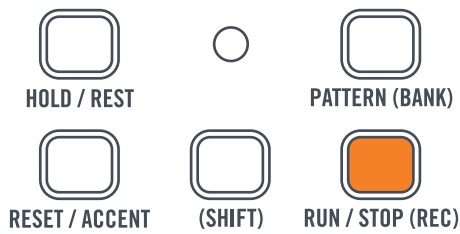
**Step 1**

Enter a 32-note sequence into the Mother-32 sequencer (refer to Lesson 1). Then, patch Mother-32's ASSIGN output into the VCF CUTOFF input.



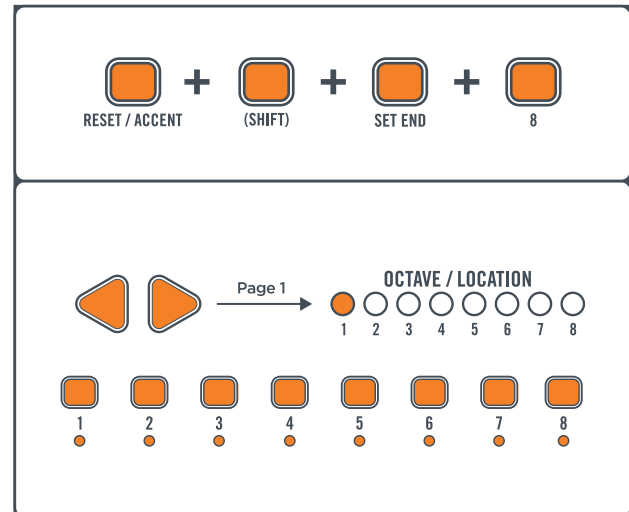
**Step 2**

Press the RUN/STOP button.



**Step 3**

Refer to Lesson 3 for instructions on how to program the ASSIGN output. As the sequencer runs, audition the different ASSIGN output functions via buttons 1-8 and notice their effect on the filter's cutoff.

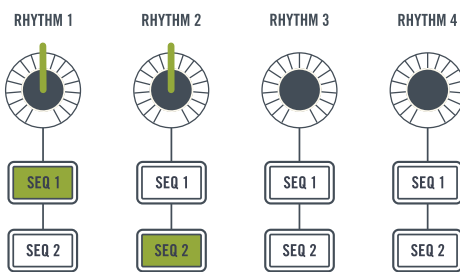


**Try This!**

Patch the ASSIGN output to other input functions on the patchbay of either Mother-32 or DFAM. A plethora of fun new options and techniques can be achieved through creative patching of the ASSIGN output!

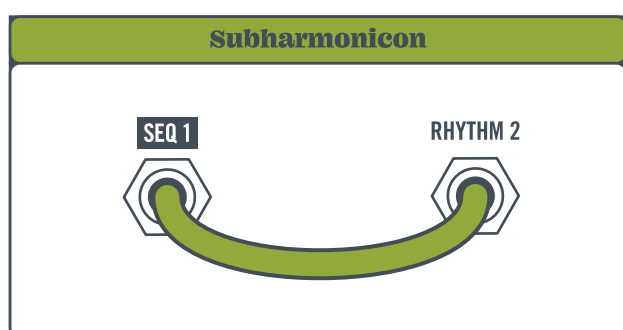
**Step 1**

Assign RHYTHM 1 to SEQ 1 and RHYTHM 2 to SEQ 2. Set both RHYTHM knobs to their middle position.

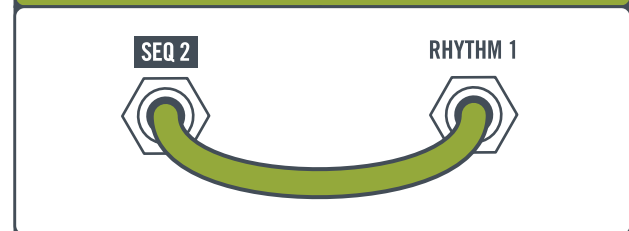


**Step 2**

Patch the SEQ 1 output to the RHYTHM 2 input, and the SEQ 2 output to the RHYTHM 1 input.



**Subharmonicon**



*NOTE: If your SEQ OCT setting is ±1 or ±2, press and hold the SEQ OCT button until it blinks. This will ensure the SEQ 1 and SEQ 2 outputs will send out ±5V, which will allow you to modulate the full range of the RHYTHM knobs.*

**Step 3**

Play with the SEQUENCER 1 and SEQUENCER 2 note settings and notice how they alter the opposing sequence's timing.

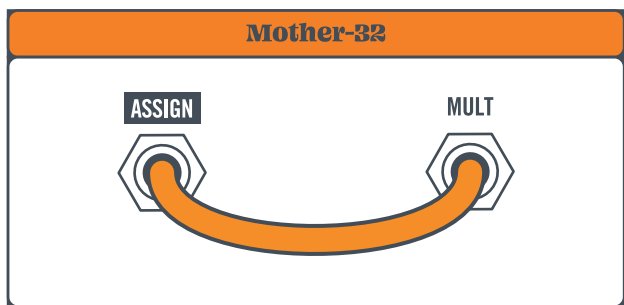


**Try This!**

Use different voltage outputs like the VCF EG or VCA EG and explore how they affect the rhythms differently.

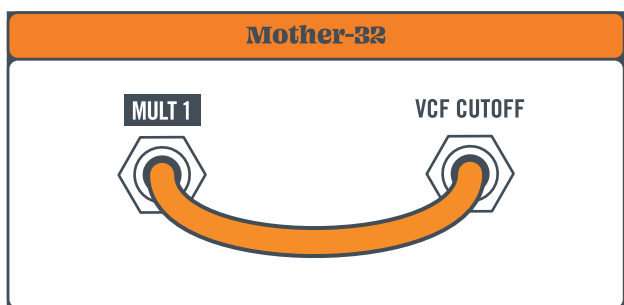
**Step 1**

Refer to Lesson 3 and set Mother-32's ASSIGN output to a clock function (2, 3, or 4). Then, patch the ASSIGN output into the MULT input on Mother-32.

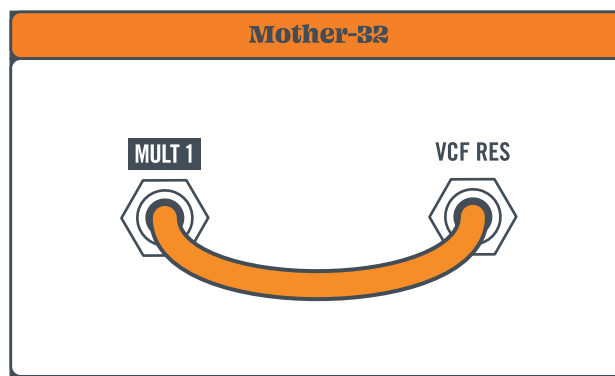


**Step 2**

Patch Mother-32's MULT 1 output into the VCF CUTOFF input.

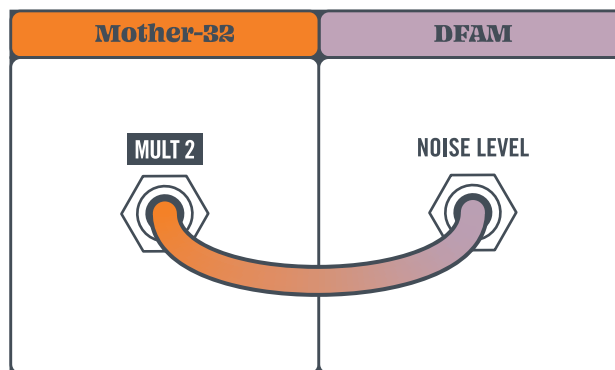


Alternatively, patch Mother-32's MULT 1 output into the VCF RES input.



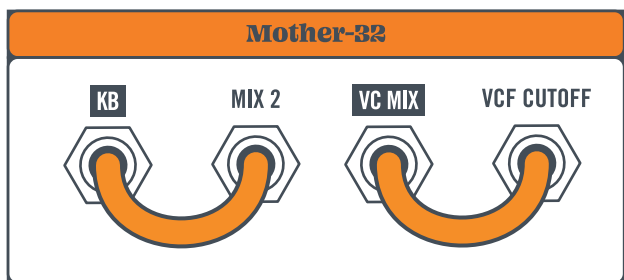
**Step 3**

Patch MULT 2 on Mother-32 into NOISE LEVEL on DFAM for lots of syncopated fun.



**Step 1**

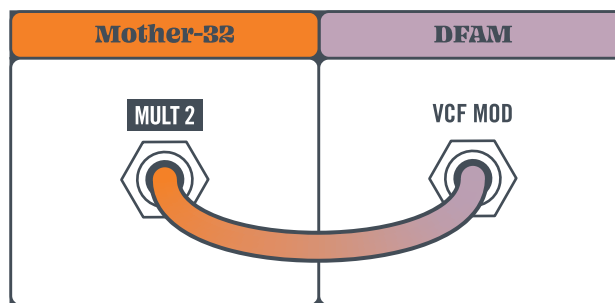
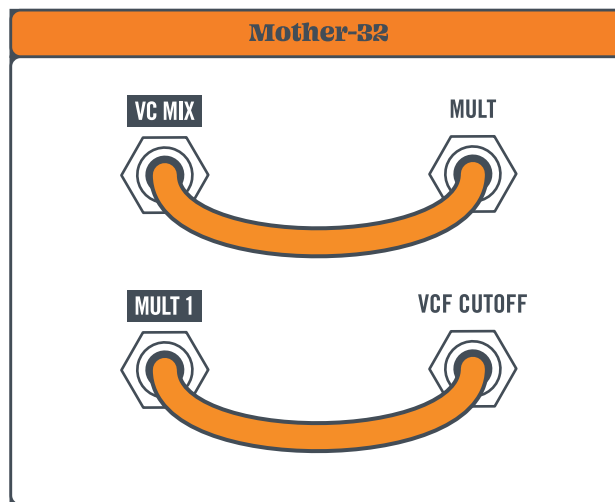
Begin by patching Mother-32's KB output to the MIX 2 input, and the VC MIX output to the VCF CUTOFF input. Turn the VC MIX knob all the way up; this will allow Mother-32's VCF to follow the sequencer's output voltage.



Once patched, experiment with adjusting the VC MIX knob to achieve your desired level of attenuation. You can also apply voltage to the VC MIX CTRL to use the VC MIX as a VCA.

**Step 2**

Patch Mother-32's VC MIX output to the MULT input, and the MULT 1 output to the VCF CUTOFF input. Then, patch the MULT 2 output on Mother-32 to the VCF MOD input on DFAM to create shared dynamic movement between both instruments while synced.



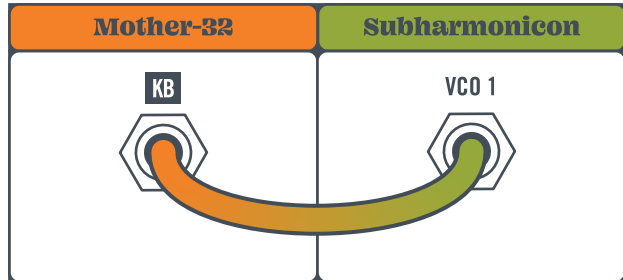
**Try This!**

Patch Mother-32's LFO TRI, LFO SQ, or ASSIGN output to the VC MIX CTRL input to use the VC MIX section as a VCA controlling the degree of filter note tracking.

Parallel Pitch Movement

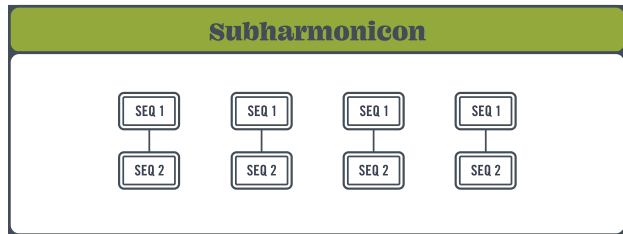
Step 1

Patch the **KB** output from Mother-32 to the **VCO 1** input on Subharmonic. This will allow Mother-32's keyboard and sequencer to control the pitches on Subharmonic.



Step 2

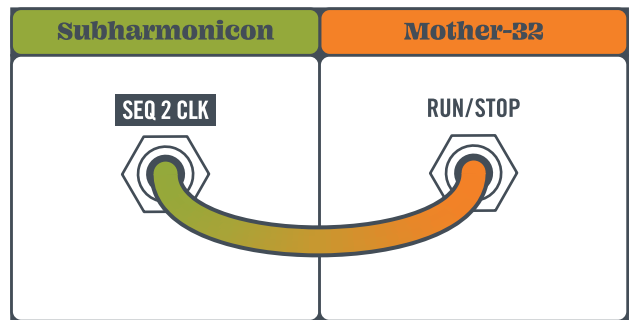
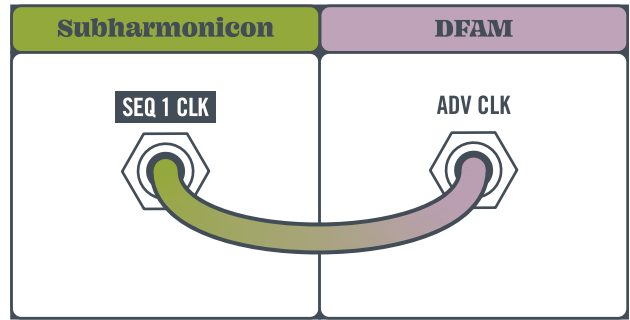
Ensure none of the **SEQ ASSIGN** buttons on Subharmonic are selected.



Nonlinear Rhythms

Step 1

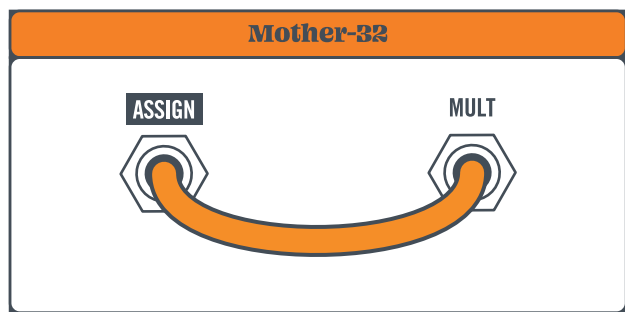
Patch Subharmonic's **SEQ 1 CLK** and **SEQ 2 CLK** outputs to clock Mother-32 and DFAM in a patch.



This will steer you away from linear timing, allowing Subharmonic's Polyrhythm sequencer to control the whole patch.

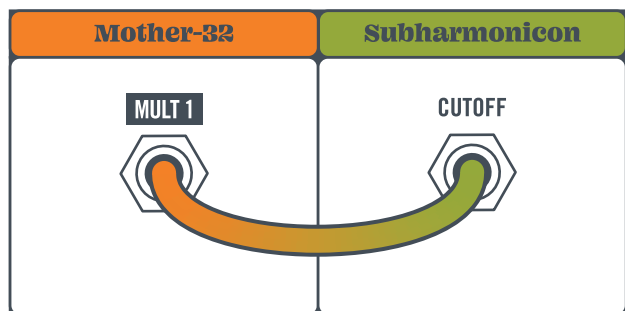
Step 1

With Mother-32's assignable output set to Step Random (Mode 8; refer to Lesson 3), patch the **ASSIGN** output from Mother-32 to the **MULT** input on Mother-32.



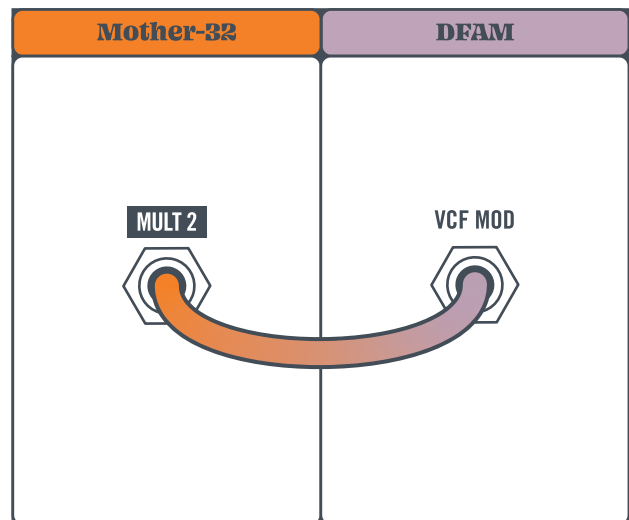
Step 2

Patch the **MULT 1** output on Mother-32 to the **CUTOFF** input on Subharmonic.



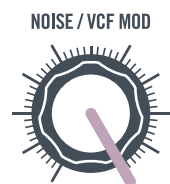
Step 3

Patch the **MULT 2** output on Mother-32 to the **VCF MOD** input on DFAM.



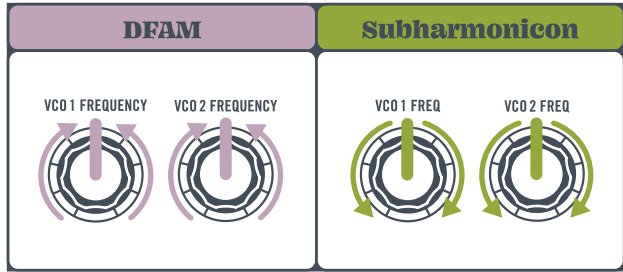
Step 4

Turn the **NOISE/VCF MOD** knob on DFAM all the way up (clockwise). This will create generative movement that is consistent between both Subharmonic's and DFAM's filter cutoffs.



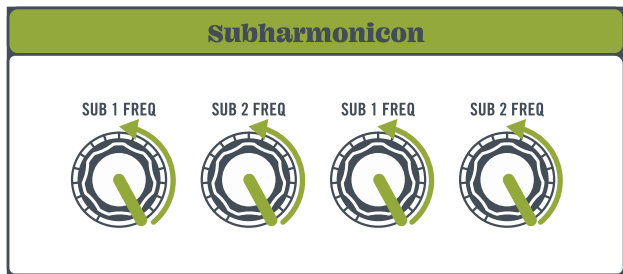
**Step 1**

Tune both of the VCOs on DFAM to a unison (the same note), then tune the VCOs on Subharmonic to a pleasing interval.



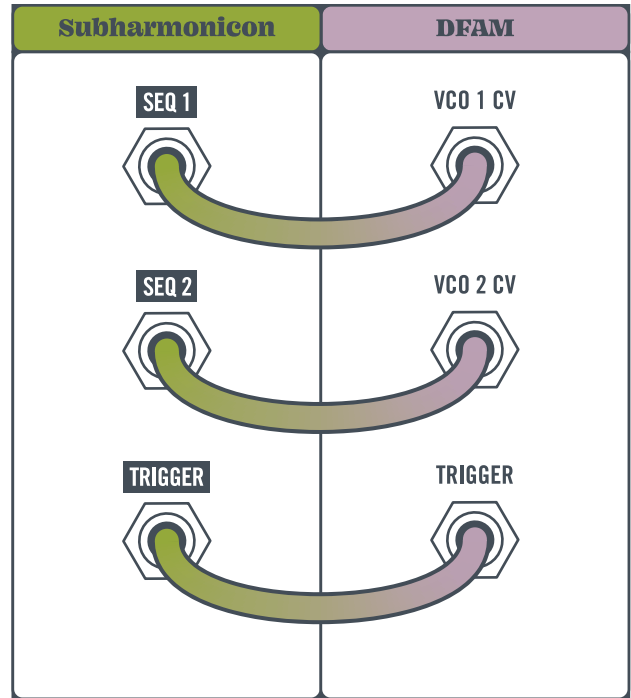
**Step 2**

Tune the two pairs of Subharmonic's sub oscillators to pleasing intervals with their respective oscillators.



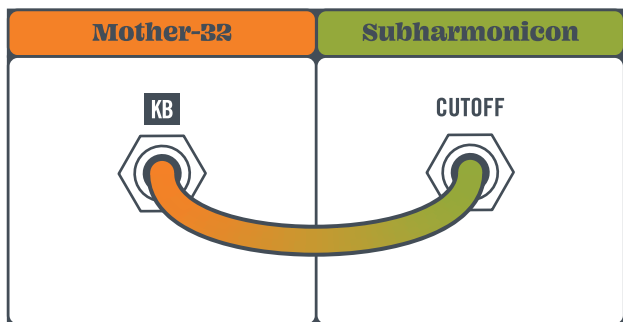
**Step 3**

Patch the SEQ 1 output from Subharmonic to the VCO 1 input on DFAM and patch the SEQ 2 output from Subharmonic to the VCO 2 input on DFAM. Then, patch the TRIGGER output on Subharmonic to the TRIGGER input on DFAM. Now both sequencers on Subharmonic will each control two VCOs and two sub oscillators, allowing for more complex voicings.



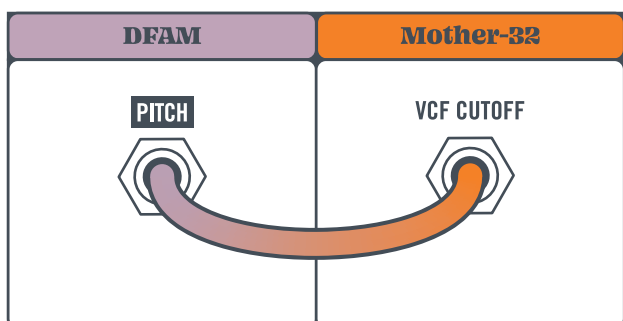
**Step 1**

Patch the KB output from Mother-32 to the CUTOFF input on Subharmonic.



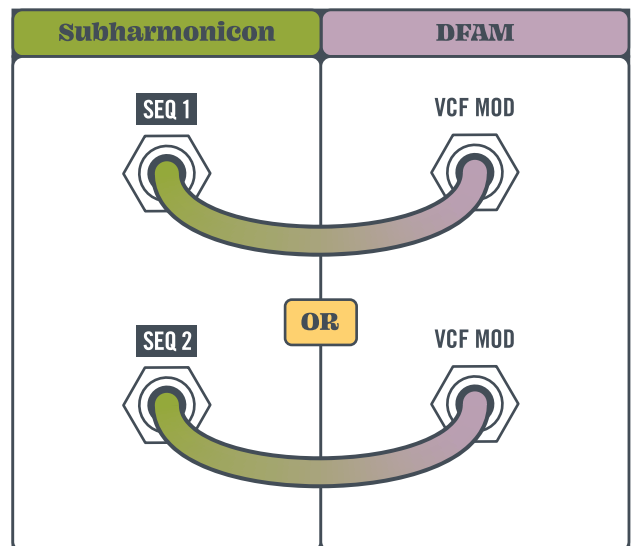
**Step 2**

Patch the PITCH output from DFAM to the VCF CUTOFF input on Mother-32.



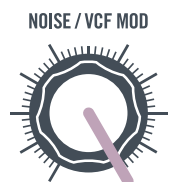
**Step 3**

Patch either the SEQ 1 or SEQ 2 output on Subharmonic to DFAM's VCF MOD input.



**Step 4**

Turn the NOISE/VCF MOD knob on DFAM all the way up (clockwise). This will create interrelated movement in a patch, where the filter of each instrument is controlled from one of the other two instruments' sequencers.





**Thank you for being a part of  
our creative community.**

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