

*Owner's Manual*  
*Addendum*

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MRC V4.0

MIDI  
Remote  
Controller

**lexicon**

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# Table of Contents

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## 1. Introducing Version 4.0

- V. 4.0 Features ..... 1-1
- V. 4.0 Changes ..... 1-1

## 2. Controlling the LXP series of multi-effects processors

- Advantages of MRC control ... 2-1
- One-way and Two-way Communications ..... 2-2
- Overview of One-way Features ..... 2-5
- Overview of Two-way Features ..... 2-6
- Advanced Two-way Configurations ..... 2-7

## 3. Controlling the LXP-15

- One-way Connections ..... 3-1
- Merging and One-way Communication ..... 3-2
- Establishing One-way Communication ..... 3-3
- One-way Control of Multiple LXP-15s ..... 3-5
- Two-way Connections ..... 3-6
- Merging and Two-way Communication ..... 3-6
- Establishing Two-way Communication ..... 3-8
- Two-way Control of Multiple LXP-15s ..... 3-10

- Control Flow ..... 3-11
- LXP-15 Setups ..... 3-12
  - Selecting an LXP-15 Setup ..... 3-12
- Communication Problems 3-13
- Viewing and Editing LXP-15 Setup Parameters ..... 3-13
- Using the \* and ENTER Keys ..... 3-14
- LXP-15 Display Pages ..... 3-14
- MRC/LXP-15 Presets ..... 3-18
- Storing Setups from Machine Run Mode ..... 3-20
- Editing LXP-15 Setups ..... 3-20

## 4. Controlling the LXP-5 with Two-Way Communication

- Two-way Connections ..... 4-1
- Merging and Two-way Communication ..... 4-1
- Establishing Two-way Communication ..... 4-3
- Two-way Control of Multiple LXP-5s ..... 4-5
- Control Flow ..... 4-6
- LXP-5 Setups ..... 4-7
  - Selecting an LXP-5 Setup ..... 4-7
- Communication Problems .. 4-8
- Viewing and Editing LXP-5 Setup Parameters ..... 4-8

Using the * and ENTER	
Keys .....	4-9
Storing Setups from	
Machine Run Mode .....	4-9
MRC/LXP-5 Presets .....	4-10

**5. Controlling the LXP-1 with  
Two-Way Communication**

Two-way Connections .....	5-1
Merging and Two-way	
Communication .....	5-1
Establishing Two-way	
Communication .....	5-3
Two-way Control of	
Multiple LXP-1s .....	5-5
Control Flow .....	5-6
LXP-1 Setups.....	5-7
Selecting an LXP-1	
Setup .....	5-7
Communication Problems ..	5-8
Viewing and Editing LXP-1	
Setup Parameters .....	5-9
Using the * and ENTER	
Keys .....	5-9
Storing Setups from	
Machine Run Mode .....	5-9
MRC/LXP-1 Presets .....	5-10
Changing LXP-1 MIDI	
THRU to MIDI OUT .....	5-11

# 1. Introducing Version 4.0

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Congratulations on your purchase of the MRC V4.0 MIDI Remote Controller. Version 4.0 adds some significant new features and changes to Version 3.0 of the MRC. These changes and features are based on feedback from present MRC users. This addendum is not a replacement of the Version 3.0 MRC Owner's Manual. It describes only the new features and changes added by Version 4.0. If you are new to the MRC and MIDI control, be sure to refer to the V3.0 manual for general descriptions of, and operational guidelines for the MRC. We also suggest that you read *Controlling the LXP-15* in this addendum for the best understanding of MRC control with any LXP effects processor.

## **V4.0 Features**

The following features have been added to the MRC by Version 4.0:

- The MRC can now control the Lexicon LXP-15 Multi-Effects Processor. A new machine type for the LXP-15 has been added to the MRC's machine definitions.
- *Two-way communication* has been added to allow the MRC to upload user registers directly from Lexicon LXP-1, LXP-5, and LXP-15 multi-effects processors for parameter display and control.

## **V4.0 Changes**

The following changes have been made by Version 4.0:

- The PCM-70 machine type has been replaced by the LXP-15 machine type. Although Version 4.0 cannot be used as a dedicated controller for the PCM-70, you can still control the PCM-70 from a GMIDI machine type.
- The two-way communication features of Version 4.0 eliminate the need to hold large banks of LXP-1, LXP-5, and LXP-15 setups in internal memory. (Each LXP-type machine can access sixteen internal MRC presets *and* 128 external LXP registers.)

The following table shows the new internal memory configuration of Version 4.0 .

<b>MRC Setup Type</b>	<b>Internal Memories</b>
LXP-1 setups	16
LXP-5 setups	16
LXP-15 setups	16
GMIDI setups	20
Global setups	40

## ***2. Controlling the LXP Series of Multi-Effects Processors***

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One of the most powerful features of the MRC is its ability to be used as a dedicated controller for Lexicon's LXP-1, LXP-5 and LXP-15 multi-effects processors. For maximum flexibility with your setup, the MRC can control LXP devices using either one-way or two-way MIDI communication. This section presents the general issues of MRC/LXP control and communication. The following sections provide specific information for MRC control of each type of LXP processor.

### ***Advantages of MRC control***

As a dedicated LXP controller, the MRC offers functions similar to those provided by a computer equipped with editor/librarian programs for the three LXP effects units, as well as a MIDI merger/mapper. The MRC is much easier to move around than a computer — so it's a great way to take MIDI control on the road.

With its 2€24 character display and its ability to control up to sixteen LXP processors simultaneously, the MRC becomes the "front end" to your LXP devices — just put them in your rack and let the MRC take over.

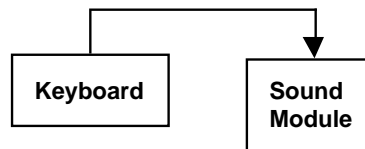
<p>If you're using a computer with your MIDI system, you can run your favorite computer-based sequencer and simultaneously use the MRC to edit and control your LXPs. (The MRC's GMIDI functions can also be controlling other MIDI instruments while the sequencer is running)</p>
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The MRC has several advantages as a dedicated remote controller for Lexicon's LXP-1, LXP-5, and LXP-15 multi-effects processors. Here are some of the possibilities:

- Simultaneous editing and display of as many as four parameters
- Access as many as sixteen LXPs from a single MRC
- Route two analog controllers (foot pedals) to multiple LXPs
- Enhances programmability of the LXP-1 (The MRC lets you control parameters that aren't accessible from the LXP-1 front panel. Internal Dynamic MIDI patches are expanded from two to four)
- Finer control resolution of LXP-1 and LXP-5 parameters
- Fine and coarse control of LXP-15 delay time parameters speeds up delay programming
- As many as four *additional* Dynamic MIDI patches per LXP
- Internal storage of sixteen setups each for LXP-1, LXP-5 and LXP-15 machine types
- Record the movements of MRC sliders and external controllers with any MIDI sequencer, allowing the MRC to function as an *automated* effects controller

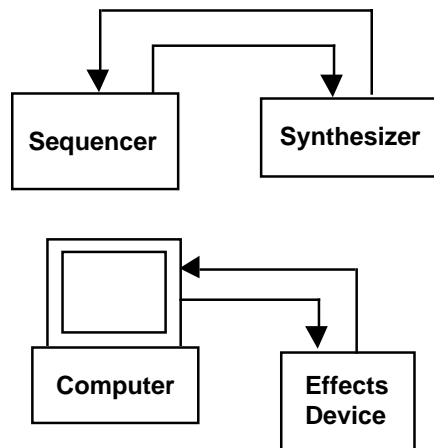
### ***One-way and Two-way Communications***

Depending on the application, MIDI systems can be configured for one-way or two-way communication. For example, when a MIDI keyboard is used to control a MIDI sound module, one-way communication is usually sufficient. A single cable is run from MIDI OUT on the keyboard to MIDI IN on the sound module. This is generally thought of as a master/slave system. Additional slaves can be controlled by the master via MIDI THRU.



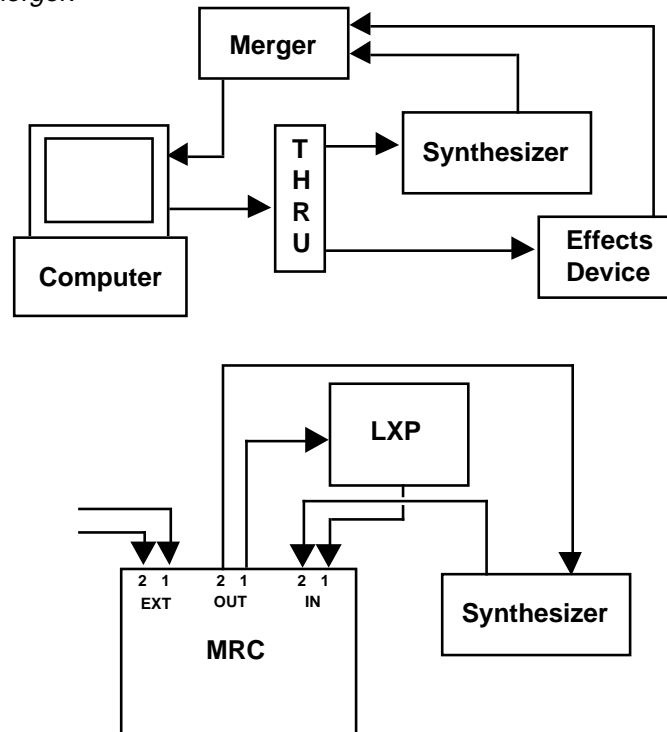


Two-way communication is used for more sophisticated applications. For instance, in order for a sequencer to record *and* playback MIDI data from a single synthesizer, they must be set up for two-way communication. Two cables are required. One is run from the synthesizer's MIDI OUT to the sequencer's MIDI IN. This sends the MIDI data from the synthesizer to the sequencer where it is recorded. Another cable is run from the sequencer's MIDI OUT to the MIDI IN of synthesizer. This sends the recorded MIDI data back to the synthesizer, where it is played.



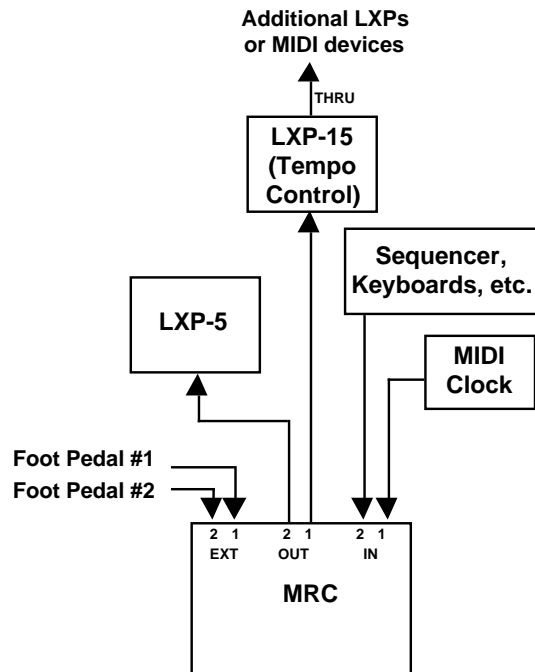
Editor/librarian programs for MIDI effects units are other examples of applications that require two-way communication to upload parameter settings from the effects device into the computer, and download them from the computer back into the effects unit.

It is important to note that two-way communication creates a closed-loop between the two MIDI devices. Unlike a one-way configuration, it is not a simple matter to connect additional devices to a two-way configuration. This is because MIDI outputs cannot be combined on a single cable without a MIDI merger.



The MRC can be used in both one-way and two-way configurations. Since the MRC already “knows” the parameters of the LXP-1, LXP-5 and LXP-15, it can be used as an editor/librarian in a one-way system. Its dual in and out ports and built-in merger allow expanded functionality when used in a two-way configuration. You can, for example, merge selected MIDI controller messages from MIDI IN 2 with MIDI OUT 1. This makes it possible to control an LXP from a MIDI keyboard (or other MIDI controller) while the MRC and LXP are set up for two-way communication.

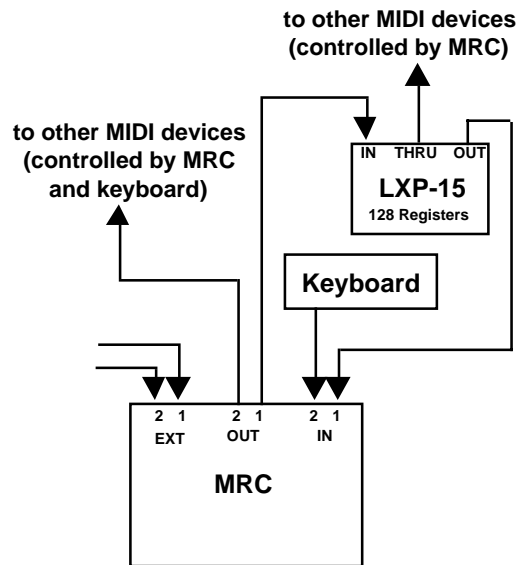
## Overview of One-way Features



- Simplified MIDI set up
- MRC editing and display of parameter settings for multiple LXP devices
- Multiple LXPs can be controlled from a single MRC output via the MIDI THRU ports on the LXPs
- MIDI clock can be routed to LXPs for Tempo patching
- Both MRC inputs can be used to route MIDI controllers to LXP internal MIDI patches
- Each LXP being controlled can have any four of its parameters controlled by the MRC's internal MIDI patches
- MRC's GMIDI machines can control other MIDI devices while MRC is actively editing LXP parameters

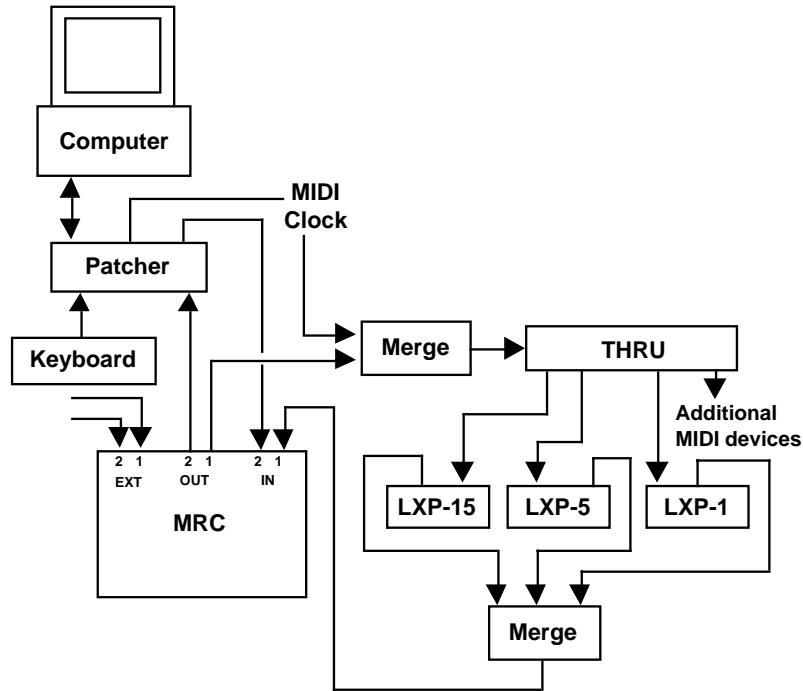
- LXPs connected for one-way communication can be controlled simultaneously by MIDI messages received at either IN port, as well as from the MRC's sliders, switches and external controllers.

### Overview of Two-way Features



- Access to all user registers on the target LXP
- Dual IN/OUT ports make it possible to simultaneously control *two* LXPs with two-way communication
- Upload and display current settings directly from the target LXP
- An LXP connected for two-way communication can be controlled simultaneously by MIDI messages received at the other IN port as well as from the MRC's sliders, switches and external controllers.
- Other MIDI devices can be controlled simultaneously by the MRC by daisy-chaining them to the MIDI OUT used for MRC control. (See illustration.)

## Advanced Two-way Configurations



Two-way communication requires a separate pair of MIDI IN/OUT ports for each LXP being controlled. The MRC has two sets of MIDI IN/OUT ports, so you can control two LXPs in two-way at once using two-way communication. Control of more than two LXPs with two-way communication is possible, but requires a MIDI merging device that can handle System Exclusive data. In MIDI systems with additional hardware such as mergers, THRU boxes, or patching devices, the MRC's two-way functions can be expanded to allow control of more than two LXPs and/or merging of MIDI clock for Tempo patching while maintaining two-way communication.

## 3. Controlling the LXP-15

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The MRC can be used as a dedicated remote controller for the LXP-15. All of the LXP-15 parameters are accessible via the MRC. In addition to being a full-featured editor, the MRC also extends the programmability of the LXP-15 by allowing you to create as many as four additional Dynamic MIDI patches for each LXP-15 sound via the MRC's Machine Edit Mode. Each patch allows you to assign one of a variety of MIDI sources or either of the MRC's two external inputs to control any LXP-15 parameter. This makes it possible to control the LXP-15 from *eight* controllers at the same time, four per LXP-15 setup, and four per LXP-15 machine.

Be sure to read about MIDI patching in the *Dynamic MIDI* section of the MRC V3.0 manual.

The MRC and LXP-15 can be connected for either one-way or two-way communication, depending on the application.

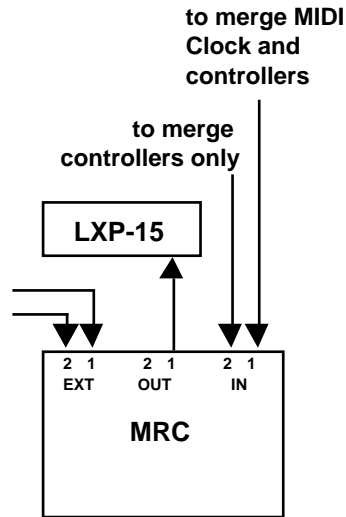
### ***One-way Connections***

Some examples of applications that call for one-way communications are:

- to connect more than one LXP-15 to the same MRC OUT port
- to route MIDI clock to the LXP-15 for Tempo patches

The MIDI connections are simple. Connect a single MIDI cable from MIDI OUT 1 of the MRC to MIDI IN of the LXP-15 as shown. We use OUT 1 as an example since it is the default. Of course, you can edit an LXP-15 "machine" to transmit on OUT 2 if you wish. (See *Machine Edit Mode* in the MRC V3.0 manual).

## Merging and One-way Communication



When connected for one-way communication, you can use the merging features of the MRC to route MIDI controllers from either MIDI input to the LXP-15. This is useful when you are using an LXP-15 register that uses MIDI sources for patching. Merging functions are selected on page 1 of the SYSTEMS PARAMETERS menu. The different merging options are outlined in the following table:

<b>Merging Options for One-way Communication</b>	
IN1 -> OUT1 <ON/OFF>	When set to "ON", all incoming MIDI received on IN1 is merged with MRC OUT1. Use this to merge MIDI Clock with MRC output for Tempo patching on the LXP-15.
IN1 -> OUT2 <ON/OFF>	When set to "ON", any combination of MIDI controllers, Pitch Bend, Aftertouch, Note numbers and Program Change messages received on IN1 can be merged with MIDI OUT2.
IN 2 -> OUT2 <ON/OFF>	When set to "ON", all incoming MIDI received on IN2 is merged with MRC OUT2. Use this to merge MIDI Clock with MRC output for Tempo patching on the LXP-15.
IN2 -> OUT1 <ON/OFF>	When set to "ON", any combination of MIDI controllers, Pitch Bend, Aftertouch, Note numbers and Program Change messages received on IN2 can be merged with MIDI OUT1.

### ***Establishing One-way Communication***

When configured for one-way communication, the MRC is the master, and the LXP-15 is the slave. In order to establish communication after the initial connections are made and both units are turned on, it is necessary to put the LXP-15 in the same "state" as the MRC. The following procedure describes how this is done:

1. On the MRC, enter Machine Select Mode by pressing MACH twice.
2. Use the leftmost slider, the MACH button or the keypad to select an LXP-15 type machine. (Machine #3 is an LXP-15 machine when the MRC is shipped from the factory.)
3. Confirm that the MIDI cable is connected to the same output as the displayed "OUT#".

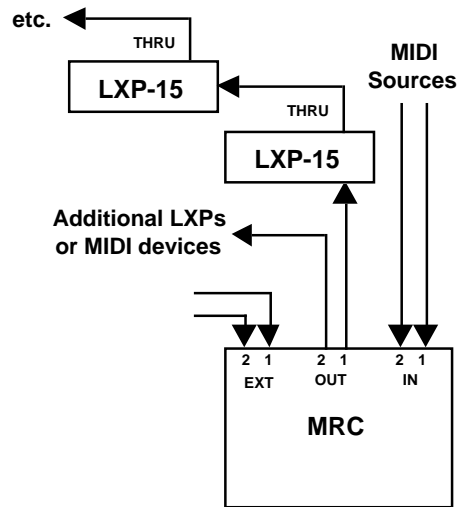


4. Confirm that the LXP-15 is set to receive on the same MIDI channel as the displayed "CH#".
5. Press ENTER to put the MRC into Machine Run Mode. The MRC display will change to show the first page of LXP-15 Setup parameters.
6. Press ★ to send the MRC Setup parameters to the LXP-15. The parameter values displayed by the LXP-15 will change to match those displayed by the MRC. (This step only needs to be done the first time communication is established between the two units.)
7. You can confirm that one-way communication has been established by moving a parameter slider on any of the six MRC parameter pages. The LXP-15 display for that parameter should change to match the new value.

In order to see parameters change on the LXP-15 when MRC sliders are moved, set the LXP-15 "Update" parameter to "ON", turn PAGE to the appropriate parameter page, and press VIEW to display the parameter values.

With one-way communication, the MRC has no way of "knowing" if the current LXP-15 setup or parameters have been changed. (This could happen for example, by sending a Program Change message to the LXP-15 or by changing parameters or setups from the LXP-15 front panel.) If you think the LXP-15 has been changed by some other action, simply press the ★ key on the MRC to transmit the current MRC values to the LXP-15.

### One-way Control of Multiple LXP-15s



Using one-way communication, you can control as many as sixteen Lexicon devices at once by defining a separate machine for each device. Multiple LXP-15 control is very easy to set up since the LXP-15 MIDI THRU port can be used to “daisy chain” additional units. When two or more LXP-15s are controlled from the MRC, they (and the MRC machines that control them) should be set to different MIDI channels, or be connected to different MRC OUT ports. Different types of LXPs can share the same MIDI channel and/or MRC OUT ports.

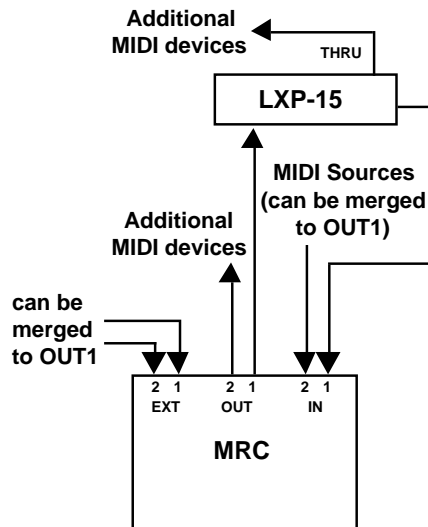
If you want to process multiple audio sources with *identical* LXP effects, you can daisy chain multiple LXP-15s (or LXP-5s, or LXP-1s) from the same MRC OUT port and set them all to the same MIDI channel. They can all be controlled simultaneously from a single MRC machine.

If you want to use a foot pedal or other analog controller as a patch source for your LXP-15 be aware that you can connect one or two pedals to the MRC instead of to the LXP-15 rear panel Foot Controller jacks. This allows you to control *multiple* LXP-15s (or other LXP processors) from the same pedal(s).

## Two-way Connections

Two way communication allows you to access and view parameters stored in the LXP-15's 128 internal registers. You can connect one or two LXP-15s to the MRC for two-way communication. Two MIDI cables are required for each LXP-15. The LXP-15 MIDI OUT and MIDI IN can be connected to the MRC IN1 and OUT1 or MRC IN2 and OUT2.

## Merging and Two-way Communication



When connected for two-way communication, the merging function for the input port connected to the LXP-15 must be set to "OFF" (If it is set to "ON," communication will not be possible and the MRC will display "SYNCH TIMEOUT" )

NOTE: The MRC can't merge MIDI clock with an LXP device connected for two way communication. If you want to use Tempo patches and an LXP, you must set up one-way communication or use an external merger. (See *Advanced Two-way Communications.*)

MIDI data from the input port which is *not connected* to the LXP-15 can be merged with the data at the output port used for two-way communication. This is useful when you are using an LXP-15 register that uses MIDI sources for patching. Merging functions are selected on page 1 of the SYSTEMS PARAMETERS menu. The different merging options are outlined in the following table:

<b>Merging Options for Two-way Communication</b>	
IN1 -> OUT1 <ON/OFF>	Must be set to "OFF" if IN1/OUT1 are being used for two-way communication with the LXP-15.
IN1 -> OUT2 <ON/OFF>	If IN2/OUT2 are being used for two-way communication with the LXP-15, any combination of MIDI controllers, Pitch Bend, Aftertouch, Note numbers and Program Change messages received on IN1 can be merged with MIDI OUT2 by setting this to "ON".
IN 2 -> OUT2 <ON/OFF>	Must be set to "OFF" if IN2/OUT2 are being used for two-way communication with the LXP-15.
IN2 -> OUT1 <ON/OFF>	If IN1/OUT1 are being used for two-way communication with the LXP-15, any combination of MIDI controllers, Pitch Bend, Aftertouch, Note numbers and Program Change messages received on IN2 can be merged with MIDI OUT1 by setting this to "ON".

### **Establishing Two-way Communication**

When configured for two-way communication, the MRC requests parameter data from the LXP-15 and displays it for editing. The edited values are sent back to the LXP-15. This back and forth communication, or *hand shaking*, occurs automatically once communication is established between the two units.

In order to establish communication after the initial connections are made and both units are turned on, it is necessary to put the LXP-15 and MRC in the same "state." With two-way communication you have the option of setting the LXP-15 to the state of the MRC, or of setting the MRC to the state of the LXP-15. The following procedure describes both options:

1. On the MRC, enter Machine Select Mode by pressing MACH twice.
2. Move the leftmost slider all the way up to select "SYSTEMS PARAMETERS" and press ENTER. Use switches 1, 2 and 3 to set MIDI MERGE to "OFF" for the IN and OUT connected to the MRC as shown below:

If the LXP-15 is connected to IN/OUT1 . . .



If the LXP-15 is connected to IN/OUT2 . . .

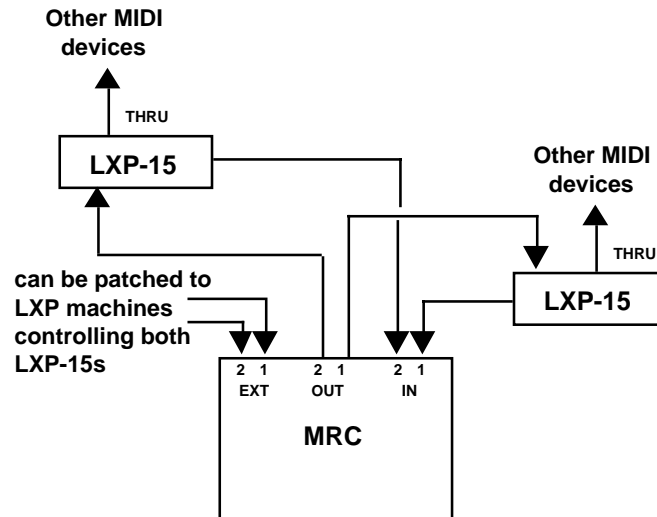


3. Press ENTER to return to Machine Select Mode.
4. Use the leftmost slider, the MACH button or the keypad to select an LXP-15 type machine. (Machine #3 is an LXP-15 machine when the MRC is shipped from the factory.)
5. Confirm that the MIDI cables are connected to the same input/output pair as the displayed "OUT#".

6. Confirm that the LXP-15 is set to receive on the same MIDI channel as the displayed "CH#".
  7. Press ENTER to put the MRC into Machine Run Mode. The MRC display will change to show the first page of LXP-15 Setup parameters.
  - 8\*. To set the LXP-15 to the same state as the MRC, press ★ to send the MRC Setup parameters to the LXP-15. The parameter values displayed by the LXP-15 will change to match those displayed by the MRC.  
OR  
To set the MRC to the same state as the LXP-15, press ENTER on the MRC to send the LXP-15 parameters to the MRC. The parameters displayed by the MRC will change to show the values received from the LXP-15.
  9. You can confirm that two-way communication has been established by changing any parameter value from the LXP-15 front panel and then pressing ENTER on the MRC. The appropriate parameter display on the MRC will change to show the new value.
- \* (Step 8 only needs to be done the first time communication is established between the two units.)

With two-way communication, you can update the MRC values to match those currently active in the LXP-15. This is particularly useful if you've changed the LXP-15 at the front panel and want to transfer the new settings to the MRC for further editing. To update the MRC, simply press ENTER at any time while in Machine Run Mode. This will automatically transfer and display the active LXP-15 parameters.

## Two-way Control of Multiple LXP-15s



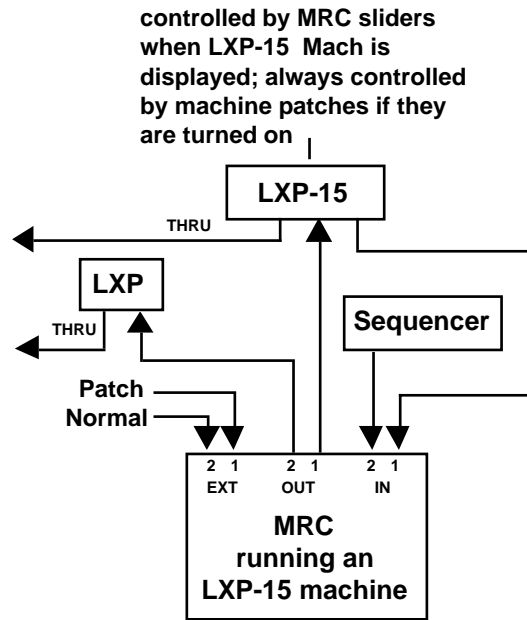
Using two-way communication you can control two LXP-15s, one for each input/output pair. If you have a high quality MIDI merger you can control multiple LXP-15s on the same input/output pair. (Each LXP-15 and its corresponding MRC machine must be assigned to a different MIDI channel.)

To use a foot pedal or other analog controller as a patch source for your LXP-15, be aware that you can connect one or two pedals to the MRC instead of to the LXP-15 rear panel Foot Controller jacks. This allows you to control *multiple* LXP-15s (or other LXP processors) from the same pedal(s).

As long as the LXP-15 MIDI OUT is connected to the appropriate MRC IN, you can maintain two-way communication, even if other devices are daisy chained to the MRC OUT. This is useful, for instance, when you want to control the LXP-15 and one or more sound modules from a sequencer or keyboard. (See illustration.)

### Control Flow

In this diagram, MIDI data from the sequencer and pedal moves from EXT2 (set to NORMAL) can be sent to other MIDI devices via the THRU port of the LXP-15.

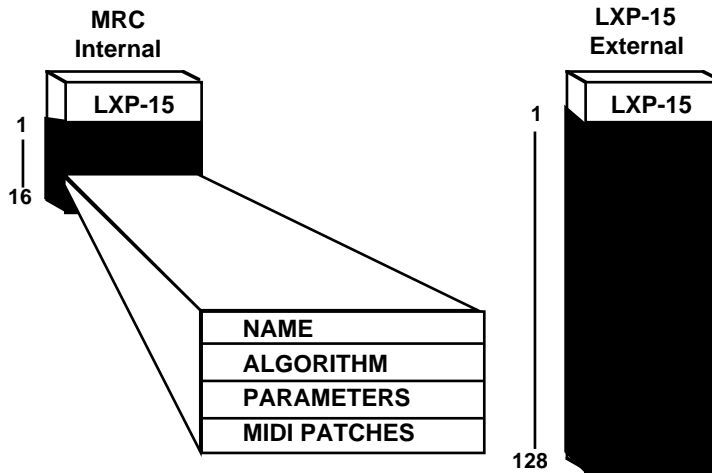


It is important to realize that all machines defined in the MRC are active even when they are not being displayed. This means that if you use Machine Edit Mode to create an LXP-15 machine with MIDI patches (as described in *Dynamic MIDI* in the MRC V3.0 manual), the LXP-15 will be controlled by those patches no matter what parameters (from any machine type) are being displayed on the MRC. This feature makes it possible for the MRC to simultaneously control as many as sixteen LXPs and other MIDI devices in any combination.



### **LXP-15 Setups**

LXP-15 machine types have a bank of sixteen user-programmable memories. Each of these memories stores a complete set of LXP-15 parameters and is referred to in the MRC as an *Internal Setup*. When connected for two-way communication, you can also upload the parameters from any of the 128 user registers in the LXP-15. These are referred to in the MRC as *External Setups* (abbreviated “EXTRN” in the MRC display).



### **Selecting an LXP-15 Setup**

Once communication has been established between the MRC and the LXP-15, different internal and external setups can be selected whenever you are running an LXP-15 machine. If the MRC is not currently running an LXP-15 machine type, you must first select one, then select the desired setup. Here's how :

1. On the MRC, enter Machine Select Mode by pressing MACH twice.
2. Use the leftmost slider, the MACH button or the keypad to select an LXP-15 type machine. (Machine #3 is an LXP-15 machine when the MRC is shipped from the factory.)
3. Press ENTER to put the MRC into Machine Run Mode.

4. Press SETUP to enter Setup Select Mode.
5. Use the leftmost slider, the SETUP button, or the keypad to select the desired setup.

Pressing ✱ on the keypad switches the display between "SETUP#" and "EXTRN#". While "SETUP#" is displayed, you can use the keypad to select any internal setup (1–16). While "EXTRN#" is displayed, you can use the keypad to select any external setup (1–128).

6. Press ENTER to load the setup into the MRC and LXP-15.

### **Communication Problems**

If the MRC is unable to communicate with the LXP-15, it will display one of two error messages: "No Target," or "SYNCH TIMEOUT." The "No Target" message is displayed if the MRC cannot "find" the LXP-15. This can occur if the LXP-15 is not connected properly or if it is set to a different MIDI channel than the MRC. To recover from a "No Target" error, it is necessary to re-establish communication with the LXP-15. To do this, repeat the procedure in *Establishing Two-way Communication*.

The "SYNCH TIMEOUT" message is displayed if MIDI MERGE for the IN/OUT ports connected to the LXP-15 is set to "ON," or when MIDI data is received faster than it can be processed by the MRC. To recover from a "SYNCH TIMEOUT" error, simply press ENTER (and confirm that MIDI MERGE is set to "OFF").

### **Viewing and Editing LXP-15 Setup Parameters**

LXP-15 setup parameters are viewed and edited on six MRC display *pages*. Pages can be selected by pressing PAGE repeatedly, or by pressing the desired page number on the keypad.

To edit LXP-15 parameters from the MRC, simply select the desired page and move the slider of the parameter you want to edit. The new value is displayed on the MRC and transmitted to the LXP-15. (You can see the parameter changes on the LXP-15 when MRC sliders are moved, if the LXP-15's "Update" parameter is set to "ON", PAGE is turned to the appropriate parameter page, and VIEW is pressed to display the parameter values.)

**Using the ★ and ENTER Keys**

While in Machine Run Mode, the ★ key transmits the current values of all parameters to the LXP-15. Use it to reset the LXP-15 to the values displayed by the MRC. (You would do this, for example, if LXP-15 parameters are inadvertently changed from its front panel.) If you are using two-way communication, you can press ENTER to update the MRC to the current parameter values of the LXP-15. This allows you to transfer new settings to the MRC after front panel adjustment of the LXP-15.

**LXP-15 Display Pages**

The LXP-15 has five processing algorithms: Delay/Reverb, Pitch/Delay, Gate, Plate and Chorus Delay. The following charts show the MRC display pages for the parameters of each LXP-15 algorithm . (The LXP-15 parameters are shown with their ranges immediately below each MRC label.)

NOTE: There are some slight differences in the labeling and grouping of parameters on the MRC and LXP-15: The LXP-15 displays five parameters at a time, the MRC displays four. The LXP-15 and MRC have different limits as to the number of characters a label can have. The MRC also provides a fine and coarse control for delay parameters.

**Delay/Reverb**

Page 1	MIX Mix 0-100%	GLDELY Gldely 0-638ms	FINE - -	FDBK GldFbk 0-100%
Page 2	PDELY Delay 2 0-179ms	FINE - -	- - -	LFO LFO Rat .03Hz-4.84Hz
Page 3	PITCH N/A THIS ALGO - - - - - - - -			
Page 4	HICUT HiCut 320Hz-11.6kHz, Full	LOCUT LoCut Full, 19Hz-1.35kHz	TREBLE Treble 320Hz-11.6kHz Full	BASS BassMpy .35x-2.50x

Page 5	DECAY Decay .6-6.1s, Infinite	SIZE Size 8M-71M	DIFFUS Diffus 0-100%	RMIX Rvb Mix 0-100%
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Page 6	INLVL InLevl 0-100%	WPAN Wet Pan 100%L-51%L, Center, 51%R-100%R	DPAN Dry Pan 100%R-51%R, Center, 51%R-100%R	OUTLVL OutLevl 0-100%
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**Pitch/Delay**

Page 1	MIX Mix 0-100%	PDELY Predely 0-1.04s	FINE - -	FDBK PdlyFbk 0-100%
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Page 2	DELY L Delay L 0-325ms	FINE - -	FDBK Feedbak 0-100%	LFO LFO Rat .03Hz-4.84Hz
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Page 3	DELY R Delay R 0-325ms	FINE - -	INTRVL Intervl -2oct to +1oct (in semitones)	PFINE PchFine -64 to +63
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Page 4	HICUT HiCut 320Hz-11.6kHz, Full	LOCUT LoCut Full, 19Hz-1.35kHz	TREBLE Treble 320Hz-11.6kHz, Full	BASS BassMpy .35x-2.50x
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Page 5	DECAY Decay .6-6.1s, Infinite	SIZE Size 8M-3M	DIFFUS Diffus 0-100%	RMIX Rvb Mix 0-100%
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Page 6	INLVL InLevl 0-100%	WPAN Wet Pan 100%L-51%L, Center, 51%R-100%R	DPAN Dry Pan 100%R-51%R, Center, 51%R-100%R	OUTLVL OutLevl 0-100%
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**Gate**

Page 1	MIX Mix 0-100%	PDELY Predely 0-262ms	FINE - -	FDBK PdlyFbk -99% to +99%
Page 2	- - -	- - -	- - -	LFO LFO Rat .03Hz-4.84Hz
Page 3	PITCH N/A THIS ALGO			
	- -	- -	- -	- -
Page 4	- - -	- - -	TREBLE Treble 320Hz-11.6kHz, Full	SLOPE Slope 0-127
Page 5	- - -	SIZE Size 8M-39M	DIFFUS Diffus 0-100%	- - -
Page 6	INLVL InLevl 0-100%	WPAN Wet Pan 100%L-51%L, Center, 51%R-100%R	DPAN Dry Pan 100%R-51%R, Center, 51%R-100%R	OUTLVL OutLevl 0-100%

**Plate**

Page 1	MIX Mix 0-100%	PDELY Predely 0-262ms	FINE - -	FDBK PdlyFbk -99% to +99%
Page 2	- - -	- - -	- - -	LFO LFO Rat .03Hz-4.84Hz
Page 3	PITCH N/A THIS ALGO			
	- -	- -	- -	- -
Page 4	- - -	- - -	TREBLE Treble 320Hz-11.6kHz,	BASS BassMpy .35x-2.50x

Page 5	DECAY <del>Decay</del>	SIZE <del>Size</del>	Full DIFFUS <del>Diffus</del>	-
	.6-6.1s	8M-87M	0-100%	-
Page 6	INLVL InLevl	WPAN Wet Pan	DPAN Dry Pan	OUTLVL OutLevl
	0-100%	100%L-51%L, Center,	100%R-51%R, Center,	0-100%
		51%R-100%R	51%R-100%R	

**Chorus Delay**

Page 1	MIX <del>Mix</del>	DELY1 <del>Delay 1</del>	DELY2 <del>Delay 2</del>	CHRAT <del>ChorRat</del>
	0-100%	0-794ms	0-1.04s	1-16
Page 2	DELY3 <del>Delay 3</del>	-	FDBK3 <del>Feedbk3</del>	LFO <del>LFO Rat</del>
	0-1.04s	-	-99% to +99%	.03Hz-4.84Hz
Page 3	PITCH N/A THIS ALGO			
	-	-	-	-
Page 4	-	-	TREBLE Treble	-
	-	-	320Hz-11.6kHz,	-
Page 5	-	-	Full DIFFUS <del>Diffus</del>	-
	-	-	0-100%	-
Page 6	INLVL InLevl	WPAN Wet Pan	DPAN Dry Pan	OUTLVL OutLevl
	0-100%	100%L-51%L, Center,	100%R-51%R, Center,	0-100%
		51%R-100%R	51%R-100%R	

### **MRC/LXP-15 Presets**

When shipped from the factory, MRC Version 4.0 has 10 setups loaded into its internal memory. Six additional memory spaces are left blank. You may want to use these setups as is, or modify them to your own taste. Be aware that changes you make will overwrite the factory-loaded setups when you perform a store operation. Brief descriptions of the 10 presets follow:

#### **#1 Big Hall**

This is a preset which emulates a rather large space (67 meters) with a long decay time (2.1s). This preset will add depth to any sound source. Great starting point for vocals.

#### **#2 My Room**

This preset is a smaller space (31 meters) with a strong reflection added for wall simulation. The bottom end is rolled off to reduce muddiness. This preset was originally written with guitar in mind. However, it's a good basic fill with anything.

#### **#3 Glide Rm**

This preset makes use of the gliding delay line which modulates moderately slowly in combination with a medium size room. If it sounds too strange, bring the LFO Rate up to 2.12Hz. Experiment also with changing the RMIX (Reverb Mix) control.

#### **#4 DelyVerb**

This preset combines 70ms delay reflection with a small (18 meters) tight (0.7s) room. Good on anything.

#### **#5 HarmMIDI**

This preset makes use of Dynamic MIDI patching where MIDI Note values are scaled to the coarse pitch parameter. NOTE: In cases where no MIDI Note data is being transmitted into the LXP-15, the default pitch will be -2 octaves.

**#6 Eko Roll**

This multi-effects preset combines 60ms and 90ms of delay to the left and right outputs. The pitch shifter is lowered slightly to create a chorusing effect. The reverb is mixed 50/50 with the delay section. It has a small/tight character, but with a 30ms pre-delay for additional space separation from the source.

**#7 Gate It**

Get it?

**#8 V4 Plate**

This reverb preset is pretty close to a well-tuned plate. 40ms of pre-delay is utilized for space. Change the SIZE parameter to suit the application.

**#9 V4Chorus**

Straight ahead multivoice chorus. Sound sources generally "fatten up" when put through this preset.

**#10 ChorsEko**

This preset combines recirculating echoes with a moderate chorusing effect. Adjust Dely3 to fit the tempo of the sound source. Great effect on lead or vocal tracks.



### **Storing Setups from Machine Run Mode**

You can store a setup in any one of the MRC's sixteen internal setups, or in any one of the LXP-15's 128 user registers. Here's how:

1. On the MRC, press STORE to enter Setup Store Mode.
2. Move slider 2 to select "MRC SETUP" or "LXP-15 RGSTR"
3. Use slider 1, the SETUP key or the keypad to select a setup number. Valid numbers for MRC setups are 1–16. For LXP-15 registers, valid numbers are 1–128. The display will blink if you enter an invalid number. (Simply enter a valid setup number if this occurs.)
4. Press ENTER to store the setup and return to Machine Run Mode

OR

Press MACH to exit Setup Store Mode and return to Machine Run Mode *without* storing the setup.

### **Editing LXP-15 Setups**

An LXP-15 setup also contains settings for the setup name and number, algorithm name, LXP-15 Dynamic MIDI patches 1-4, as well as setup parameter values. You can access and change these additional settings from Setup Edit Mode.

### **Entering Setup Edit Mode**

Setup Edit Mode is entered by pressing EDIT while in Machine Run Mode. There are seven display pages in Setup Edit Mode. Pages are selected by repeatedly pressing PAGE.

### **Storing Options When Exiting the Setup Edit Mode**

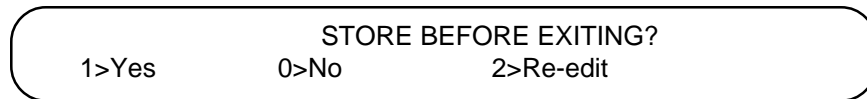
Changes made to Setup Edit parameters don't take effect, and are not stored, until you exit Setup Edit Mode and return to Machine Run mode. You have three options:

1. Cancel any changes made and revert to the previous settings
2. Transmit the changes to the LXP-15 and store them into the current MRC Setup

3. Transmit the changes to the LXP-15, but don't store them.

Option 1 is available to you at any time while in Setup Edit Mode. Simply press MACH to cancel any changes and return to Machine Run Mode.

The other options are accessed by pressing either STORE or ENTER. The display will show the following message:



STORE BEFORE EXITING?  
1>Yes      0>No      2>Re-edit

Pressing 1 will store the edited setup into the internal or external setup location selected on page 2, transmit all parameters to the LXP-15 and return you to Machine Run Mode.

Pressing 0 will transmit all parameters to the LXP-15 (including changes you made while in Setup Edit Mode) and return you to Machine Run Mode. Note that the edited setup is *not* stored in an internal or external register. At this point, you can store the edited setup into a new location from Machine Run mode. (See *Storing Setups from Machine Run Mode*)

Pressing 2 returns you to Setup Edit mode. No parameters are stored or transmitted. (You can also press MACH to return to Machine Run Mode without storing or transmitting any parameters.)

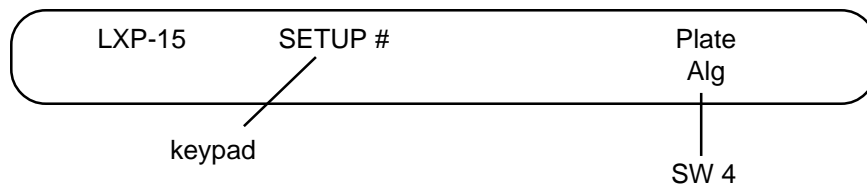
**Viewing and Editing Setup Edit Parameters**

Setup Edit parameters are accessed by repeatedly pressing PAGE to scroll through different sets of parameters. (Pressing and holding PAGE will show the number of the page about to be displayed.) The function of each display page in Setup Edit Mode is shown in the following table:

LXP-15 Setup Edit Display Pages	
Page 1	select setup # and algorithm
Page 2	set Patch 1 parameters
Page 3	set Patch 2 parameters
Page 4	set Patch 3 parameters
Page 5	set Patch 4 parameters
Page 6	set name (characters 1–4)
Page 7	set name (characters 5–8)

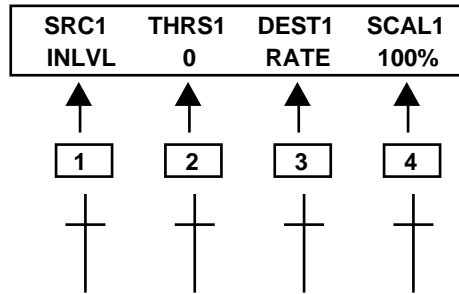
Changes made to the parameters on these pages don't take effect until you return to Machine Run Mode by selecting options 0 or 1 after pressing ENTER or STORE. Descriptions of how to change parameters on each of the Setup Edit display pages follow.

**Editing the Setup Number and Algorithm**



- Use slider/switch 4 to change the algorithm
- Use the number keys to change the setup number. The display will blink when the number is changed. This is to remind you that the setup will be stored in a new location.

**Editing LXP-15 Dynamic MIDI Patches**



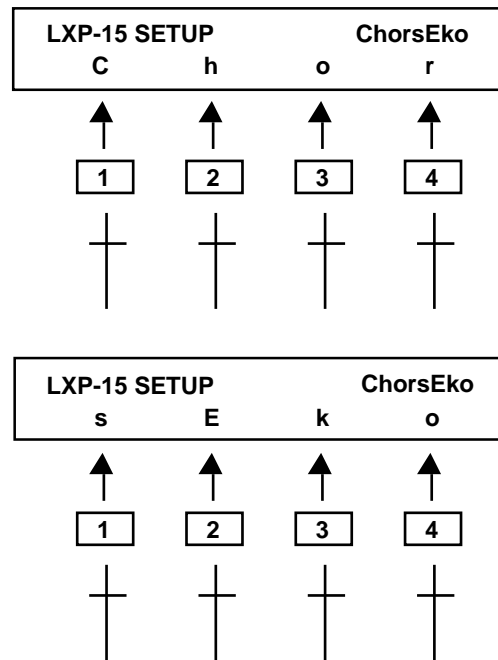
- Use slider/switch 1 to select a patch source. (See LXP-15 Source Table next page.)
- Use slider/switch 2 to set the threshold.
- Use slider/switch 3 to select a destination. (See LXP-15 Destination Table next page.)
- Use slider/switch 4 to set the scale amount.

NOTE: The MRC displays all scale values as percentages. The LXP-15 displays scale values in units appropriate for a particular parameter – Mix scaling in percentage, delay time scaling in milliseconds, etc.

<b>LXP-15 Patch Sources</b>		
<b>MRC Display</b>	<b>LXP-15 Display</b>	<b>Description</b>
INLVL	InLevl	Internal controller
FOOT5	Foot 5	rear-panel analog controller
FOOT4	Foot 4	rear-panel analog controller
FOOT3	Foot 3	rear-panel analog controller
FOOT2	Foot 2	rear-panel analog controller
FOOT1	Foot 1	rear-panel analog controller
HINOTE	Hi Note	highest MIDI note played
LONOTE	Low Note	lowqest MIDI note played
LFO	LFO Out	Internal controller
TEMPO	Tempo	MIDI Clock
PBEND	PchBend	MIDI pitch bender
AFTCH	Afirtch	MIDI channel pressure
VEL	Velocity	MIDI note on velocity
NOTE	LastNot	last MIDI note played
96-120	-	-
95	PhasDep	MIDI phaser depth control
94	DetDept	MIDI detune control
93	ChorDep	MIDI chorus depth control
92	TremDep	MIDI tremolo depth control
91	ExtDept	MIDI ext effect depth control
70-90	70-90	MIDI controllers 70-90
69	Hold 2	MIDI hold2 ON/OFF
68	68	MIDI controller 68
SOFT	Soft	MIDI soft pedal
SOSTEN	Sosten	MIDI sostenuto
PORTSW	Portmnto	MIDI portamento ON/OFF
SUST	Sustain	MIDI sustain pedal
32-63	-	-
12-31	12-31	MIDI controllers 12-31
11	Expresn	MIDI expression controller
10	Pan	MIDI pan controller
9	9	MIDI controller 9
8	Balance	MIDI balance controller
VOLUME	Volume	MIDI volume controller
D-ENT	Data	MIDI data controller
PORTA	PortTim	MIDI portamento time
FOOT	Foot	MIDI foot controller
CTRL3	3	MIDI controller 3
BREATH	Breath	MIDI breath controller
MODWH	Mod Whl	MIDI modulation wheel
CTRL0	0	MIDI controller 0
OFF	-	-

<b>LXP-15 Patch Destinations</b>					
<b>MRC Display</b>	<b>LXP-15 Display</b>				
	<b>Dly/Rvb</b>	<b>Pch/Dly</b>	<b>Gate</b>	<b>Plate</b>	<b>Cho Dly</b>
	Alghm (global patches only)				
DLY1-F	Glidely	Predely	Predely	Predely	Delay 1
DLY1-C	Gldyhi	Pdlyhi	PredlyHi	PredlyHi	2
FDBK1	Gldfbk	PdlyFdbk	PdlyFdbk	PdlyFdbk	Feedback 3
DLY2-F	Delay 2	Delay L	4	4	Delay 2
DLY2-C	Delay2Hi	DlyHi	5	5	5
FDBK2	6	Feedbak	6	6	6
DLY3-F	7	Delay R	7	7	Delay 3
DLY3-C	8	DlyRhi	8	8	8
OCTAVE	9	Pitch	9	9	9
PTCH-C	10	Intervl	10	10	10
PTCH-F	11	PchFine	11	11	ChoRat
RTIME	Decay	Decay	Slope	Decay	12
TDECAY	Treble	Treble	Treble	Treble	13
BASS	BassMpy	BassMpy	14	BassMpy	14
SIZE	Size	Size	Size	Size	15
DIFF	Diffus	Diffus	Diffus	Diffus	Diffus
HICUT	HiCut	HiCut	17	17	Treble
LOCUT	LoCut	LoCut	18	18	18
RMIX	Rvb Mix	Rvb Mix	19	19	19
WPAN	WetPan				
DPAN	DryPan				
MIX	Mix				
OUTLVL	OutLevel				
INLVL	InLevl				
RATE	LFORat				
NONE	Setup + (global patches only)				
	Setup - (global patches only)				

### Editing the Setup Name



Use the sliders and switches on these two display pages to change the setup name. Each slider/switch selects one of the eight characters in the name.

NOTE: Setups named from the LXP-15 front panel can have as many as twelve characters. The MRC can only access the first eight of these. The "extra" characters will be stored (unchanged) along with the changed name when the setup is stored in an LXP-15 register from the MRC. They can be changed or cleared from the LXP-15 front panel (via the NAME page).

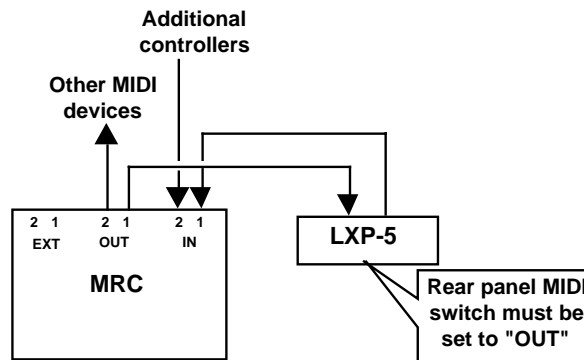
## 4. Controlling the LXP-5 with Two-Way Communication

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### Two-way Connections

Two way communication allows you to access and view parameters stored in the LXP-5's 128 internal registers. You can connect one or two LXP-5s to the MRC for two-way communication. Two MIDI cables are required for each LXP-5. The LXP-5 MIDI OUT and MIDI IN can be connected to the MRC IN1 and OUT1 or MRC IN2 and OUT2. *Be sure the switch on the back of the LXP-5 is set to "OUT"* (see illustration).

### Merging and Two-way Communication



When connected for two-way communication, the merging function for the input port connected to the LXP-5 must be set to "OFF" (If it is set to "ON," communication will not be possible and the MRC will display "SYNCH TIMEOUT")

**NOTE:** The MRC can't merge MIDI clock with an LXP device connected for two way communication. If you want to use Tempo patches and an LXP, you must set up one-way communication or use an external merger. (See *Advanced Two-way Communications*.)



MIDI data from the input port which is *not connected* to the LXP-5 can be merged with the data at the output port used for two-way communication. This is useful when you are using an LXP-5 register that uses MIDI sources for patching. Merging functions are selected on page 1 of the SYSTEMS PARAMETERS menu. The different merging options are outlined in the following table:

<b>Merging Options for Two-way Communication</b>	
IN1 -> OUT1 <ON/OFF>	Must be set to "OFF" if IN1/OUT1 are being used for two-way communication with the LXP-5.
IN1 -> OUT2 <ON/OFF>	If IN2/OUT2 are being used for two-way communication with the LXP-5, any combination of MIDI controllers, Pitch Bend, Aftertouch, Note numbers and Program Change messages received on IN1 can be merged with MIDI OUT2 by setting this to "ON".
IN 2 -> OUT2 <ON/OFF>	Must be set to "OFF" if IN2/OUT2 are being used for two-way communication with the LXP-5.
IN2 -> OUT1 <ON/OFF>	If IN1/OUT1 are being used for two-way communication with the LXP-5, any combination of MIDI controllers, Pitch Bend, Aftertouch, Note numbers and Program Change messages received on IN2 can be merged with MIDI OUT1 by setting this to "ON".

**Establishing Two-way communication**

When configured for two-way communication, the MRC requests parameter data from the LXP-5 and displays it for editing. The edited values are sent back to the LXP-5. This back and forth communication, or *hand shaking*, occurs automatically once communication is established between the two units.

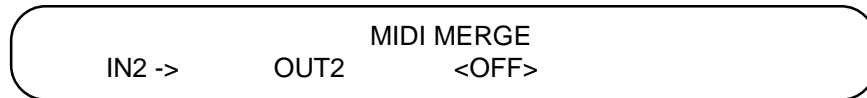
In order to establish communication after the initial connections are made and both units are turned on, it is necessary to put the LXP-5 and MRC in the same "state." With two-way communication you have the option of setting the LXP-5 to the state of the MRC, or of setting the MRC to the state of the LXP-5. The following procedure describes both options:

1. On the MRC, enter Machine Select Mode by pressing MACH twice.
2. Move the leftmost slider all the way up to select "SYSTEMS PARAMETERS" and press ENTER. Use switches 1, 2 and 3 to set MIDI MERGE to "OFF" for the IN and OUT connected to the MRC as shown below:

If the LXP-5 is connected to IN/OUT1 . . .



If the LXP-5 is connected to IN/OUT2 . . .

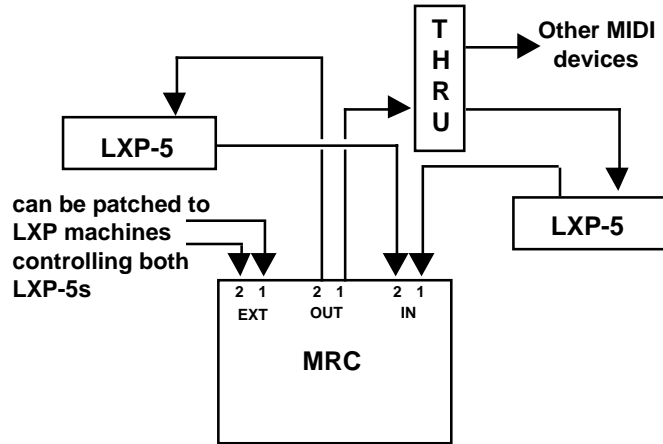


3. Press ENTER to return to Machine Select Mode.
4. Use the leftmost slider, the MACH button or the keypad to select an LXP-5 type machine. (Machine #2 is an LXP-5 machine when the MRC is shipped from the factory.)
5. Confirm that the MIDI cables are connected to the same input/output pair as the displayed "OUT#".
6. Press ENTER to put the MRC into Machine Run Mode. The MRC display will change to show the first page of LXP-5 Setup parameters.

7. Confirm that the LXP-5 and MRC are set to the same MIDI channel by pressing the LEARN button on the LXP-5 while moving any of the sliders on the MRC. The LED on the LXP-5 will flicker.
- 8\*. To set the LXP-5 to the same state as the MRC, press \* to send the MRC Setup parameters to the LXP-5. The parameter values displayed by the LXP-5 will change to match those displayed on the MRC.  
OR  
To set the MRC to the same state as the LXP-5, press ENTER on the MRC to send the LXP-5 parameters to the MRC. The parameters displayed by the MRC will change to show the values received from the LXP-5
9. You can confirm that two-way communication has been established by selecting a new register from the LXP-5 front panel and then pressing ENTER on the MRC. The MRC's displays will change to the parameter values of the new register.
- \* (Step 8 only needs to be done the first time communication is established between the two units.)

With two-way communication, you can update the MRC values to match those currently active in the LXP-5. This is particularly useful if you've changed the LXP-5 from its front panel and want to transfer the new settings to the MRC for further editing. To update the MRC simply press ENTER at any time while you are in Machine Run Mode. This will automatically transfer and display the active LXP-5 parameters.

**Two-way Control of Multiple LXP-5s**

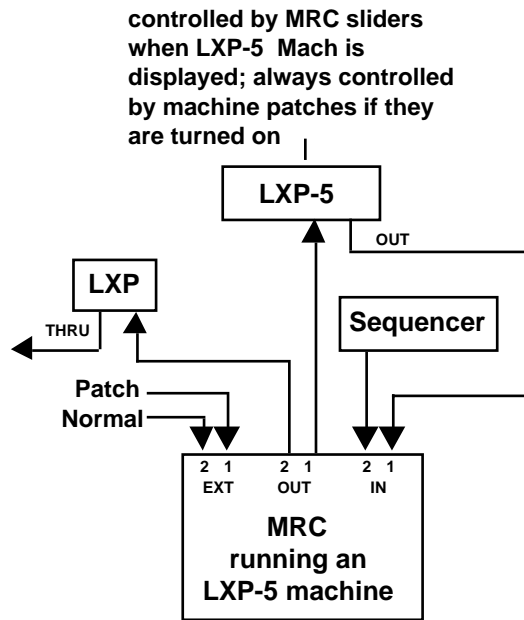


Using two-way communication you can control two LXP-5s at once, one for each input/output pair. If you have a high quality MIDI merger you can control multiple LXP-5s on the same input/output pair. (Each LXP-5 and its corresponding MRC machine must be assigned to a different MIDI channel.)

As long as the LXP-5 MIDI OUT is connected to the appropriate MRC IN you can maintain two-way communication with it, even if other devices are daisy chained to the MRC OUT. This is useful, for instance, when you want to control the LXP-5 and one or more sound modules from a sequencer or keyboard. (See illustration.)

### Control Flow

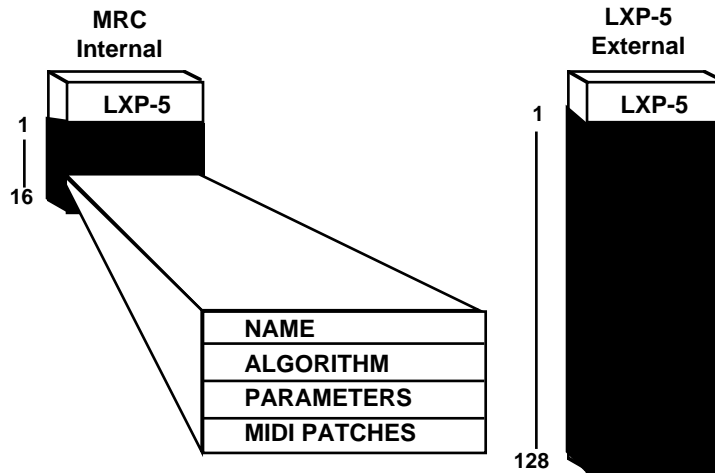
In this diagram, MIDI data from the sequencer and pedal moves from EXT2 (set to NORMAL) can be sent to other MIDI devices via the THRU port of the LXP-15.



It is important to realize that all machines defined in the MRC are active even when they are not being displayed. This means that if you use Machine Edit Mode to create an LXP-5 machine with MIDI patches (as described in *Dynamic MIDI* in the MRC V3.0 manual), the LXP-5 will be controlled by those patches no matter what parameters (from any machine type) are being displayed on the MRC. This feature makes it possible for the MRC to simultaneously control as many as sixteen LXPs and other MIDI devices in any combination.

### LXP-5 Setups

LXP-5 machine types have a bank of sixteen user-programmable memories. Each of these memories stores a complete set of LXP-5 parameters and is referred to in the MRC as an *Internal Setup*. When connected for two-way communication, you can also upload the parameters from any of the 128 user registers in the LXP-5. These are referred to in the MRC as *External Setups* (abbreviated "EXTRN" in the MRC display).



### Selecting an LXP-5 Setup

Once communication has been established between the MRC and the LXP-5, different internal and external setups can be selected whenever you are running an LXP-5 machine. If the MRC is not currently running an LXP machine, you must first select one, then select the desired setup. Here's how

1. On the MRC, enter Machine Select Mode by pressing MACH twice.
2. Use the leftmost slider, the MACH button or the keypad to select an LXP-5 type machine. (Machine #2 is an LXP-5 machine when the MRC is shipped from the factory.)

3. Press ENTER to put the MRC into Machine Run Mode.
4. Press SETUP to enter Setup Select Mode.
5. Use the leftmost slider, the SETUP button, or the keypad to select the desired setup.

Pressing \* on the keypad switches the display between "SETUP#" and "EXTRN#". While "SETUP#" is displayed, you can use the keypad to select any internal setup (1–16). While "EXTRN#" is displayed, you can use the keypad to select any external setup (1–128).

6. Press ENTER to load the setup into the MRC and LXP-5.

### **Communication Problems**

If the MRC is unable to communicate with the LXP-5, it will display one of two error messages: "No Target," or "SYNCH TIMEOUT." The "No Target" message is displayed if the MRC cannot "find" the LXP-5. This can occur if the LXP-5 is not connected properly or if it is set to a different MIDI channel than the MRC. To recover from a "No Target" error, it is necessary to re-establish communication with the LXP-5. To do this, repeat the procedure in *Establishing Two-way Communication*.

The "SYNCH TIMEOUT" message is displayed if MIDI MERGE for the IN/OUT ports connected to the LXP-5 is set to "ON," or when MIDI data is received faster than it can be processed by the MRC. To recover from a "SYNCH TIMEOUT" error, simply press ENTER (and confirm that MIDI MERGE is set to "OFF").

### **Viewing and Editing LXP-5 Setup Parameters**

LXP-5 setup parameters are viewed and edited on seven MRC display pages. Pages can be selected by pressing PAGE repeatedly, or by pressing the desired page number on the key pad.

To edit LXP-5 parameters from the MRC, simply select the desired page and move the slider of the parameter you want to edit. The new value is displayed on the MRC and transmitted to the LXP-5. (You will see the LEARN LED

flicker when sliders are moved on the MRC.) Refer to the *MRC V3.0 Owner's Manual* for a complete description of how to use the MRC to edit LXP-5 setup parameters.

### **Using the ★ and ENTER Keys**

While in Machine Run Mode, the ★ key transmits the current values of all parameters to the LXP-5. Use it to reset the LXP-5 to the values displayed by the MRC. (You would do this, for example, if LXP-5 parameters are inadvertently changed from its front panel.) If you are using two-way communication, you can press ENTER to update the MRC to the current parameter values of the LXP-5. This allows you to transfer new settings to the MRC after front panel adjustment of the LXP-5.

### **Storing Setups from Machine Run Mode**

You can store a setup you've created in any one of the MRC's sixteen internal setups, or in any one of the LXP-5's 128 user registers. Here's how:

1. On the MRC, press STORE to enter Setup Store Mode.
2. Move slider 2 to select "MRC SETUP" or "LXP-5 RGSTR"
3. Use slider 1, the SETUP key or the keypad to select a setup number. Valid numbers for MRC setups are 1–16. For LXP-5 registers, valid numbers are 1–128. The display will blink if you enter an invalid number. (Simply enter a valid setup number if this occurs.)
4. Press ENTER to store the setup and return to Machine Run Mode  
OR  
Press MACH to exit Setup Store Mode and return to Machine Run Mode *without* storing the setup.



### **MRC/LXP-5 Presets**

When shipped from the factory, MRC Version 4.0 has 10 setups loaded into its internal memory. Six additional memory spaces are left blank. You may want to use these setups as is, or modify them to your own taste. Be aware that changes you make will overwrite the factory-loaded setups when you perform a store operation. Brief descriptions of the 10 presets follow:

#### **#1 DetunHall**

This preset offers a combination of reverb with a slight pitch shift which gives a smooth chorusing effect. Adjust the RLVL to suit your application. This preset was originally written with a clean, compressed guitar in mind.

#### **#2 MATdelay**

Use MIDI Tempo to automatically set the coarse delay times for Delay 2 and Delay 3.

#### **#3 SloFlang**

Slow Flange is intended to be used totally wet through a pre-fader send for maximum effect.

#### **#4 SlapDetn**

This Pitch/Delay preset combines 155ms master delay with a slight pitch shift down. A short, bright reverb is mixed 59% into the delay sound. This preset works well on guitar or smooth background voices.

#### **#5 ChorusUp**

This is a Pitch/Delay preset which combines a moderate amount of feedback (44%) with a 46ms delay line which is pitched up +2 fine steps. The whole effect is then blended into a reverb module which is moderately sized. This is a way cool, heavy effect.

#### **#6 E/G Slap**

This is a Delay/Reverb preset which uses a filtered (2.49k) delay line set to 90ms with a 22% feedback ratio.

**#7 On Stage**

This preset combines an early reflection of 24.5ms with a moderately large space incorporating a 40ms pre-delay. Great for voice or instruments.

**#8 Chamber**

This preset is a straight ahead reverb with a slight early reflection set to 24ms. The chamber is bright and mid-sized. Really a great sounding preset for anything.

**#9 Linoleum**

This preset is kind of like a tiled rest room, only a little duller. The reverb time is exaggerated in length, but can be easily modified to suit your taste.

**#10 Sweep It**

This is a Delay/Reverb preset with a slowly swept delay line with a nicely bloomed reverb effect. You can use this on tracks which are doubled for a much glitzier final product.

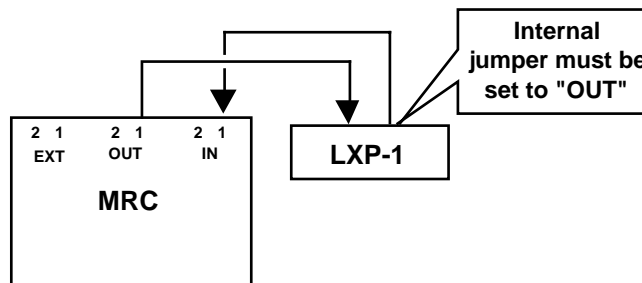
## 5. Controlling the LXP-1 with Two-Way Communication

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### Two-way Connections

Two way communication allows you to access and view parameters stored in the LXP-1's 128 internal registers. You can connect one or two LXP-1s to the MRC for two-way communication. Two MIDI cables are required for each LXP-1. The LXP-1 MIDI OUT and MIDI IN can be connected to the MRC IN1 and OUT1 or MRC IN2 and OUT2. *Be sure the THRU port on the back of the LXP-1 has been changed to an "OUT" port.* This requires that an internal jumper be changed in the LXP-1. Instructions for changing this jumper are given at the end of this chapter.

### Merging and Two-way Communication



When connected for two-way communication, the merging function for the input port connect to the LXP-1 must be set to "OFF" (If it is set to "ON," communication will not be possible and the MRC will display "SYNCH TIMEOUT" )

MIDI data from the input port which is *not connected* to the LXP-1 can be merged with the data on the output port used for two-way communication. This is useful when you are using an LXP-1 register that uses MIDI sources for patching. Merging functions are selected on page 1 of the SYSTEMS PARAMETERS menu. The different merging options are outlined in the following table:

<b>Merging Options for Two-way Communication</b>	
IN1 -> OUT1 <ON/OFF>	Must be set to "OFF" if IN1/OUT1 are being used for two-way communication with the LXP-1.
IN1 -> OUT2 <ON/OFF>	If IN2/OUT2 are being used for two-way communication with the LXP-1, any combination of MIDI controllers, Pitch Bend, Aftertouch, Note numbers and Program Change messages received on IN1 can be merged with MIDI OUT2 by setting this to "ON".
IN 2 -> OUT2 <ON/OFF>	Must be set to "OFF" if IN2/OUT2 are being used for two-way communication with the LXP-1.
IN2 -> OUT1 <ON/OFF>	If IN1/OUT1 are being used for two-way communication with the LXP-1, any combination of MIDI controllers, Pitch Bend, Aftertouch, Note numbers and Program Change messages received on IN2 can be merged with MIDI OUT1 by setting this to "ON".

### **Establishing Two-way communication**

When configured for two-way communication, the MRC requests parameter data from the LXP-1 and displays it for editing. The edited values are sent back to the LXP-1. This back and forth communication, or *hand shaking*, occurs automatically once communication is established between the two units.

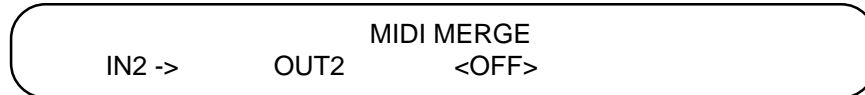
In order to establish communication after the initial connections are made and both units are turned on, it is necessary to put the LXP-1 and MRC in the same "state." With two-way communication you have the option of setting the LXP-1 to the state of the MRC, or of setting the MRC to the state of the LXP-1. The following procedure describes both options:

1. On the MRC, enter Machine Select Mode by pressing MACH twice.
2. Move the leftmost slider all the way up to select "SYSTEMS PARAMETERS" and press ENTER. Use switches 1, 2 and 3 to set MIDI MERGE to "OFF" for the IN and OUT connected to the MRC as shown below:

If the LXP-1 is connected to IN/OUT1 . . .



If the LXP-1 is connected to IN/OUT2 . . .

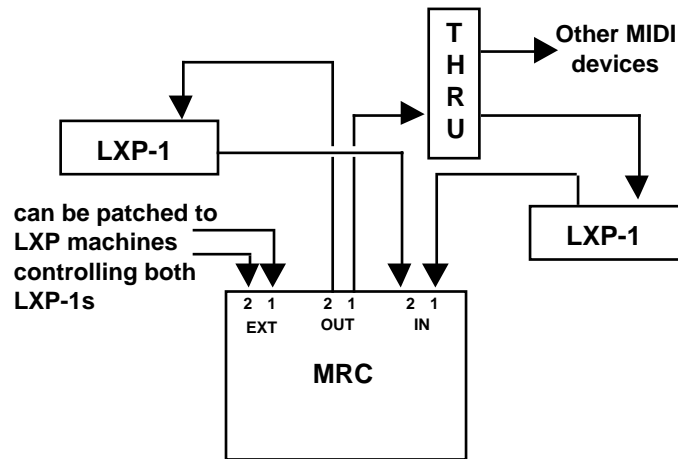


3. Press ENTER to return to Machine Select Mode.
4. Use the leftmost slider, the MACH button or the key pad to select an LXP-1 type machine. Machine #1 is an LXP-1 machine when the MRC is shipped from the factory.
5. Confirm that the MIDI cables are connected to the same input/output pair as the displayed "OUT#".
6. Press ENTER to put the MRC into Machine Run Mode. The MRC display will change to show the first page of LXP-1 Setup parameters.

7. Confirm that the LXP-1 and MRC are set to the same MIDI channel by pressing the MIDI button on the LXP-1 while moving any of the sliders on the MRC. The MIDI LED on the LXP-1 will flicker.
- 8\*. To set the LXP-1 to the same state as the MRC, press \* to send the MRC Setup parameters to the LXP-1. The parameter values displayed by the LXP-1 will change to match those displayed by the MRC.  
OR  
To set the MRC to the same state as the LXP-1, press ENTER to send the LXP-1 parameters to the MRC. The parameters displayed by the MRC will change to show the values received from the LXP-1
9. You can confirm that two-way communication has been established by selecting a new preset from the LXP-1 front panel and then pressing ENTER on the MRC. The MRC's displays will change to the parameter values of the new register.
- \* (Step 8 only needs to be done the first time communication is established between the two units.)

With two-way communication, you can update the MRC values to match those currently active in the LXP-1. This is particularly useful if you've changed the LXP-1 from its front panel and want to transfer the new settings to the MRC for further editing. To update the MRC simply press ENTER at any time while you are in Machine Run Mode. This will automatically transfer and display the active LXP-1 parameters.

**Two-way Control of Multiple LXP-1s**

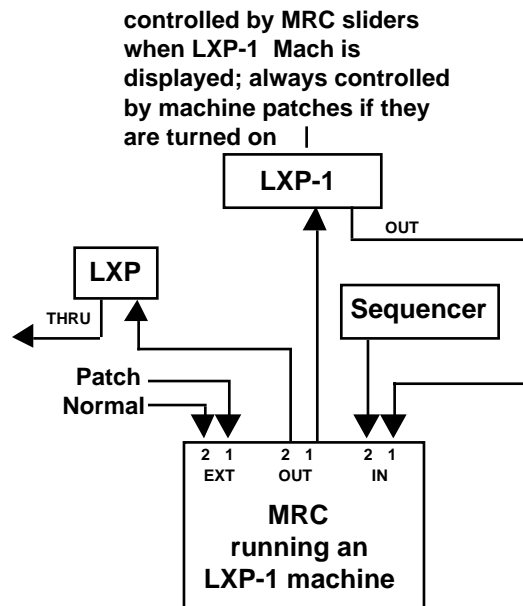


Using two-way communication you can control two LXP-1s at once, one for each input/output pair. If you have a high quality MIDI merger you can control multiple LXP-1s on the same input/output pair. (Each LXP-1 and its corresponding MRC machine must be assigned to a different MIDI channel.)

As long as the LXP-1 MIDI OUT is connected to the appropriate MRC IN you can maintain two-way communication with it, even if other devices are daisy chained to the MRC OUT. This is useful, for instance, when you want to control the LXP-1 and one or more sound modules from a sequencer or keyboard. (See illustration.)

### Control Flow

In this diagram, MIDI data from the sequencer and pedal moves from EXT2 (set to NORMAL) can be sent to other MIDI devices via the THRU port of the LXP-1.

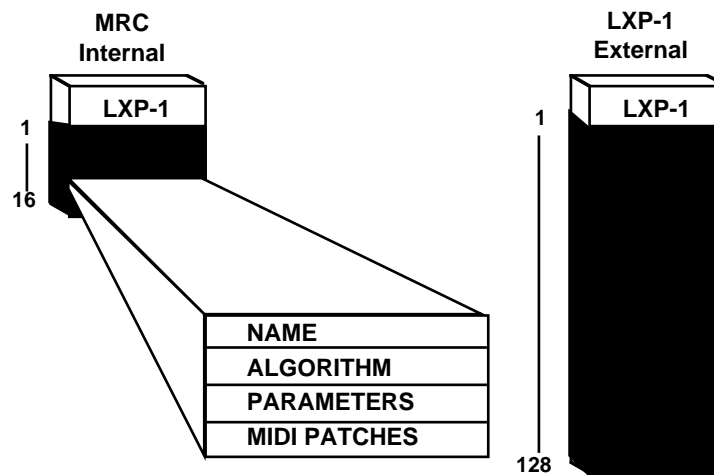


It is important to realize that all machines defined in the MRC are active even when they are not being displayed. This means that if you use Machine Edit Mode to create an LXP-1 machine with MIDI patches (as described in *Dynamic MIDI* in the MRC V3.0 manual), the LXP-1 will be controlled by those patches no matter what parameters (from any machine type) are being displayed on the MRC. This feature makes it possible for the MRC to simultaneously control as many as sixteen LXPs and other MIDI devices in any combination.



### LXP-1 Setups

LXP-1 machine types have a bank of sixteen user-programmable memories. Each of these memories stores a complete set of LXP-1 parameters and is referred to in the MRC as an *Internal Setup*. When connected for two-way communication, you can also upload the parameters from any of the 128 user registers in the LXP-1. These are referred to in the MRC as *External Setups* (abbreviated "EXTRN" in the MRC display).



### Selecting an LXP-1 Setup

Once communication has been established between the MRC and the LXP-1, different internal and external setups can be selected whenever you are running an LXP-1 machine. If the MRC is not currently running an LXP machine, you must first select one, then select the desired setup. Here's how :

1. On the MRC, enter Machine Select Mode by pressing MACH twice.
2. Use the leftmost slider, the MACH button or the keypad to select an LXP-1 type machine. (Machine #1 is an LXP-1 machine when the MRC is shipped from the factory.)

3. Press ENTER to put the MRC into Machine Run Mode.
4. Press SETUP to enter Setup Select Mode.
5. Use the leftmost slider, the SETUP button, or the keypad to select the desired setup.

Pressing \* on the keypad switches the display between “SETUP#” and “EXTRN#”. While “SETUP#” is displayed, you can use the keypad to select any internal setup (1–16). While “EXTRN#” is displayed, you can use the keypad to select any external setup (1–128).NOTE: When shipped from the factory, there are no parameter values stored in any of the LXP-1’s 128 user registers. These registers are displayed on the MRC as “NoName N/A.” If you try to load a “NoName N/A” register into the MRC, you will see an “INVALID SETUP” message. This simply means that there are no parameter values assigned to that register (so there’s nothing to load). You must store parameter values into a user register before you can load it. (See *Storing Setups from Machine Run Mode*).

6. Press ENTER to load the setup into the MRC and LXP-1.

### **Communication Problems**

If the MRC is unable to communicate with the LXP-1, it will display one of two error messages: “No Target,” or “SYNCH TIMEOUT.” The “No Target” message is displayed if the MRC cannot “find” the LXP-1. This can occur if the LXP-1 is not connected properly or if it is set to a different MIDI channel than the MRC. To recover from a “No Target” error, it is necessary to re-establish communication with the LXP-1. To do this, repeat the procedure in *Establishing Two-way Communication*.

The “SYNCH TIMEOUT” message is displayed if MIDI MERGE for the IN/OUT ports connected to the LXP-1 is set to “ON,” or when MIDI data is received faster than it can be processed by the MRC. To recover from a “SYNCH TIMEOUT” error, simply press ENTER (and confirm the MIDI MERGE is set to “OFF”).

### **Viewing and Editing LXP-1 Setup Parameters**

LXP-1 setup parameters are viewed and edited on two MRC display *pages*. Pages can be selected by pressing PAGE repeatedly, or by pressing the desired page number on the keypad.

To edit LXP-1 parameters from the MRC, simply select the desired page and move the slider of the parameter you want to edit. The new value is displayed on the MRC and transmitted to the LXP-1. (You will see the MIDI LED flicker when sliders are moved on the MRC.) Refer to the *MRC V3.0 Owner's Manual* for a complete description of how to use the MRC to edit LXP-1 setup parameters.

### **Using the \* and ENTER Keys**

While in Machine Run Mode, the \* key transmits the current values of all parameters to the LXP-1. Use it to reset the LXP-1 to the values displayed by the MRC. (You would do this, for example, if LXP-1 parameters are inadvertently changed from its front panel.) If you are using two-way communication, you can press ENTER to update the MRC to the current parameter values of the LXP-1. This allows you to transfer new settings to the MRC after front panel adjustment of the LXP-1.

### **Storing Setups from Machine Run Mode**

You can store a setup you've created in any one of the MRC's sixteen internal setups, or in any one of the LXP-1's 128 user registers. Here's how:

1. On the MRC, press STORE to enter Setup Store Mode.
2. Move slider 2 to select "MRC SETUP" or "LXP-1 RGSTR"
3. Use slider 1, the SETUP key or the keypad to select a setup number. (The display will blink if you enter an invalid number. Valid numbers for MRC setups are 1–16. For LXP-1 registers valid numbers are 1–128.)
4. Press ENTER to store the setup and return to Machine Run Mode

OR

Press MACH to exit Setup Store Mode and return to Machine Run Mode *without* storing the setup.

### **MRC/LXP-1 Presets**

When shipped from the factory, MRC Version 4.0 has 10 setups loaded into its internal memory. Six additional memory spaces are left blank. You may want to use these setups as is, or modify them to your own taste. Be aware that changes you make will overwrite the factory-loaded setups when you perform a store operation. Brief descriptions of the 10 presets follow:

#### **#1 Big Hall**

Large lush space. Room size is 67M. Good starting point for any large reverb. Change PDLY to emulate sounds bouncing off the rear of the hall.

#### **#2 SmalHall**

Very tight, moderately bright space with a size of 28M, reverb time of 1.5 seconds, and a small amount of feedback (22%).

#### **#3 SmalRoom**

Definitely a room — very small characteristics, moderately diffused (61%).

#### **#4 Med Gate**

Medioum gate time (258) and steep slope. Great on drums.

#### **#5 GoldPlat**

A rich sounding plate, very diffused (100%), with a slight low frequency rolloff (BASS=0.71x).

#### **#6 SkiSlope**

Inside-out room. Good for percussion and other effects.

#### **#7 SizIEkoz**

Rolling flange with ping-pong stereo delays (29ms and 57ms.)

#### **#8 Rich Rez**

Rich resonant sound with 200ms delay. Nice for acoustic or sampled material.

### **#9 LongChrs**

Delayed effect with feedback (32%) at HICUT filter (4.88kHz).

### **#10 MultiTap**

Offbeat stereo bouncing delays with diffusion (100%) on each recirculating pass.

## ***Changing LXP-1 MIDI THRU to MIDI OUT***

Using a Phillips-head screwdriver, remove the 2 screws from either side of the LXP-1 front panel. Do *not* remove the two screws on the rear panel. With a 9/16" nut driver, or miniature pliers, carefully unscrew the 5 nuts and washers surrounding the 1/4" jacks labeled DEFEAT, OUTPUTS and INPUTS.

Holding the unit with both hands, gently separate the outer case from the front panel. Slide the front panel and its circuit board out of the case. **Avoid touching any of the parts on the board unless you are confident that both you and your LXP-1 are properly grounded.** (The thin rubber protectors on the sides of the circuit board may come off. These can easily be replaced prior to reinserting the board and the front panel.)

Locate the single small jumper (usually a small blue plastic piece) at the back of the circuit board close to the MIDI jacks. Lift the jumper off of the two pins it is sitting on and place it on the two pins beside it. Your MIDI THRU port is now a MIDI OUT port.

Carefully reinsert the board into the outer case, sliding the rubber protectors into their grooves. Seat the front and rear panel properly so that the 1/4" jacks protrude from the proper holes. Replace the 5 washers and nuts without over-tightening them. Replace the 2 front panel screws. Your LXP-1 is now ready to communicate with the Version 4.0 MRC.

After performing this procedure once, you will see that the changeover is very quick and simple. If you ever want the port to act as a MIDI THRU again, you can always move the jumper back to its original position.

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