



Supplemental Notes

External Sequencing with the MC-505

November 15th, 1998 SN95 v1.0

As you know, the MC-505 Groove Box is a great instrument for creating grooves as well as for realtime control of sound and patterns. The MC-505 also excels when used with other MIDI devices such as sequencers, keyboards, or sound modules. There are several ways to incorporate the MC-505 into a larger MIDI rig: as a controller, a sound source, or a combination of the two. This document is intended to give you some ideas on how to connect the MC-505 to other MIDI devices. For more information on programming the MC-505 as well as other tips, check out the MC-505 Advanced Programming Supplemental Note (faxback # 21066).

Topics

We will be covering the following topics in this document:

- I. Synchronizing the MC-505 with other devices.
- II. Setting up the MC-505 for external control.
- III. Selecting sounds on the MC-505 from an external device.
- IV. Controlling the Arpeggiator and RPS externally.
- V. Using System Exclusive and Continuous Controller messages.
- VI. Transferring patterns between the MC-505 and an external sequencer.
- VII. Using the MC-505 to control external MIDI devices.
- VIII. Putting it All Together.

I. Synchronization

When you are using the MC-505 with a sequencer or drum machine, you will probably want to synchronize the clocks of the two devices. The first decision you need to make is which device will be the master.

Using the MC-505 to Control a Sequencer

If the MC-505 is set to be the master, you will control playback of both devices from the Play, Stop, FF, and RR buttons on the Groove Box. Use the following procedure to make this setting:

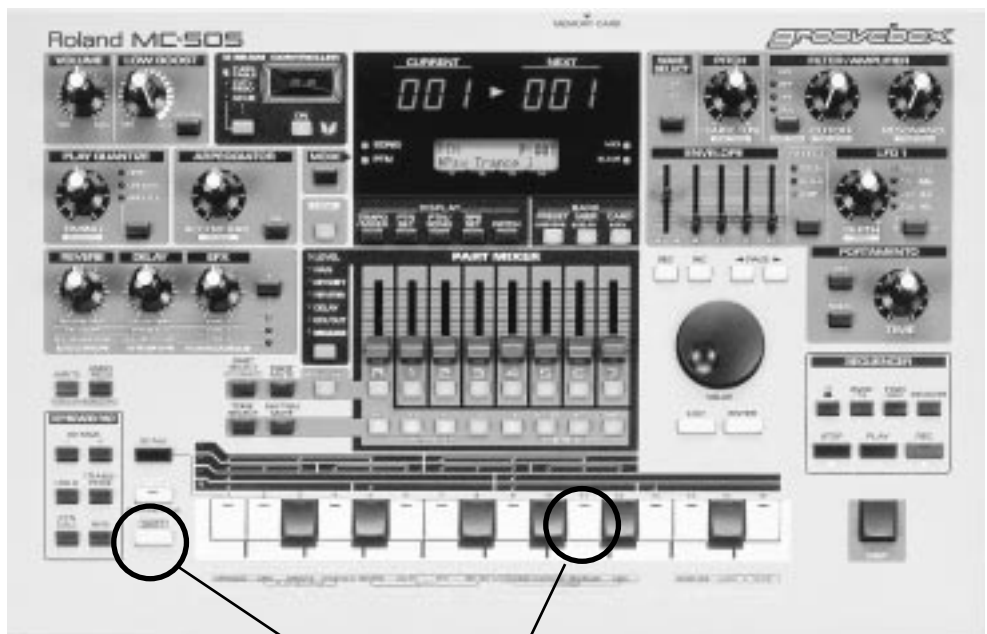
- 1) Connect a MIDI cable from the MIDI OUT of the MC-505 to the MIDI IN of the sequencer.
- 2) While holding SHIFT, press KEYPAD 11 (fig. 1).
- 3) Use the PAGE</> buttons to select "Sync Out =."
- 4) Use the VALUE dial to select "Sync Out = ON."
- 5) Press EXIT.

Using the MC-505 as a Slave to a Sequencer

Use the following procedure to set up the MC-505 to follow the MIDI clock of a sequencer. In this type of setup the sequencer will be used to start and stop the MC-505:

- 1) Connect a MIDI cable from the MIDI OUT of the sequencer to the MIDI IN of the MC-505.
- 2) While holding SHIFT, press KEY PAD 11 (fig. 1).
- 3) Use the VALUE dial to select "Sync Mode = SLAVE," then press EXIT.

Fig.1
MC-505 Front Panel



SHIFT + KEYPAD 11

II. Setup

The next four sections will deal with using the MC-505 as a slave to an external MIDI sequencer. In this type of setup you will normally be sequencing from a hardware or computer-based sequencer. The MC-505 will be used as a sound module with up to 8 MIDI channels available. You can select sounds from your sequencer (section III) and trigger the arpeggiator or the RPS function (section IV). You can also control other aspects of your sound from the sequencer using other types of MIDI messages (section V).

Part	MIDI Channel
Part 1	Ch. 1
Part 2	Ch. 2
Part 3	Ch. 3
Part 4	Ch. 4
Part 5	Ch. 5
Part 6	Ch. 6
Part 7	Ch. 7
Rhythm Part	Ch. 10

Fig.2
MC-505 MIDI channel assignments

You should first set the MC-505 to be a slave (see previous section 'Using the MC-505 as a Slave to a Sequencer'). The next step will be to select an empty pattern. Use the following procedure:

- 1) Press PTN/SONG so it is lit and use the VALUE dial to select "U:001 EMPTY PATTERN." If U:001 is not empty, use the VALUE dial to select a user pattern that is empty.

Next you should check to make sure that the Remote Keyboard Switch is OFF. If this switch is ON, you will not be able to access different sounds on different MIDI channels. You should also make sure that the MIDI reception (Rx) switches are ON so your external sequencer can properly control the MC-505. Use the following procedure:

- 1) While holding SHIFT press KEY PAD 12.
- 2) Use the VALUE dial to select "Remote Kbd = OFF."
- 3) Use the PAGE </> buttons to select "MIDI Rx SW."
- 4) Use the PART SELECT buttons and the VALUE dial to set these all to "+" (On).
- 5) Press EXIT.

You are now ready to begin sequencing. There are eight parts available in the MC-505 that are assigned to MIDI channels as shown in figure 2.

III. Selecting Sounds

CC0	CC32	Bank Select
81	0	= 10368
81	1	= 10369
81	2	= 10370
81	3	= 10371
85	0	= 10880
85	1	= 10881
86	0	= 11008
86	1	= 11009
86	2	= 11010
86	3	= 11011

**Fig.3
Alternative Bank
Select messages**

The sounds in the MC-505 can be selected via MIDI by using bank select and program change messages. Some computer based sequencers have patch lists or 'templates' available for various products. These 'templates' allow you to select from a list of patch names, and will then send out the appropriate messages for you. You should check with the manufacturer of your particular sequencer to see if they have a MC-505 template available. If not, you must enter the proper bank select and program change messages manually to choose a sound.

Selecting Different Banks of Sounds

Bank select messages are comprised of 2 Continuous Controller (CC) messages. A continuous controller is a message that is defined in the MIDI specification - Volume (CC7), Panning (CC10), Modulation (CC1), and Hold (CC64) are common CCs. Controller 0 and 32 are used to select banks of sounds. Some sequencers combine these controllers into a single bank select number. See figure 3 for these values.

Group	CC0	CC32	PC#
Preset - A	81	0	1-128
Preset - B	81	1	1-128
Preset - C	81	2	1-128
Preset - D	81	3	1-128
User - A	85	0	1-128
User - B	85	1	1-128
Card - A	86	0	1-128
Card - B	86	1	1-128
Card - C	86	2	1-128
Card - D	86	3	1-128

**Fig.4
Patch Bank Select
Assignments**

Selecting Patches via MIDI

If you look at the Patch Listing on pages 192-195 of the Owner's Manual, you will notice that each patch has an associated PC, CC0, and CC32 value. You can usually insert these messages in the event list editor of your sequencer to be played back with your song. If you use this method, insert some space between each message (a few clock pulses should be fine). Use the chart in figure 4 to determine the correct Bank Select values for selecting patches in the MC-505. Here is an example:

Group	CC0	CC32	PC#
Preset	81	0	1-26
User	85	0	1-20
Card	86	0	1-20

**Fig.5
Rhythm Set Bank
Select Assignments**

To select "P A:071 Robo Voice" send:

Message: CC00 then CC32 then PC
Value: 81 0 71

Selecting Rhythm Sets via MIDI

The rhythm sets in the MC-505 are assigned to MIDI channel 10. There is a list of the rhythm sets on pages 196-202 in your Owner's Manual. Use the chart in figure 5 to select rhythm kits. Here is an example:

To select "P:05 Techno 1" send:

Message: CC00 then CC32 then PC
Value: 81 0 5

IV. Controlling the Arpeggiator and RPS

The Arpeggiator and the RPS function can be controlled on separate MIDI channels. One application of this is to apply the arpeggiator to a sequenced part. You can also trigger RPS Phrases externally from a drum machine or keyboard. It is recommended that you set these MIDI channels to a channel other than 1-7 or 10. This way they will not interfere with your sequencing of the voices in the MC-505. Use the following procedure to make these settings:

- 1) While holding SHIFT, press KEY PAD 11.
- 2) Use the PAGE </> buttons to select "Aprg Sync."
- 3) Use the VALUE dial to select "Aprg Sync = ON."
- 4) While holding SHIFT, press KEY PAD 12.
- 5) Use the PAGE </> buttons to select "Arpg Ctrl Ch =."
- 6) Use the VALUE dial to select "Arpg Ctrl Ch = 16."
- 7) Use the PAGE </> buttons to select "RPS Ctrl Ch =."
- 8) Use the VALUE dial to select "RPS Ctrl Ch = 15."

Use the following procedure to trigger an arpeggio:

- 1) Connect a MIDI cable from the MIDI OUT of a keyboard or MIDI sequencer to the MIDI IN of the MC-505.
- 2) Set the external MIDI device to MIDI channel 16 and play several notes. The MC-505 will play an arpeggio using the currently selected Part.
- 3) To change the sound that is being arpeggiated, you will need to send the appropriate Bank Select and Program Change messages on the MIDI channel that corresponds to the currently selected Part (see Section III).



If the Aprg Sync switch is ON, the Arpeggios can be played back in time with your song.

Use the following procedure to trigger a RPS Phrase:

- 1) Connect a MIDI cable from the MIDI OUT of a keyboard or MIDI sequencer to the MIDI IN of the MC-505.
- 2) Set the external MIDI device to MIDI channel 15 and play a note on the keyboard to trigger the corresponding RPS Phrase.

V. Using Controllers and System Exclusive

You can automate almost any function of the MC-505 through MIDI messages called Continuous Controllers (CC) and System Exclusive messages (SysEx). If you are new to this type of control, you may want to read the SoundCanvas MIDI Depths Supplemental Note (Faxback # 21007) which has a very complete section on how to construct and use these messages. Some of the more useful CCs are listed in figure 6:

Fig.6
Some MIDI Controllers
used in the MC-505

Cutoff	CC#74
Resonance	CC#71
Envelope - Attack	CC#73
Envelope - Release	CC#72
Portamento ON/OFF	CC#65 (0-63 = OFF, 64-127 = ON)
Portamento Time	CC#5
Solo	CC#126/127 (126 = ON, 127 = OFF)
Level	CC#7
Pan	CC#10
Reverb Amount	CC#91
Delay Amount	CC#94



Remember that Controller messages are sent on specific MIDI channels, so you can have completely different settings for each Part on the MC-505.

SysEx messages are a bit more complicated but if you look at the MIDI implementation section of your Owner's Manual (pgs 234-251), you will quickly see that almost anything in the MC-505 can be controlled using these messages. One of the many good uses for SysEx messages is to choose the effects in the MC-505. Use the messages in figure 7 on the following page to select different effects.



Many software-based sequencers allow you to create faders or controllers on the screen of your computer that can be set to transmit Continuous Controller or System Exclusive messages. Using this type of setup, you can create a customized environment on your screen to control the MC-505 in the way that best suits you.

Using Controllers and System Exclusive (cont.)

**Fig.7
MIDI SysEx
messages used in the
MC-505**

EFX TYPES:	
4 BAND-EQ	FO 41 10 00 0B 12 01 00 00 0D 00 72 F7
SPECTRUM	FO 41 10 00 0B 12 01 00 00 0D 01 71 F7
ENHANCER	FO 41 10 00 0B 12 01 00 00 0D 02 70 F7
OVERDRIVE	FO 41 10 00 0B 12 01 00 00 0D 03 6F F7
DISTORTION	FO 41 10 00 0B 12 01 00 00 0D 04 6E F7
LO-FI	FO 41 10 00 0B 12 01 00 00 0D 05 6D F7
NOISE	FO 41 10 00 0B 12 01 00 00 0D 06 6C F7
RADIO-TUNING	FO 41 10 00 0B 12 01 00 00 0D 07 6B F7
PHONOGRAPH	FO 41 10 00 0B 12 01 00 00 0D 08 6A F7
COMPRESSOR	FO 41 10 00 0B 12 01 00 00 0D 09 69 F7
LIMITER	FO 41 10 00 0B 12 01 00 00 0D 0A 68 F7
SLICER	FO 41 10 00 0B 12 01 00 00 0D 0B 67 F7
TREMOLO	FO 41 10 00 0B 12 01 00 00 0D 0C 66 F7
PHASER	FO 41 10 00 0B 12 01 00 00 0D 0D 65 F7
CHORUS	FO 41 10 00 0B 12 01 00 00 0D 0E 64 F7
SPACE-D	FO 41 10 00 0B 12 01 00 00 0D 0F 63 F7
TETRA-CHORUS	FO 41 10 00 0B 12 01 00 00 0D 10 62 F7
FLANGER	FO 41 10 00 0B 12 01 00 00 0D 11 61 F7
STEP FLANGER	FO 41 10 00 0B 12 01 00 00 0D 12 60 F7
SHORT DELAY	FO 41 10 00 0B 12 01 00 00 0D 13 5F F7
AUTO PAN	FO 41 10 00 0B 12 01 00 00 0D 14 5E F7
FDBK PTCH-SHIFT	FO 41 10 00 0B 12 01 00 00 0D 15 5D F7
REVERB	FO 41 10 00 0B 12 01 00 00 0D 16 5C F7
GATE-REVERB	FO 41 10 00 0B 12 01 00 00 0D 17 5B F7
DELAY TYPES:	
SHORT	FO 41 10 00 0B 12 01 00 00 23 00 5C F7
LONG	FO 41 10 00 0B 12 01 00 00 23 01 5B F7
REVERB TYPES:	
ROOM 1	FO 41 10 00 0B 12 01 00 00 28 00 57 F7
ROOM 2	FO 41 10 00 0B 12 01 00 00 28 01 56 F7
STAGE 1	FO 41 10 00 0B 12 01 00 00 28 02 55 F7
STAGE 2	FO 41 10 00 0B 12 01 00 00 28 03 54 F7
HALL 1	FO 41 10 00 0B 12 01 00 00 28 04 53 F7
HALL 2	FO 41 10 00 0B 12 01 00 00 28 05 52 F7



System Exclusive messages require a fairly in-depth knowledge of MIDI. For more information on Sysex, you might want to read "The Next MIDI Book" from Alexander Publishing (available from the Roland Supershop at 800-386-7575).

VI. Transferring Patterns

Many times you may want to copy a pattern or part of a pattern from the MC-505 to your sequencer (or vice versa).

Copying a Pattern from the MC-505 to a Sequencer

- 1) Connect a MIDI cable from the MIDI Out of the MC-505 to the MIDI In of the sequencer.
- 2) Set your sequencer's clock to external sync mode (consult the Owner's Manual of the sequencer for information on this setting).
- 3) Set the MC-505 to Internal Clock and also to transmit clock (see section I: Using the MC-505 to Control a Sequencer).
- 4) While holding SHIFT, press KEY PAD 8.
- 5) Use the PART SELECT buttons and the VALUE dial to set all of the parts to "BOTH."
- 6) If possible, enable your sequencer to "Multi-Record" to route the MIDI data to separate tracks. You should also turn the auto-channelize and the MIDI thru functions off (if applicable).
- 7) Set the sequencer to record and press PLAY on the MC-505.
- 8) Press STOP on the MC-505 when the pattern is finished.

You can now edit the MIDI data in your sequencer and use it to trigger the MC-505.

Copying Data from a Sequencer to the MC-505

- 1) Connect a MIDI cable from the MIDI OUT of the sequencer to the MIDI IN of the MC-505.
- 2) Set the MC-505 to slave to MIDI clock (see section I: Using the MC-505 as a Slave to a Sequencer).
- 3) Select an empty User Pattern and press RECORD on the MC-505.
- 4) Use the PAGE </> buttons and the VALUE dial to set the Beat (usually 4/4), Pattern Length, Count in (try 0), Loop Rest, and Input Quantize.
- 5) Start the external sequencer and the data will automatically be recorded into the corresponding parts of the MC-505 (as shown in figure 2 on page 3).
- 6) Stop the sequencer when the pattern is finished.



If you have data on MIDI channels other than 1-7 and 10, it will not be recorded by the MC-505.

VII. Using the MC-505 as a Controller

The MC-505 can function as an 8 track sequencer for external devices as well as its internal sounds. The 8 tracks of the MC-505 can be set to trigger Internal Sounds, External Sounds, or both. Use the following procedure to set track 3 (MIDI channel 3) to trigger an external sound only:

- 1) Hold SHIFT and press KEY PAD 8.
- 2) Press PART SELECT and press the PART 3 Select button.
- 3) Use the VALUE dial to select "EXT."
- 4) Press EXIT.

Now track 3 will play an external MIDI device that is set to MIDI channel 3.

DBeam* Control

The DBeam can be set to transmit several different MIDI messages. The most useful will probably be Modulation (CC1). Use the following procedure to make this setting:

- 1) While holding the DBEAM CONTROLLER ON button, use the VALUE dial to select "01:Modulation-A."
- 2) Press the DBEAM CONTROLLER ON button so it is lit.

Now the DBeam will have the same function as the modulation lever of a MIDI keyboard.

Realtime Control Section and Part Mixer

The realtime control section and Part Mixer will also transmit CC and SysEx messages that can be used to control many MIDI devices. Some of these messages may be interpreted automatically by your other MIDI gear, but some will require you to do some set up on the external devices.

Check out figure 8 on the next page to get an idea of how controllers are mapped to the different areas of the MC-505.

**D-Beam controller technology has been licensed from Interactive Light Inc.*

Using the MC-505 as a Controller (cont.)

DBeam
 Assignable output (see steps on previous page)

Envelope Section

A	CC#73
D	CC#75
S	SysEx
R	CC#72

(with "AMP" setting)

Realtime Section

Cutoff	CC#74
Resonance	CC#71
LFO Depth	CC#80
Portamento Time	CC#5

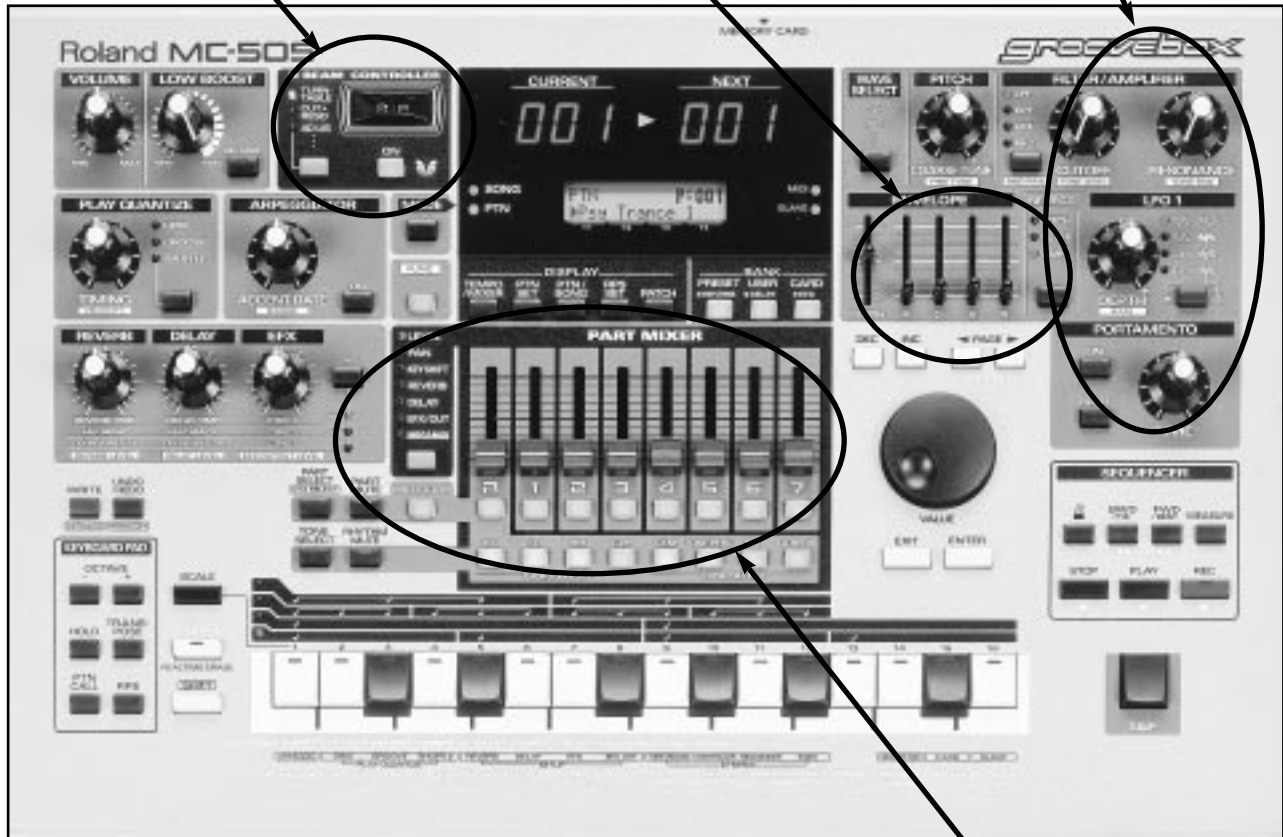


Fig.8
MIDI messages transmitted and received by the MC-505

Part Mixer

Level	CC#7
Pan	CC#10
Key Shift	SysEx
Reverb	CC#91
Delay	CC#94
EFX/OUT	SysEx



Consult page 233 in the MC-505 Owner's Manual for a more complete listing of the available controllers.

VIII. Putting it All Together

Here are a few ways you can use the MC-505 with external MIDI devices:

If you use a computer-based sequencer, you can connect the MC-505 as a slave and control everything from your computer. You can also use the MC-505 as an input device and take advantage of the extensive real-time controls to add expressiveness to your performances.

You can compose grooves on the MC-505 and transfer them to your sequencer for storage or editing. You can then transfer the finished sequences back to the Groove Box for performances so you don't have to pack up your computer and bring it to gigs.

The MC-505 can be used as a very powerful stand-alone sequencer at the heart of your MIDI setup. You can control MIDI modules, drum machines, or any other MIDI device directly from the 8 tracks as well as the front panel controls.

Now that you have seen the different ways the MC-505 can be integrated into a MIDI system. It is time to put the Groove Box to work for you. Have fun and don't be afraid to try something new—you'll probably like the result!

Get Connected!



For the latest info on new products, support documents, upcoming Roland events and more, visit our Website, www.rolandus.com or www.rolandgroove.com.



24 hours a day, 7 days a week, you can receive a library of support materials and product information on your fax machine - and it's all FREE! Just call (323) 685-5141 ext. 2271.



If it's a real-live person you want, we've got a team of Product Specialists that can't be beat. They're on call from 8:30am to 5:00pm PST Monday through Friday at (323) 685-5141 ext. 2770.