

MEMORYMOOG PLUS SEQUENCER OPERATION

THIS SECTION OF THE MANUAL SHOWS YOU HOW TO USE THE MEMORYMOOG PLUS SEQUENCER. FIRST, THE GENERAL ARCHITECTURE OF THE SEQUENCER IS DISCUSSED. FOLLOWING THIS, A SERIES OF TUTORIALS SHOWS STEP-BY-STEP WHICH BUTTONS TO PUSH TO CREATE, STORE, PLAY, MERGE, GROUP AND LOOP SEQUENCES.

MEMORYMOOG PLUS SEQUENCER ARCHITECTURE

The Memorymoog Plus has two independent sequencers:

1. The polyphonic mode plays from 1 to 6 internal Memorymoog Plus voices, as specified by the performer.
2. The monophonic mode plays an external monophonic instrument connected to the EXTERNAL SYNTHESIZER OUT jacks on the rear of the Memorymoog Plus.

Both sequencers are driven by the same clock and can be used simultaneously.

Either sequencer is programmed/operated by pressing SYSTEM CONTROLLER buttons, and the double-function MODULATION/SEQUENCER buttons. The rear panel SEQUENCER/MIDI jacks provide SEQUENCER START/STOP using a footswitch, CLOCK IN and OUT for master/slave relationships with external drum machines, CLOCK DISABLE (necessary for some brands of drum machines), and CLICK OUT for creating a click track. In order to ensure compatibility with a wide range of drum machines/synchronizers, the clock rate is switchable on the rear panel. (LOW, MED, and HIGH are 96, 192, and 384 cycles per measure respectively. This equates to 24, 48, and 96 cycles per "quarter note.") The new rear panel also houses the MIDI interface section.

There are six sequencer memory locations represented by buttons in the MODULATION/SEQUENCER section labelled 1-6. Each of these memory locations can store both:

- A polyphonic sequence.
- A monophonic sequence.

Three of these locations, buttons 1-3 labelled SEQ/MRG can store a MERGE, a potentially complicated musical pattern comprising several sequences that may themselves be repeated.

The amount of memory available to each sequence depends on the way you store information. Realtime free polyphony combining chords and lines is less memory efficient than entering chords and/or notes in the STEP mode. If you should find that a single sequence does not provide enough memory to hold your song, it is possible to connect two or more sequence memories together to create a longer memory, as we shall see later.

Polyphonic memory is approximately 5250 notes in step mode and 4000 notes in real time. A six note chord does not necessarily take up six

times as much memory as a single note however, since data is compacted. Experience will tell you system limits.

Monophonic memory is 1120 notes in step mode and 560 in real time.

All display "prompts," or messages displayed in the SYSTEM CONTROLLER section are indicated in the tutorials below with quotation marks; e.g. "VOICES 6."

ALL RESPONSES TO SYSTEM CONTROLLER PROMPTS EXCEPT "START" ARE DONE USING THE SYSTEM CONTROLLER KEYPAD.

SEQUENCER TUTORIALS

IN THIS SECTION YOU WILL BE ASKED TO PRESS SWITCHES AND READ THE DISPLAY, WHICH WILL "PROMPT" YOU, TELLING YOU WHAT TO DO. IF THE BUTTON YOU ARE ASKED TO PRESS IS IN THE SEQUENCER SECTION, ITS NAME/NUMBER IN THIS MANUAL WILL BE ENCLOSED BY THE "GREATER THAN, LESS THAN" SYMBOLS LIKE THIS:

<RECORD> THIS MEANS "PRESS THE RECORD SWITCH."

SOMETIMES THE BUTTON TO BE PRESSED IS IN THE SYSTEM CONTROLLER KEYPAD SECTION. BUTTONS IN THIS SECTION WILL BE ENCLOSED BY BRACKETS, LIKE THIS:

[ENTER] THIS MEANS "PRESS THE ENTER SWITCH."

IT IS MOST IMPORTANT TO REMEMBER THIS WHEN DEALING WITH NUMBERED BUTTONS, SINCE NUMBERS 1-6 OCCUR IN TWO SECTIONS OF THE INSTRUMENT. FOR EXAMPLE:

<1> MEANS "PRESS BUTTON 1 IN THE MODULATION/SEQUENCER SECTION."

[1] MEANS "PRESS BUTTON 1 IN THE SYSTEM CONTROLLER SECTION."

SOME MORE EXAMPLES:

[C], [C] "PRESS BUTTON C IN THE SYSTEM CONTROLLER SECTION TWICE."

[ENTER] "PRESS ENTER BUTTON IN SYSTEM CONTROLLER."

<START> "PRESS START/STOP BUTTON IN SEQUENCER SECTION."

<STOP> "PRESS START/STOP BUTTON IN SEQUENCER SECTION."

<3> "PRESS BUTTON 3 IN SEQUENCER SECTION."

[3] "PRESS BUTTON 3 IN SYSTEM CONTROLLER SECTION."

HOW TO RECORD/PLAY A POLYPHONIC SEQUENCE IN REAL TIME: A TUTORIAL

- ACTION:** **PURPOSE/RESULT:**
- [C], [C], [ENTER] Places instrument in the polyphonic "SEQUENCE" mode; see display. (Repeat step if display says "MOOG.")
- (IN SEQUENCE MODE THE LIGHT BY THE SEQUENCE BUTTON COMES ON. Since the sequencer comes on in the polyphonic mode, the MOND light will be OFF when you access the sequencer mode.)
- (RECORD) Enables record mode. (NOTE: If the RECORD light fails to come on, the instrument may have been purposely "disabled" to prevent accidentally recording over valuable sequences. Do a [C], [8], [ENTER] three-switch entry and see if the display says "DISABLED." If it does, you can defeat this by entering 0000 on the keypad and pressing [ENTER]. Now you can record). (If the display says "ENABLED" hit [ENTER], [ENTER] and proceed).
- (1) Selects storage location #1 for your sequence.
- (START) The START light does not come on, but the display prompts you:
- "TEMPO - " Prompts you to enter on the SYSTEM CONTROLLER keypad a tempo between 60 and 240 (in Metronome Marking beats per minute).
- [ENTER] Enters Tempo value currently in display.
- "BEATS - " Prompts you to enter the number of beats per measure. You may change this value, using the SYSTEM CONTROLLER keypad selecting one of the possible values (1,2,3,4,6,8).
- [ENTER] Enters number shown in display as beats per measure.
- "VOICES - " Prompts you to enter the maximum number of Memorymoog voices (notes) you wish to use during the sequence. Use the SYSTEM CONTROLLER keypad to select 1-6 voices.
- [ENTER] Enters number shown in display as number of voices

you wish to use in this sequence. The remaining voices are available to be played from the keyboard during the sequence.

- "START" Display prompts you to press START button.
- (START) The countdown to begin recording starts. The display will count a "measure for nothing" and display will count beats for you, synchronized with audible clicks if you are monitoring CLICK OUT.
- PLAY YOUR SEQUENCE!
- (STOP) Stops recording and defines the point at which a "looped" (repeated) sequence will end (and begin).

Comment: This tutorial reveals some basics necessary to use the sequencer. The keystroke entry [C], [C], [ENTER] "toggles," or alternates the front panel between "MOOG" and "SEQUENCE" modes of operation. The MOOG mode uses the MODULATION/SEQUENCER switches to program modulations. In the SEQUENCE mode, these switches control sequencer functions.

Also, note that in RECORD mode, pushing START the first time causes the display to prompt you, asking for information entered by the SYSTEM CONTROLLER keypad. Push START a second time and the recording process begins. The "measure for nothing" is a "kickoff" to help you feel the tempo. If you are listening to CLICK OUT on the rear panel, you'll hear one measure of clicks before recording starts, and the clicks will continue as you record.

The sequencer comes up in the polyphonic mode (the MONO light is out). If you want to create a monophonic sequence, you must do so with the MONO light on.

HOW IS THE LOOP POINT OF A SEQUENCE DEFINED? By pressing STOP. But it is important to realize that a sequence cannot contain a partial measure, even at its end. If you press STOP late--during the first half of an unwanted measure, the extra time will be dropped and that measure will NOT become part of the sequence.

If you press too late--during the last half of the late measure--enough rests will be added to include this added measure at the end of the sequence. This lets you create a sequence that has rests, or silence at its end before it repeats.

WHAT IF YOUR SEQUENCE IS TOO LONG TO FIT INTO A SINGLE SEQUENCE LOCATION? Connect two or more sequence memories when SEQUENCE and RECORD lights are on: press the LOWER of two numbered buttons FIRST and HOLD IT DOWN, then the HIGHER number LAST (order is important!) Those two memories AND ANY THAT FALL BETWEEN THEM will become one memory, having a "name" that is the lowest number pressed. If you connect memories 1,2, and 3 together, they will collectively become location number "1;" if you try to play sequence 2 (or 3) the display will show "NO SEQ 2" (or 3), indicating that several memories have been connected.

This connection is made firm only after the location has been recorded into.

Now, let's play this poly sequence you have created:

- (RECORD) Necessary to turn RECORD mode off.
- (START) The sequence will play as recorded. It will loop automatically from the point you stopped it during recording.

Comment: It is easy to play a sequence back after you just recorded one, since you are already in the SEQUENCE mode, and have indicated the recording/playback location number. But let's review the general case for playing back a sequence making no prior assumptions:

PLAYBACK A POLYPHONIC SEQUENCE: GENERAL RULES

1. Must be in "SEQUENCE" mode. ([C], [C], [ENTER] if not).
2. SEQUENCE light must be ON. (SEQUENCE) if not.
3. MONO light must be OFF. (MONO) if not.
4. The desired sequence location number must be selected. (1) or (2) or (3), . . . (6).
5. RECORD light must be OFF. (RECORD) if not.
6. Must (START) to begin playback.
7. The RATE knob in the MODULATION/SEQUENCER section does not affect the playback tempo unless the knob is moved, similar to any Memorymoog Plus edit. However, a new tempo for playback can be entered by going to the EDIT mode as follows:

CHANGING PLAYBACK TEMPO: THE EDIT MODE

(Must be in SEQUENCE mode)

- (EDIT) Calls up edit mode.
- (RECORD) Allows "recording" of edits you wish to make in TEMPO, and/or BEATS and VOICES.
- (START) (Begins with prompt for TEMPO.)
- "TEMPO - "
- [USE KEYPAD TO ENTER NUMBER BETWEEN 60 AND 240 FOR TEMPO]
- [ENTER] (Press the ENTER key to enter the new tempo rate.)