RELEASE G

This documentation update describes several new features offered by Release G of the Synclavier® II operating system. These easy to use features provide for external triggering of the notes in the memory recorder as well as for precise rhythmic justification of keyboard performances. Release G also includes an improved set of timbres.

Release G is available in the standard Synclavier® II operating system, the Alphanumeric Timbre Display System and the Graphical Timbre Display system, and as part of the SCRIPT operating system. To use the new features, simply load from a Release G system diskette. If you are using the SCRIPT version of Release G, load the system and then type PLAY on the terminal.

First examine the new functions for the CLICK RATE and EXT. SYNC. buttons.

CLICK RATE Button

In Release G, you use the click rate parameter to set a beat rate with which notes will be justified during recording. You also use the click rate parameter to set the period between beats for use during external synchronization. There are now two displays for the click track. In both cases the CLICK RATE button will be lit.

Press the CLICK RATE button *once* to display the click *rate* in beats per minute, as before. The small light labeled ARBITRARY will be lit.

Press the CLICK RATE button *twice* to display the click *period* in milliseconds. The small light labeled MILLISECONDS will be lit. The click period range is from 25 to 9995 milliseconds. The small button labeled MILLISECONDS will be lit.

(NOTE: Period is the reciprocal of beats per minute. When the rate of clicks increases, the period between them decreases, and vice versa.)

Pressing the CLICK RATE button three times will turn off the click track output and cause the button to blink.

EXT. SYNC. Button

During normal operation of the Synclavier® II memory recorder, playback of a sequence is triggered when you press the START or CONTINUE buttons. In this *normal* mode, the EXT. SYNC. button is unlit.

There are now available two modes of external synchronization for use during playback. In the first mode (which is identical to earlier software releases), playback is triggered by a 50 Hz signal. This mode is called *50 Hz signal synchronization.* Press EXT. SYNC. once to select this mode. The button will be *lit,* not blinking.

In the second mode, individual beats in a sequence are triggered by external sync pulses. This mode is called *external beat synchronization.* In this mode, beats can also be triggered from the Synclavier® II keyboard using the Synclavier® II TRANSPOSE function. Press EXT. SYNC. twice to select this mode. The button will be *blinking.*

There is another new use for the EXT. SYNC. button. You can now use it while recording to direct the Synclavier® II computer to perform rhythmic justification. Press EXT. SYNC. *before* recording. The button may be either lit or blinking.

RHYTHMIC JUSTIFICATION

When you use the new rhythmic justification, the starting times of notes played on the keyboard will be modified to start precisely on the beat during playback, even if played slightly ahead of or after the beat while recording.

The beat for justification is established by the click rate, or click period. *Each note* will be justified to occur *on a click*. Therefore, before recording you should turn on the click track output so that you can hear the clicks. Next, you must set the click rate according to the shortest note you wish to record. Then, you press the EXT. SYNC. button so that it is lit or blinking. Finally, you press RECORD and start recording.

Recording with Rhythmic Justification

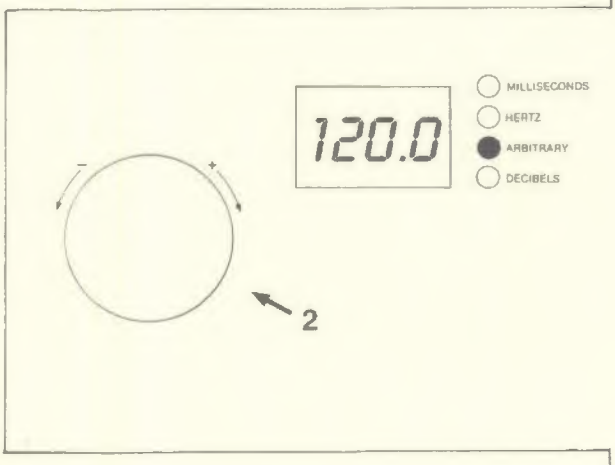
Start with an empty memory recorder. (SCRIPT users: Type PLAY on the terminal.)

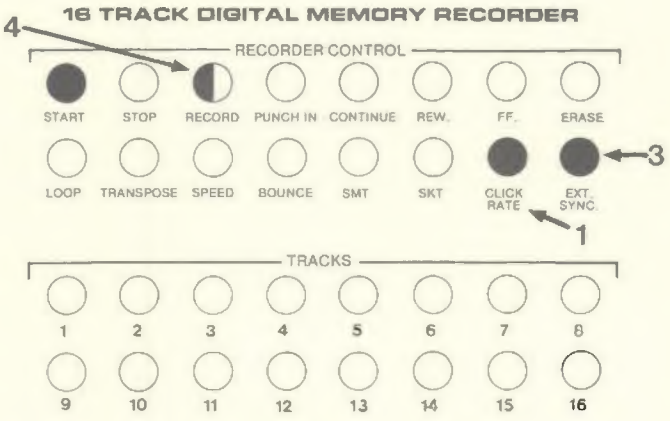
1. a. Press CLICK RATE once and set click rate in beats per minute.

   or

   b. Press CLICK RATE twice and set the click period in milliseconds.

   Since each note will be justified to occur on a click, establish the click rate in terms of the shortest note you wish to record. For example, a composition with sixteenth notes would require a click rate twice as fast as one with only eighth notes.





2. Press EXT. SYNC.

   The button may be lit or blinking. Rhythmic justification takes place during recording. It cannot be applied afterwards. If you forget this step, you will have to record the piece over again to justify the rhythms.

3. Press RECORD and start recording along with the click track.

4. Press STOP.

   The EXT. SYNC. button will go out automatically.

5. Press START.

   Your recorded notes will be performed with precisely justified rhythms. The starting time of each note has been modified to occur exactly on a click, or on a multiple of the click period.

   SCRIPT users may see this clearly by using the reverse compiler.

You can press EXT. SYNC. before pressing PUNCH IN to add new notes in perfect synchrony to a sequence.

Sequences created with justified rhythms are completely compatible with earlier versions of Synclavier® II software. They can be played in perfect rhythm on any system with enough memory. Similarly, you may overdub new tracks with justified meter onto previously recorded sequences. Or, you can record a steady justified tempo in the background of a composition with an expressive unjustifed musical line on top. (You cannot justify the notes in old unjustified sequences without rerecording them.)

Although the same click rate is normally used on all tracks of a sequence, this is not a requirement. Changing the click rate will not affect the beat, or playback speed, of justified notes. Once a track has been recorded with justified rhythms, the click rate may be changed for justified overdubbing at a different beat rate on the same or different tracks. For example, justified triplets and polyrhythms can added to a piece by recording them with different click rates.

NOTE: To keep the notes of the sequence synchronized with each other, maintain an integer ratio between the original click rate and the click rates used in overdubbing. That is, divide or multiply the original click rate by a whole number to arrive at a new click rate.

As always, you can use the SPEED setting to alter playback or recording speed. Slowing the speed allow precise justification of extremely short note values.

EXTERNAL BEAT SYNCHRONIZATION

Once a sequence has been recorded with justified rhythms, it may be played back in the external beat synchronization mode. As stated above, this playback mode is selected by pressing EXT. SYNC. twice and making the button blink.

In this mode, each time an external sync pulse is received, the time base of the Synclavier® II sequence will be advanced by an amount equal to the current click period. The first pulse will trigger playback from the beginning of beat 1 up to immediately before beat 2. The second pulse will trigger playback from the beginning of beat 2 to just before beat 3.

Assuming the click period is the same as used during recording, each sync pulse will trigger the note or notes justified to each beat. And, if the period between sync pulses matches the click period, the composition will be performed exactly as in normal playback (as by pressing START).

If the click rate has been changed from the rate used during recording, the notes of the sequence will no longer be synchronized with the beat. Therefore, sync pulses may trigger a sequence of several notes from the recorder or perhaps none at all. (This may indeed be a desirable situation.) However, if you try to use external beat synchronization with a sequence recorded without rhythmic justification, notes played even 1 millisecond before or after the beat will be played at an unpredictable rhythm.

There are several kinds of external beat synchronization signals possible: 1) non-Synclavier® II external sync pulses, 2) sync pulses emitted from Synclavier® II and recorded on tape, and 3) triggers from the Synclavier® II keyboard itself.

In the external beat synchronization mode, the memory recorder will not begin to play back until it receives an external beat synchronization signal.

NON-SYNCLAVIER® II SYNC PULSES

Various analog equipment, such as timing-pulse generators, envelope generators, or drum machines, can be connected to the EXT. CLOCK INPUT jack on the back of the Digital Synthesizer and used as a source of external sync pulses. Any device which produces pulses of 10 milliseconds or longer in duration and between about +2 and +4 volts can be used. The frequency of the pulses may or may not match the click rate. Each beat is triggered by the positive leading edge of the sync pulse.

Using External Sync Pulses

Use the justified sequence you recorded in the above example. All notes should start precisely on a click.

1. Connect the source of the external sync pulses to the EXT. CLOCK INPUT jack on the back of the Digital Synthesizer.
2. Select the external beat synchronization mode (EXT. SYNC. blinking).
3. Press START.

   Playback of the sequence will not begin yet.
4. Start feeding the sync pulses.

   As the sync pulses are received, the notes of the sequence will be played.

Try triggering the same sequence with different sync pulse rates. Or try lengthening the click period.

SYNC PULSES FROM SYNCLAVIER® II

Synclavier® II now produces two kinds of signals from the EXT. CLOCK (output) jack: the 50 Hz synchronization signal (as in earlier releases of the software) and a signal consisting of 15 millisecond sync pulses emitted at the current click rate. Either of these two signals can be recorded on tape and used to trigger the memory recorder. The sync pulses can be used in external beat synchronization.

One or the other signal will be emitted from the EXT. CLOCK jack from the time you press START until the time you press STOP. In the normal mode and in the 50 Hz signal synchronization mode, the 50 Hz signal will be emitted. In the external beat synchronization mode, the beat-compatible sync pulses will be emitted. (When EXT. SYNC. is lit or blinking, the sequence itself will not be played until the correct signal is fed in through the EXT. CLOCK INPUT jack.) Always set the recorder SPEED at 1.000 when generating sync pulses.

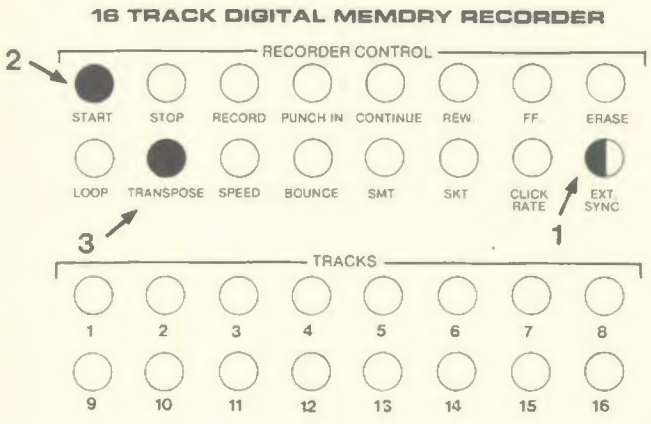
Recording Synclavier® II Sync Pulses on Tape

Use the sequence you recorded in the above example. Make sure the click rate has not been changed and the recorder SPEED is set at 1.000.

1. Select the external synchronization mode (EXT. SYNC. blinking).
2. Connect the EXT. CLOCK output jack to a track of a multitrack tape recorder.
3. Press START on Synclavier® II.

   The signal of beat-compatible sync pulses will be produced although the sequence will not be played (unless you simultaneously feed the signal back in through the EXT. CLOCK INPUT jack).
4. Set the recording amplitude level on the tape recorder.
5. Press STOP on Synclavier® II.
6. Now start up the tape recorder and then press START on Synclavier® II. Starting the tape machine before the Synclavier® II insures that the tape is moving at a constant speed while recording the pulses.
7. When you have recorded enough of the sync pulses on tape for the entire composition, press STOP on Synclavier® II.
8. Stop and rewind the tape recorder.
9. Connect the output from the track on which you recorded the sync pulses to the EXT. CLOCK INPUT jack on the back of the computer.
10. Press START on Synclavier® II.
11. Start the tape playback of the recorded signal.

    When the first pulse is received through EXT. CLOCK INPUT, the memory recorder will start.



KEYBOARD TRIGGERS

Release G also includes a feature which lets you trigger beats in the recorded sequence manually from the keyboard. If you have selected the external beat synchronization mode, and if no external signal is connected to the EXT. CLOCK INPUT, then you will be able to use the keyboard in this way. The TRANSPOSE button is used to activate the keyboard trigger and transpose mode.

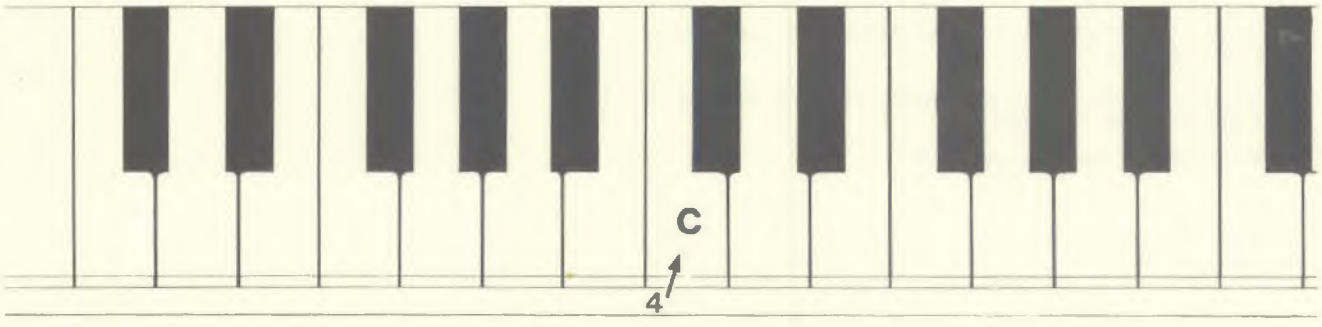
Triggering Notes from the Keyboard

Use your recorded sequence again.

1. Select the external beat synchronization mode (EXT. SYNC. blinking).
2. Press START.

   The memory recorder is waiting for a trigger.
3. Press TRANSPOSE.

   This establishes the keyboard trigger mode.
4. Press middle C on the keyboard.



   You will trigger the first beat of the sequence.

   If you press a different key, you will trigger a beat as well as cause a transposition of all succeeding notes.
5. Now establish a longer click period, 1000 millisecconds for example.
6. Press a key on the keyboard.

   You will trigger a sequence of several notes by pressing one key.

SPEED CONTROL

When in the external beat synchronization mode, the memory recorder will start playback every time a sync pulse (or keyboard trigger) is received. It will proceed at a rate controlled by the SPEED setting (which has been 1.000 in the above examples). Immediately before the next beat it will stop and wait for the next trigger. By varying the SPEED setting, you can vary tempos between beats. Experiment.

SYNCHRONIZING TWO SYNCLAVIER® II'S

It is possible to synchronize two Synclavier® II memory recorders using the 50 Hz signal synchronization. The 50 Hz signal emitted from one system, the master, during playback is used to drive the other, the slave.

Synchronizing Two Synclavier® II Memory Recorders

1. Record sequences justified to the *same click rate* in the two memory recorders. Use a SPEED setting of 1.000.
2. Choose one Synclavier® II to be the master system and one to be the slave.
3. Connect the output from the EXT. CLOCK jack on the master system to the EXT. CLOCK INPUT jack on the slave system.
4. Select the 50 Hz signal synchronization mode (EXT. SYNC. lit) on the slave Synclavier® II.
5. Press START on the slave Synclavier® II .
6. Press START on the master Synclavier® II.

   Both memory recorders should start simultaneously and should play in synchrony.

The following maxidiskettes are available with Release G:

Synclavier® II Operating System with five 10,000 note sequences
Synclavier® II Operating System with Alphanumeric Timbre Display and four 10,000 note sequences
Synclavier® II Operating System with Graphical Timbre Display and four 10,000 note sequences
Timbre Diskettes 1, 2, 3, and 4, all with five 10,000 note sequences
SCRIPT Level II System without Music Notation
SCRIPT Level II System with Music Notation
SCRIPT Level II System with Music Notation and Graphical Timbre Display

The following double density 5 1/4 inch minidiskettes are available with Release G:

Synclavier® II Operating System with two 10,000 note sequences
Synclavier® II Operating System with Alphanumeric Timbre Display and two 10,000 note sequences
Synclavier® II Operating System with Graphical Timbre Display and two 10,000 note sequences
Timbre Diskette 1 with five 5,000 note sequences
Timbre Diskette 2 with three 10,000 note sequences and CONFIGUR program
Timbre Diskettes 3 and 4 with three 10,000 note sequences
SCRIPT Level II System without Music Notation
SCRIPT Level II System with Music Notation
SCRIPT Level II System with Music Notation and Graphical Timbre Display but no Screen Editor

The following single density 5 1/4 inch minidiskettes are available with Release G:

Synclavier® II Operating System
Synclavier® II Operating System with Alphanumeric Timbre Display
Synclavier® II Operating System with Graphical Timbre Display
Timbre Diskette 1 with six 1,000 note sequences
Timbre Diskette 2 with one 10,000 note sequence
Timbre Diskette 3 with one 10,000 note sequence
Timbre Diskette 4 with two 6,400 note sequences
SCRIPT Level II without Music Notation
SCRIPT Level II with Screen Editor Monitor

SYNCLAVIER® II OPERATING SYSTEM

RELEASE G

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