



PRO LIGHTING EQUIPMENT

LP-1500 SERIES INSTRUCTION MANUAL

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## TABLE OF CONTENTS

<b>1.0</b>	<b>OVERVIEW .....</b>	<b>4</b>
<b>2.0</b>	<b>SPECIFICATIONS .....</b>	<b>4</b>
<b>3.0</b>	<b>SETUP.....</b>	<b>5</b>
3.1	Power Requirements .....	5
3.2	Connecting to Dimmers .....	6
3.3	Connector Pin Assignments.....	7
3.4	Softpatch.....	12
3.5	Clearing Memory.....	13
<b>4.0</b>	<b>MANUAL MODE .....</b>	<b>14</b>
4.1	Startup .....	14
4.2	Channel Display.....	14
4.3	X and Y Preset Scenes.....	15
4.4	Crossfader .....	15
4.5	Master and Blackout .....	15
4.6	Bumps.....	15
4.7	Running in Manual Mode .....	16
<b>5.0</b>	<b>USING MEMORY PRESETS .....</b>	<b>17</b>
5.1	Pages and Presets.....	17
5.2	Recording Presets into Memory.....	17
5.3	Preset Playback.....	19
5.4	Previewing Presets .....	19
5.5	Editing Presets.....	20
5.6	Inserting and Deleting Presets.....	21
<b>6.0</b>	<b>CUE STACK.....</b>	<b>22</b>
6.1	Recording Stack Cues .....	23
6.2	Assigning Fade Times .....	24
6.3	Stack Playback .....	25
6.4	Previewing Stack Cues .....	25
6.5	Editing Cues .....	26
6.6	Linking Stack Cues .....	28
6.7	Inserting Cues.....	29
6.8	Deleting Cues .....	31

## TABLE OF CONTENTS CONTINUED

<b>7.0</b>	<b>CHASER .....</b>	<b>32</b>
7.1	Pre-programmed Chases.....	32

7.2	Running the Chaser .....	32
7.3	Recording New Chases .....	33
7.4	Editing Chases.....	34
7.5	Inserting and Deleting Chase Steps.....	35
7.6	Audio Input.....	36
7.7	Linking Chases to Scenes .....	37
<b>8.0</b>	<b>MIDI IMPLEMENTATION.....</b>	<b>38</b>
8.1	MIDI Basics.....	38
8.2	MIDI Dimmer Interface.....	39
8.3	MIDI System Interface .....	39
8.4	Controlling the LP-1500 From a Sequencer.....	40
8.5	MIDI Continuous Controller Assignment .....	42
<b>9.0</b>	<b>REPAIR AND WARRANTY INFORMATION .....</b>	<b>44</b>
<b>9.0</b>	<b>Addendum – Version 1.2 Features.....</b>	<b>45</b>

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## 1.0 OVERVIEW

The LP-1500 was designed to fill a unique space in the market. The intention was to build a simple, yet very powerful desk for use in a wide variety of applications. The board must be usable with zero training for the rental market, yet the needs of a sophisticated owner in a theatre or club setting.

The approach taken with the design and layout of the board is similar to the approach used with the LP-2000 and Cue Plus options.

The basic board operations are simple, and effects can be turned on and used as time and experience allows. The result is that the LP-1500 consists of four independent sections.

The first is a basic two-scene console. Using the dipless crossfader, scenes are alternated between the two manual presets. Bump buttons and led indicators make the LP-1500 very capable even in this non-memory mode of use.

The next step is to use the Preset Master feature of the board. Setting the Y / Presets switch to the Presets position will convert the lower scene to a bank of independent scenes with 12 pages of memory. This is the memory mode most useful for live music, or any show that requires maximum cue changes with minimum setup time.

For more memory, or running a theatrical type of presentation, the Cue Stack can be activated. This provides automatic timed fades, with manual override and link/loop possibilities. Also, cues can be inserted to give "point cues", a very powerful feature in a board of this type.

The fourth control section is the Chaser. It is used to build free running patterns or sequences. For simplicity of operation, pre-recorded patterns are included, as well as the capability to program custom patterns.

A two line 16 character display and a rotating data wheel is used in all operational modes to display and edit board parameters. The operation of the board is intended to be logical and consistent regardless of operating modes. In all cases, control screens will consist of a top title line, which is a display-only field. The cursor will move laterally only across the bottom line of the display. The data wheel is used to move left and right through a linear row of screens. When a parameter is in view, the Modify button next to the display can be used to alter the displayed value.

## 2.0 SPECIFICATIONS

### **Manual capacity:**

Two scene preset with twelve, twenty-four or thirty-six channels. Switchable Add or Solo momentary buttons for each channel. Split dipless crossfade between manual scenes. Each channel has an led output indicator.

### **Preset Memory:**

Twelve, twenty-four or thirty-six real-time preset faders with switchable Add or Solo bumps. Presets may be "piled on" in any combination. Presets are assigned to one of twelve memory pages by means of a rotary page select switch. A preview mode allows cues to be checked without bringing up the scene on stage. An existing cue may easily be edited using the manual scene faders without re-recording the entire cue.

**Cue Stack:**

288 programmable cues with crossfader and go button control. Fade times can be set for each scene, and scenes may be linked in any order for playback. A two line LCD is used to display current and next cues, and all other parameters.

**Chaser:**

Four fixed and seven programmable patterns of up to twenty steps each are provided. All programmable patterns are fully proportional, and are recorded, previewed and edited as easily as the preset cues. The rate of each pattern may be saved with the chase, eliminating the need to adjust the rate pot when the chase is recalled. The chase may be advanced a step at a time manually, or halted momentarily. Chases may be assigned to a preset fader, automatically starting the selected chase when the scene is faded up.

**Soft Patch:**

One standard and two user programmable soft patches allow assignment of up to 256 dimmers via DMX. All analog channels in the board are patched with the DMX channels.

**Output:**

Standard consoles support two digital protocols and one analog output. The analog out is 0-10 vdc; Jones type connectors are used. Options available for the analog connector are Socapex 37 pin or 25 pin subminiature D connector. The digital output can be selected by the user as either DMX 512 with the standard 5 pin XLR as specified by USITT, or MIDI by means of 5 pin Din connector. The analog output operates simultaneously with either selected digital protocol.

**Construction:**

All aluminum chassis for durability and lightweight. Angled shape makes the controls easier to see and operate, and gives a distinctive profile. Littlite work lamp with power supply and dimmer is standard.

**3.0 SETUP**

The LP-1500 series consoles connect easily to most types of dimming systems. Analog, DMX 512 and MIDI outputs are provided for dimmer control. The flexibility to interface to old or new systems makes the LP-1500 a natural choice for building a new system, or replacing a tired, old controller.

**3.1 Power requirements**

The LP-1500 console is powered from a separate power supply that must be connected to a 120 volt, 60 Hertz AC power source. This is the standard for most electrical outlets in the United States. The LP-1500 draws less than two amps of current; extension cords as small as 18 gauge can be used for board power.

If the board is to be used with European power systems, or other 220 volt applications, contact your Leprecon dealer for the optional 220 volt power supply.

Because temporary power distribution is usually set up for portable lighting systems, it is possible to accidentally connect the console to a higher line voltage, or to a source where two of the three line wires (for example, the hot wire and the ground wire) have been swapped. Some protection from such accidents has been designed into the LP-1500, but serious damage to the board and operator can result from incorrect power connections. It is recommended that when the console is used in a touring system, the power feed should be checked before the board is plugged in.

The LP-1500 is a microprocessor-based console. Like all digital equipment, it can be affected by electrical noise and spikes on the power lines. For this reason, it is recommended that the console be plugged into a separate circuit from other devices. This also prevents other equipment from tripping the breaker that supplies power to the console. It is suggested as well that the LP-1500 be plugged into a line filter / surge suppressor of the type commonly used for personal computers.

### 3.2 Connecting to dimmers

The LP-1500 is designed to be used with a wide range of dimmer systems. Two different digital protocols have been implemented, and the user must first select which protocol is being used. To do this, press the Setup menu button under the display.

The LP-1500 will show the first setup screen:

Patch	Label
#0	Default

Rotate the data wheel to the right until the following display is seen:

Dimmer	Output
DMX	MIDI

A pointer will be seen next to one of the selections, indicating the active output. To change output protocols, press and hold the Modify button and turn the data wheel. The pointer will move from one position to the other. When you have selected the correct output protocol, release the modify button.

#### DMX Output

The 5 pin DMX 512 digital output on the rear panel offers a fast and reliable way of sending control information to the stage. Simply connect a standard 5-wire control cable from the console jack to the DMX connector on the dimmer. As the standard mandates, the LP-1500 has a female connector. Additional dimmers can be “daisy-chained” from the first dimmer, by running additional cables between the dimmers.

The LP-1500 has been tested and complies fully with the USITT DMX 512 / 1900 standard, and should pose no compatibility problems with any DMX 512 dimmers from Leprecon or from other manufacturers. Should any suspected incompatibilities be encountered, please contact Leprecon with the specific dimmer model and manufacturer.

#### MIDI Output

The LP-1500 can also be used to control dimmers that use MIDI as a control input, such as the Leprecon LD-360M. Although MIDI was originally devised as a system of interconnecting musical

equipment, it lends itself well to lighting applications in small systems. Because of the lower data rate of MIDI, the total number of dimmers that can be driven is limited to 100.

### **Analog Output**

Even with the advent of digital control standards, many portable lighting systems use analog control lines between the console and the dimmer racks. The LP-1500 provides 0-10 volt analog outputs, using a Cinch-Jones connector. Optional analog outputs include 37 pin Socapex or 25 pin subminiature "D" connectors.

### **3.3 Connector Pin Assignments**

#### DMX 512 connector

Pin	Function
1	Ground
2	Data minus
3	Data plus
4	Not used
5	Not used

## LP-1500 25 pin D-sub

Pin	Function
1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	Channel 7
8	Channel 8
9	Channel 9
10	Channel 10
11	Channel 11
12	Channel 12
13	Channel 13
14	Channel 14
15	Channel 15
16	Channel 16
17	Channel 17
18	Channel 18
19	Channel 19
20	Channel 20
21	Channel 21
22	Channel 22
23	Channel 23
24	Channel 24
25	Control Common



## LP-1500 15 Pin CJ

Pin	Function
1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	Channel 7
8	Channel 8
9	Channel 9
10	Channel 10
11	Channel 11
12	Channel 12
13	Not used
14	Not used
15	Control common

## LP-1500 27 Pin CJ

Pin	Function
1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	Channel 7
8	Channel 8
9	Channel 9
10	Channel 10
11	Channel 11
12	Channel 12
13	Channel 13
14	Channel 14
15	Channel 15
16	Channel 16
17	Channel 17
18	Channel 18
19	Channel 19
20	Channel 20
21	Channel 21
22	Channel 22
23	Channel 23
24	Channel 24
25	Not used
26	Control common
27	Control common

## LP-1500 37 pin Female Socapex

Pin	Function
1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	Channel 7
8	Channel 8
9	Channel 9
10	Channel 10
11	Channel 11
12	Channel 12
13	Channel 13
14	Channel 14
15	Channel 15
16	Channel 16
17	Channel 17
18	Channel 18
19	Channel 19
20	Channel 20
21	Channel 21
22	Channel 22
23	Channel 23
24	Channel 24
25	Channel 25
26	Channel 26
27	Channel 27
28	Channel 28
29	Channel 29
30	Channel 30
31-36	Not used
37	Control common

### 3.4 Softpatch

The LP-1500 console includes Softpatch, where two custom assignments of dimmer circuits to console channels, in addition to a default “straight” patch assignment, are stored for instant recall.

The custom patches allow the assignment of any dimmer circuit to a specific console channel. Up to 256 DMX dimmer channels can be assigned to any of the board channels. All analog channels installed can also be patched. More than one dimmer circuit may be assigned to a single console channel; in other words, the channel 8 fader on the console might bring up dimmer circuits 8, 16, and 32. However, a dimmer circuit can be controlled by only one console channel. A dimmer can be disconnected from the system by assigning it to the non-existent channel 0. To reduce unnecessary delay in the system, unused channels should remain patched to channel 0.

To access the softpatch features, press the button labeled “Setup” below the LCD window. The yellow led above the button will light, and the display will show the first Setup screen.

Active	Label
#0	DEFAULT

Along with the patch number is a field that can be used to label each patch. The #1 patch is a non-alterable 1:1 patch; the label “DEFAULT” and the patch table itself cannot be edited. Patches 1 and 2 are custom patch tables, the label and the channel assignment must be entered by the user.

To select a new patch, move the cursor until it is directly under the digit following the # sign. Hold the “Modify” button down and rotate the wheel until the new number is displayed. Releasing the “modify” button saves the new value. The label following the number can be modified in the same way, one letter at a time, to title the custom patch.

#### Displaying and Editing a Custom Patch

Scrolling further to the right of the active patch menu will display the patch assignment screen. An example is shown below:

Dimmer Channel
101 24

The number listed below the word “Dimmer” represents the dimmer circuit. Any dimmer number can be displayed by holding the Modify button, and turning the data wheel to the right for higher numbers and to the left for lower dimmer circuit numbers. To the right, under the word “Channel”, will appear the number of the board channel that the dimmer is assigned to. To alter this assignment, locate the cursor under the channel number, hold the modify button, and turn the data wheel. When the number is set, and the wheel released, the new value will be stored in memory.

When patching is finished, pressing the Run mode button will return the console to the run mode display, and indicate this by turning off the yellow led above the Setup button.

### 3.5 Clearing Memory

Cues, chases and patches recorded into the LP-1500 are stored in battery-backed memory. The lithium coin cell that is used will retain memory in the console for a minimum of 1 year.

When starting to program a new show, it is easier to start with an empty board. The Erase function in the LP-1500 can be used to delete all cues, chases and patches, leaving the scenes empty and ready to program. All fade times, links and delay times will also be cleared, and default values will be inserted for these parameters in all locations.

Three screens are provided for the Erase function. The user can elect to erase all scenes, including Presets and Cue Stack memories. The custom chases (chases 5-11) can be cleared by themselves, keeping all scene memories intact. The final screen allows ALL MEMORY of the LP-1500 to be cleared.

To clear ALL memory in the LP-1500, start by pressing the Setup menu button. Turn the data wheel to the right, until the following message is seen:

ERASE EVERYTHING  
? (MOD = YES)

To proceed with the erase, press the Modify button. If you get cold feet, press any other button, such as the Run button. Assuming that you really do want to clear all memory, and you have pressed the Modify button, one last warning will be issued.

LOSE ALL DATA  
? (REC = YES)

Pressing the Record button at this prompt will definitely clear all the information in the console. Once this has been done, the data is gone for good. The LP-1500 will verify this:

All Items in  
Memory Erased

In the case of erasing ONLY presets, or ONLY chases, use the appropriate screen in the Setup menu. The procedure of pressing Modify, then pressing Record, is the same regardless of the data being erased. The Preset Erase screen looks like this:

ERASE ALL SCENES  
? (MOD = YES)

The erase screen for the programmable chases reads as follows:

ERASE CHASE 5-11  
? (MOD = YES)

## 4.0 MANUAL MODE

The LP-1500, in addition to being a powerful memory console, can also be used as a simple two-scene preset board. This allows an untrained operator to immediately start using the board, and learn it's more advanced features as time permits.

### 4.1 Startup

When the LP-1500 is first turned on, the board will default into Run mode, the Y / Presets switch will return to its previous state. Let's assume this to be Y mode, and further assume that all other effects (Chase and Stack) are turned off.

The console will perform a brief test when power is applied. It will greet the user with a message after the tests are performed:

```
LP-1500 V1.0
Run Mode
```

In the case of a detected fault, an error message will display instead:

```
LP-1500
Batt. LOW !
```

Error messages will be displayed for the following conditions:

- Rom error
- Ram error
- Battery low
- Buss Error (board non-functional)

Any error message indicated problems that must be repaired. For more information regarding service, see the "Warranty and repair policy" heading of this manual.

### 4.2 Channel Display

After the power on test is completed successfully, the sign on message is replaced with a run-time message.

```
LP-1500 V1.0
Run Mode
```

This indicates that the LP-1500 has completed its power-on testing, and is operating normally. To view channel levels being sent to the stage, turn the top of the data wheel to the right (clockwise). The display will show channel levels (in percentage) as they are being output.

```
RUN  1  2  3
OUT 100 75 22
```

Turning the data wheel farther to the right will bring higher numbered channels into view.

### **4.3 X and Y Preset Scenes**

The most basic control of the LP-1500 console is provided by the rows of faders for the two manual scenes, labeled “X” and “Y.” Each of these faders controls a single console channel, which may be patched into one or more dimmer channels. The green output LED above each channel indicates that channel’s relative intensity.

### **4.4 Crossfader**

The X and Y Crossfaders, just to the right of the MASTER fader, control the overall level of each of the X and Y scenes; these levels are indicated by the green LED above each Crossfader. The two Crossfaders operate in opposing directions; to bring up the X scene, the X Crossfader should be moved to the top of its travel, and to bring up the Y scene, the Y fader should be moved to the bottom of its travel. This allows both faders to be moved together to crossfade between the two scenes.

Typically, a scene might be set up with the X channel faders in advance, and when that cue is called, the X and Y Crossfaders are moved upward together to the X position. This leaves the Y scene to be set up with the next cue. At the appropriate time, the Crossfaders are pulled down to the Y position, when the inactive X scene is set for the next cue.

### **4.5 Master and Blackout**

The grand master is used to set the overall output level of all console function except the chaser and bump buttons. The level of the led above the fader tracks the position of the fader. The Blackout switch is an alternate action button that defeats all console outputs, including the chaser, but not the bump buttons. The led adjacent to the switch blinks to indicate an active Blackout.

### **4.6 Bumps**

The momentary switches located below the lower scene faders have different functions depending on the current mode of operation. The normal RUN mode function of these switches is to momentarily flash a channel or scene on stage without using the fader. The channel or scene drops back out when the button is released.

When the cues are being programmed and edited, these buttons are used to select memories for modification. Therefore, when the Record or Edit modes are active, the momentaries DO NOT act as bump buttons.

In the upper left corner are the switches that control the bump button function. The top switch sets

one of three functions; Add, Solo, or Off. Each time the button is pressed, the next higher led lights, showing that the next function is active. When the led reaches the top position (Solo), the next button press will return to the lowest, or Off position. When the board is first turned on, the mode returns to the last state that was active when power was switched off.

The Add mode is the simplest mode of bump operation, pressing a bump button will bring a channel or scene up on stage for as long as the button is pressed without affecting any other channels. The maximum level for the Add mode can be set in the bump level menu.

To set the Add bump level, press the “Setup” menu button under the display. Turn the data wheel to the right until this message is seen:

Bump Level 100%
--------------------

Holding down the “Modify” button and turning the data wheel will change the displayed value. The bump level can be adjusted from 0 to 100%, but if the level is set to zero, pressing and “Add” bump button will have no effect. Press the “Run” mode button after setting the bump level.

When Solo mode is selected, pressing a bump button will black out any other channels that are up, and bring the selected channel to 100% output. The bump level setting has no effect in the “Solo” mode. The action of the Solo mode is similar to bringing down the Grand Master for the time the button is held, releasing the button restores Grand Master level. In fact, the Grand Master level led will be quenched for the duration of a Solo bump. As with bringing down the Grand Master manually, any output from the Chaser will be unaffected by a Solo button being pressed.

The Bump Channel / Scene switch is located just below the Add / Solo / Off switch, and is active only if the lower scene faders are being used as Preset Masters. In this case, the Y scene faders no longer control single channels, but entire memory scenes. With the Bump Channel / Scene switch in the Scene position, the bump buttons can be used to bring up the entire memorized scene. The alternate position, Bump Channel, is used to bump a single channel even though the Y scene faders still control entire scenes. The Bump Scene mode is locked out when the Y scene faders are being used as a manual scene.

#### **4.7 Running in Manual Mode**

1. Set all X and Y channel faders, and the PRESET master fader to zero.
2. Set both X and Y Crossfaders fully downward, to the Y scene position.
3. Bring the MASTER fader up to full. No stage lights should come on.
4. Set up the first scene on the X channel faders. The X scene is currently inactive, so the stage should remain dark.
5. Push the X and Y Crossfaders up to the X position, and the X scene should now light the stage.



6. Set up the next scene on the inactive Y channel faders, while the X scene is still lighting the stage, then switch to the Y scene by moving the X and Y Crossfaders to the Y position.
7. Continue to set up subsequent scenes in this manner, by alternating between the X and the Y groups.

## 5.0 USING MEMORY PRESETS

The LP-1500 is much more than a two-scene preset board. By pressing the switch located above the Y preset fader, the lower scene of faders can be converted to individual memory preset masters. This is indicated by the led labeled “Presets” being lighted. These presets operate in a “pile-on” mode, allowing more than one preset to be up at any one time.

### 5.1 Pages and Presets

When the board has been switched to Y Presets mode, several changes occur. First, the bump buttons can be used to bump either the entire scene assigned to a fader, or only bump a single channel. See the previous section regarding bump controls. Secondly, the Y preset master control is no longer used as one half of a split crossfader, as it was in two-scene mode. For this reason, the fader operation is reset for minimum output at the bottom fader position and maximum output when the fader is at the top position. The Y Preset fader now acts as a Master for the entire group of Preset masters. As such, it MUST be up to output any scene recorded to Preset Scene Masters. An led located directly above it indicate the level of the master PRESET fader.

A twelve position PAGE switch above the preset master selects any of twelve “pages” of presets that will be active. For each of the pages, a different scene can be recorded to each fader, therefore each preset fader can call up twelve different scenes. A 12-channel LP-1500 thus holds 144 presets; the 24-channel has 288 presets, and the 36-channel holds 432 presets.

When the switch is moved to a new page, only the preset faders that are at zero level will be loaded with new scenes. Any fader that is not at zero will be in “page hold”, and will retain its current preset assignment until the fader is returned to zero. As soon as the fader is moved to zero, the preset for the currently selected page is automatically loaded. This prevents scenes from changing suddenly on stage as the page selector switch is turned.

### 5.2 Recording Presets Into Memory

#### Memory Lock

Because of the dander of accidentally altering cues or other information that may be recorded in the LP-1500, a Memory Lock feature has been incorporated. This is in the form of a menu item that can be displayed and changed in the Setup menu. The default setting is with the memory UNLOCKED.

To lock the console, and prevent any modification of the memory, press the Setup menu button. Turn the data wheel to the right until this screen appears:

Memory Lockout Locked Open
-------------------------------

A pointer will be located to the left of the word 'Open'. To lock the memory, hold the Modify button and rotate the data wheel. The pointer will move from Locked to Open as the wheel is turned; leave the pointer showing the Locked position and release the Modify button. Once this is done, any attempt to program, erase, patch or edit will bring up a message:

No Can Do Memory locked
----------------------------

Unlocking the memory is done in the same way, simply move the pointer to indicate the word "Open" instead.

### Storing Presets

Recording and editing presets on the LP-1500 is quick and simple. Presets on the LP-1500 are recorded from the console's current output. In other words, the levels of all lights, whether they are controlled from the X scene, another preset, the Cue Stack or any combination of these, will be recorded as the new preset. In general, what you see on stage is what you will get as a preset. Thus, when the MASTER fader and the PRESET Master are at maximum, raising a particular preset fader to maximum will recreate the exact output of the console at the moment that preset was recorded.

To record a preset, first set the PAGE switch to the desired page, and press the Preset Menu button. The LP-1500 will show the top level Preset menu:

Pg Pre	Chase
1 1	0

The page display will indicate the setting of the rotary Page switch. The Preset number will show the last preset recorded, previewed or edited. If this is the first operation on the Presets, the display will default to Preset 1. The Chase heading shows any chase that is attached to the Preset. If no chase is attached to the Preset, the number 0 will be displayed.

Press the red Record button. This puts the console in Record mode, indicated by a message on the display, and by flashing yellow LEDs in the row of bump switches.

The console display will show:

Record Mode Pick Destination
---------------------------------

Set up the desired scene by using the X channel faders and / or any combination of presets that may have been already recorded. When the desired new scene has been achieved, press the numbered bump switch to record the scene to that preset location. The display will then indicate which preset has just been recorded.

Scene Recorded  
Page 12 Preset 24

This message will show for about 5 seconds, then be replaced with the record mode message:

Record Mode  
Pick Destination

While in the Record mode, scenes may be entered in any order into the LP-1500. Once recording is finished, press the “Run” mode button to return to run mode.

Preset faders which are in “page hold” can still be recorded; the new scene will be stored in place of the preset which is currently active, not the preset location indicated by the PAGE switch. In other words, if the switch is on page 5 and preset 1 is brought up, then the switch is move to page 6, pressing the bump switch numbered “1” will record the on stage scene into preset 1 of page 5, not page 6.

### 5.3 Preset Playback

Once scenes have been recorded into the Preset Memory faders on the LP-1500, they are immediately available for use. It is not necessary to leave the record mode to check or playback the memory.

With the Master and Y Preset fader fully up, bringing up the fader for a memory scene will output the scene to the stage. Any number of faders can be up at on time, the scenes ‘pile on’ in a higher takes precedence fashion. The combined output of several Preset Masters can be used to program another cue.

### 5.4 Previewing Presets

It is often convenient to check the contents of a cue without actually bringing the scene up on stage. This is done with the preview function of the LP-1500.

To check the contents of any Preset Memory fader on the current page, first press and hold down the “Run” mode button. Press the bump button for any Preset Master fader. The LP-1500 will respond with a message such as this:

Pg Pre C1 C2  
10 24 75% 100

The first part of the display show the page location of the preset being previewed; Pg being the abbreviation for Page. The next location contains the number of the preset being previewed, in this case #24. Following the preset number are consecutive channel numbers in that cue. Below the channel number is the intensity stored in memory for that specific channel. Use the data wheel to browse through the channels.

Parameters on the bottom line can be edited; changing the level shown for a channel in a preset will change the cue in memory at that instant, and affect the look on stage next time the Preset Memory is used. Modifying channel values requires that the memory lock be turned off; see the section “recording Memory Presets” for more information on the memory lock.

As well as showing channel percentages on the display, the Output Level leds above each channel will also switch from their normal output indication to display relative intensity of each channel. The row of leds are showing the contents of the entire memory at a glance, even though the outputs to the stage are unaffected.

To select another preset to preview, hold Run and press a new bump button. The preset number in the display will change to show the new scene being previewed.

To end the preview, press and release the “Run” button. This will cancel the preview mode and return the run-time display. Also, this will return the momentary switches to the selected bump mode. The level leds will return to showing stage levels.

## 5.5 Editing Presets

Once a Preset Scene has been recorded, the level of a single channel in memory can be altered without re-recording the entire scene. In the LP-1500 Edit mode, the faders of the top scene are used to directly set new values. Editing can be done either live or blind, depending on the position of the X scene Master.

To edit a Preset Master, press the Preset menu button. Place the LP-1500 in edit mode by then pressing the Edit button. The led next to the Edit switch will light, and the display will show:

Edit Mode Select Scene
---------------------------

Pressing the bump button for any Preset Master will start an edit of that scene. The display will show information for the preset:

Pg Pre C1 C2 10 24 75% 100
-------------------------------

In edit mode, the output level leds are used to show the contents of the selected memory.

The X scene faders directly below the leds are used to adjust channel levels. The faders take control of a channel when the fader position matches the level recorded into memory. The brightness of the level led and the value in the display will begin to change when the fader takes control of the channel. For example, to edit a channel that was recorded at 100%, it would be

necessary to bring the top scene fader for that channel up to full to capture the channel, moving the fader down from that point would reduce the level of the channel.

Any number of channels can be adjusted in one edit, using either the X scene faders, or by using the data wheel to directly set channel levels in the display. Turning the data wheel will bring any of the channel levels into view, and turning the data wheel while holding the Modify button will change the level for that channel.

If several Presets are to be edited in a row, a shortcut allows an edit to be concluded, the results recorded, and a new edit started with a single button press. After setting levels for the first Preset, simply press the bump button of a new Preset Master. The edited values of the first Preset will be saved, and the display will change to show a new preset being edited without the Select scene message being shown. When all presets have been edited, end the Edit mode by pressing the "Record" button.

If a mistake was made in editing, and you wish to preserve the original, unmodified cue, do not press the "Record" button, instead press "Run" mode button. This discards any changes to the cue, turns off the edit mode and returns the console to Run mode.

## 5.6 Inserting and Deleting Presets

After scenes have been assigned to the Preset Masters, it is possible to insert a new cue between two adjacent faders. Also, a preset may be deleted, and the rest of the scenes will be moved to fill the empty space. These functions are performed with the Insert and Delete functions in the Preset menus.

The Insert function is used to record a new cue to an already-used Preset fader. Instead of being overwritten, as would be the case with a simple record, the original scene is preserved. To insert a cue, first press the Preset menu button under the display. Rotate the data wheel to the right until the following display shows:

Insert Preset Select W/Bump
--------------------------------

Press the bump button of the preset fader that you wish to record as a new cue. For example, if the bump button for Preset 10 is pressed, the LP-1500 will respond:

Pg Pre	Insert
2 10	W/REC

If a mistake was made, it is still possible to select another Preset fader for the insertion point. Simply press another button, and the preset number shown on the display will update to the new value.

Set the look on stage that is to be recorded to the new preset. Manual scene faders, or existing presets can be used to build the scene.

Pressing the Record button records the new cue into the selected Preset Master and move its currently recorded scene to the next fader.

Scene Inserted  
Page 2 Preset 10

In the example above, the scene formerly in Preset 10 will be pushed up into preset 11, 11 moved to 12, and so on. The cues will continue to shuffle upwards until the last fader is encountered. Any scene stored in the last fader will be lost. Only the cues on the selected page are affected.

The delete feature works in much the same fashion. Deleting a preset will erase the scene, and move the preset from the fader above it down one position to fill the space. All presets above the deletion point will shuffle down one space in turn, and the last preset fader will be loaded with a blank preset.

To delete a preset, first press the Preset menu button under the display. Rotate the data wheel to the right until the following display shows:

Delete Preset  
Select W/Bump

Press the bump button of the preset fader that you wish to delete. For example, if the bump button for Preset 10 is pressed, the LP-1500 will respond:

Pg Pre Delete  
2 10 W/REC

As with the Insert mode, the preset number shown in the display can still be changed by pressing another bump button. It is the act of pressing the Record button that deletes the scene shown on the display from memory.

Once the Record button is pressed, the LP-1500 verifies the operation with a message:

Scene Deleted  
Page 2 Preset 10

## 6.0 CUE STACK

The Cue Stack feature of the LP-1500 offers many of the features that are useful in a theatre board.

288 cues can be programmed and played back in sequence with perfectly timed fades. Links between cues can be set, so that a single “Go” button press can start a sequence of scenes that

plays for hours, or endlessly repeats in a loop. Recording, editing and running the Cue Stack is quick and easy.

The “On” switch is used to enable the outputs from the Cue Stack. Previewing, recording and editing scenes is still possible even with the Stack off. No scenes can be accidentally sent to the stage if the Cue Stack is not “On”.

### 6.1 Recording Stack Cues

Entering cues in the Cue Stack is very similar to the recording procedure for the Preset Memories. First, press the “Stack” button below the display. Expect to see the following:

Now	0	Time
Nxt	1	0:00

This indicates that the stack is currently at Scene 0 (always blank) and that the next scene is #1, fading in with a time of zero, which is an instantaneous change.

The Crossfade from Now to Next can be started by pressing the “Go” button, or controlled manually by moving the Crossfade pot from one end of its travel to the other. The Cue number listed as Next can be changed at any time with the data wheel.

Recording into the Cue Stack means placing a scene in the cue selected as “Next”. In this case, this would be Cue #1. To select another cue, move the cursor under the number 1, and hold the “Modify” button while rotating the data wheel. Release the “Modify” button when the correct cue number is displayed.

Once the Next cue is set, place the board in Record mode by pressing the red “Record” button. The yellow led next to the switch, and the Select led for the Cue Stack, will begin to blink. This indicates record mode, and reminds the operator that the bump buttons and select switches are temporarily being used to record cues. As when Preset Masters are being recorded, a message will appear on the display:

CUE	Record
1	W/Select

The cue number shown was taken from the Next position of the crossfader. This cue can be set to a different number with the Modify button and the data wheel.

Set up the desired scene by using the X channel faders and / or any combination of Memory Presets. When the desired new scene has been achieved, press the Cue Stack “Select” button to record the new scene. The display will indicate that a cue has just been recorded.

Scene Recorded
Cue #1

This message will remain for about 5 seconds. The board will remain in Record mode, and on the screen the cue number will advance to allow the entry of more cues. The display now will show:

CUE	Record
2	W/Select

Cues can be entered in sequence simply by setting scenes and pressing the “Select” button for the Cue Stack to record each cue. At any time, any cue number can be set and recorded. The sequence will advance from that point. For example, in the screen above, the Cue to be recorded could be set to #10. This would be done by pressing the Modify button and turning the data wheel until the number “10” appears under the Cue label:

CUE	Record
10	W/Select

The next time “Select” is pressed, Cue #10 will be recorded.

Scene Recorded
Cue #10

The Cue number will advance, and the display returns:

CUE	Record
11	W/Select

When recording is finished, return to Run mode by pressing the “Run” button. The Record and Select leds will stop flashing and the bump buttons will return to normal operation. Press the stack menu button and the display will return to view.

Now	0	Time
Nxt	1	0:00

## 6.2 Assigning Fade Times

All cues in the Cue Stack can be assigned a fade time. The time setting reflects the total time to finish a complete crossfade from Now to Next. The fade-in time for the cue is the same as the fade-out time for the last cue. Timed fades are initiated by pressing the green “Go” button.

To enter fade times, press the “Stack” button below the display. The top menu will, as before, read:

Now	0	Time
Nxt	1	0:00



Times are entered for the Next scene. Place the cursor under the digit “1” and enter the desired cue number by pressing “Modify” and rotating the data wheel. When the correct cue number is displayed, release the “Modify” button and move the cursor under the word “Time”. Again hold down the “Modify” button and rotate the data wheel until the correct time is shown. Release the “Modify” button to store the new time.

The timed fades have a range of 1 second to 9 minutes 59 seconds. A value of zero seconds will produce an instant change from one scene to another. The display format is minutes and seconds separated with a colon.

### 6.3 Stack Playback

The cues recorded in the Cue Stack can be used in several ways. The first is as a simple manual crossfade stack. As the crossfader is moved from one end to the other, a dipless crossfade is performed between the cues listed as Now and Next. The led bar graph in the right side of the fader will follow the movement of the slider. The line of leds will flash to indicate that the fade is under manual control, and is not an automatic timed fade. This gives the board operator total control of the transition.

An automatic timed fade can be started simply by pressing the “Go” button. At the instant the button is pressed, the fade will begin. Total fade time is shown in the “Time” field of the display. The operator has the option of overriding the timed fade using the crossfade slider. Once the fade has started, moving the crossfader ahead of the led bargraph will “capture” the fade and transfer control to the manual crossfader. The bar graph leds go from constant on to a flashing display to indicate that the timed fade has been interrupted.

Pressing the “Go” button again will re-start the fade from the point it was left with the manual fader.

The “Next” cue display can be re-set at any time to take cues out of the recorded sequence. This playback order itself does not have to be sequential, for linking cues in a particular order, see the section “Linking Stack Cues”.

### 6.4 Previewing Stack Cues

The memorized channel levels of a particular Stack cue can be checked at any time without bringing the cue up on stage. This preview function is very similar to the preview of Memory Presets discussed earlier.

To preview cues in the Cue stack, first verify that the board is in the “Run” mode. Press the “Run” button if it is not. Press the Stack menu button below the display. The display will show the current status of the Cue Stack:

Now	0	Time
Nxt	1	0:00

The stack preview always displays the contents of the cue selected as Next. Press and hold the “Run” button, and while the button is down, press the “Select” button above the Cue Stack. The LP-1500 will enter preview mode, and provide the following information:

Cue	C1	C2
1	10%	100

The channel levels of the selected cue, in this case cue #1, are displayed in two ways. First, the output level leds have been switched from their normal output monitor, and now instead show relative channel intensity for Cue #1. Secondly, the display is showing the status of the first two channels of the cue. Any of the channels can be brought into view by rotating the data wheel.

The channel levels on the bottom line can be edited; changing the level shown for a channel in a preset will change the cue in memory at that instant, and affect the look on stage next time the cue is used.

To end preview, press and release the “Run” button. This will cancel the preview mode and return the run-time display. Also, this will return the momentary switches to the selected bump mode. The level leds will return to showing stage levels.

### 6.5 Editing Cues

Once a Stack cue has been recorded, the level of a single channel in memory can be altered without re-recording the entire cue. In the Edit mode, the faders of the top scene are used to adjust the channel levels. The scene shown in the Now position on the display is the scene that will be edited. This allows scenes to be modified as they are seen on stage.

To edit a Stack Cue, press the Stack menu button below the display. The top screen of the Stack menu will appear:

Now	12	Time
Nxt	13	0:00

Place the LP-1500 in edit mode by pressing the Edit button. The led next to the Edit switch will light, and the display will show:

CUE	Edit
12	W/Select

Press the Select button above the Cue Stack. This will begin the edit. The display will show the first two channel values for the selected cue:

Cue	C1	C2
12	10%	100

In edit mode, the output level leds are used to show the contents of the selected memory. The X scene faders directly below the leds are used to adjust channel levels. The faders take control of a channel when the fader position matches the level recorded into memory. The brightness of the level led and the value in the display will begin to change when the fader takes control of the channel. For example, to edit a channel that was recorded at 100%, it would be necessary to bring the top scene fader for that channel up to full to capture the channel, moving the fader down from that point would reduce the level of the channel.

Any number of channels can be adjusted in one edit, using either the X scene faders, or by using the data wheel to directly set channel levels in the display. Turning the data wheel will bring any of the channel levels into view, and turning the data wheel while holding the Modify button will change the level for that channel.

The LP-1500 will edit a Stack Scene even when the Cue Stack is switched off. This allows 'blind' editing that is not visible on the stage, as long as the X master fader is also down. If the Cue Stack is switched on as the edit is performed, the changes will be seen instantly on stage.

To conclude the Edit, and save the changes made to the scene, press the red Record mode button. The LP-1500 will respond with a verifying message:

Edit Recorded Changes Saved
--------------------------------

If, on the other hand, you decide to discard the changes and preserve the original cue, press Run instead. This cancels the edit, and displays a message to that effect:

EDIT ABORTED- CHANGES DISCARDED
------------------------------------

## 6.6 Linking Stack Cues

After the LP-1500 is first initialized, the Cue Stack will always present cues in a numerical sequence for playback. The board always starts up with Cue 0 as Now, which is permanently stored as an empty scene. The Next cue would be 1, followed by 2 and so on. The playback order can be quickly altered and stored in memory. This is called linking cues.

In addition to customizing the playback sequences, linking can be used to execute a string of cues with a single press of the “Go” button. For demonstrations or exhibitions, this can allow a loop of many cues to run in perfect timing without operator intervention.

The time between linked cues is called “delay” time.

To link cues for sequential playback, press the “Stack” menu button.

This will display the top Stack menu:

Now	0	Time
Nxt	1	0:00

Rotating the data wheel to the right will bring up the following display:

Now	0	Link
Nxt	1	2

This shows that Cue 1 is linked to Cue 2. To alter this playback order, move the cursor to the right until it is under the digit “2”.

Holding down the “Modify” button, rotate the data wheel until the desired cue number is displayed. Release the “Modify” button to save the new value.

Again rotate the data wheel to the right. The next display item will be:

Now	0	Delay
Nxt	1	Inf.

The delay time is set as a default to infinite, abbreviated as Inf. This means that the LP-1500 will wait for a “Go” button press, or manual crossfade, before starting the fade from Cue 1 to Cue 2. To set the delay to automatically follow Cue 1 with Cue 2, change the delay to another value. This is done, as most changes are, by holding down the “Modify” button while rotating the data wheel.

Now	0	Delay
Nxt	1	2:10

In this example, Cue 1 would start to fade into Cue 2 after 2 minutes and 10 seconds from the time “Go” button for Cue 1 is pressed. Note the timing is measured from the START of the previous cue, not the conclusion of the previous fade. In our example, if the fade time for Cue 1 was 2 minutes, Cue 2 crossfade would start 10 seconds after the conclusion of the previous fade. This type of

timing allows the fade times to be adjusted without re-computing the delay times.

When links and delay times are used, the LP-1500 will execute cues in the stack without stopping until one of the following conditions are met:

- 1) A delay time of Inf. in a cue is encountered,
- 2) A Cue is linked to Cue 0,
- 3) The display is used to change the Next cue, or
- 4) Manual control of a fade is taken with the crossfader.

Therefore, endless loops can be set and run, and can be broken by using the display to edit the "Next" cue.

## 6.7 Inserting Cues

After Stack cues have been programmed into the LP-1500, new cues can be inserted between consecutive cues. These are numbered as "point cues", and are represented with a decimal point, such as Cue 88.3. Up to 9 point cues can be inserted between two consecutive cues. Once created, these point cues can be removed with the Delete feature in the LP-1500.

To insert a point cue between two Stack Cues, view the current now / next pair by pressing the Stack menu button under the display.

New cues are inserted after the cue displayed as "Now".

Now	0	Time
Nxt	1	0:00

Holding the "Modify" button down, rotate the data wheel to the right until the cue that you wish to insert after is displayed as the Next cue:

Now	0	Time
Nxt	12	0:00

Press the GO button, or move the crossfader to advance the Next scene to the Now position.

Now	12	Time
Nxt	13	0:00

Rotate the data wheel to the right until the Insert screen is shown:

CUE	Insert
12.1	W/REC

The LP-1500 automatically chooses the next available number for the inserted cue, in this case, 12.1. If so desired, the user can alter this number to allow room for more cues to be inserted later. To do this, hold down the Modify button and rotate the data wheel. The Cue number will change to show all possible cue numbers that could be selected, 12.1 through 12.9.

Once the new cue number is set, pressing the “Record” button will create a new cue at location 12.1, and copy into it the current stage look. The display will indicate the new cue with the display:

Scene Inserted
Cue 12.1

After about 5 seconds, the display will revert back to the Insert display, which now shows the next possible insertion cue:

CUE	Insert
12.2	W/REC

Pressing the Record button again will insert an additional cue, in this case 12.2, at the cue number shown. This may be repeated until all 9 point cues have been inserted.

Rotating the data wheel back to the beginning screen, or pressing the “Stack” menu button will show the new cue:

Now	12	Time
Nxt	12.1	0:00

The LP-1500 can only insert 9 point cues between two consecutive cues. If no space exists to create and insert a new point cue, the LP-1500 will announce the fact:

Cannot insert
Another Cue Here

## 6.8 Deleting Cues

Point cues can be removed as easily as they are created. When a point cue is deleted, the scene is removed from the playback sequence, and any scene recorded to it is lost. The delete function automatically acts on the cue set as Next, but this cue selection can be overridden in the Delete screen.

To delete a Stack Cue, press the Stack menu button first:

Now	12	Time
Nxt	12.1	0:00

As we left the display, Cue 12.1 is still in the Next position. Turn the data wheel to the right until the Delete display is shown:

CUE	Delete
12.1	W/REC

The LP-1500 assumes the cue to be deleted is the one set as Next. This can be changed, by holding the Modify button and turning the data wheel. In our example, hold Modify and turn the data wheel to the left to display cue 13.

Cue	Delete
13	W/REC

Pressing the Record button will remove cue 13, and

Scene Deleted
Cue 13

It is important to note that any cue in the Stack except Cue 0 can be deleted with this method, including point cues. If whole number cues are deleted, the playback sequence will not include the number of any deleted cues, and the Next display cannot be set to those cue numbers. The Insert mode can be used to re-enter these deleted numbers. If, for instance, Cues 2, 3, and 4 were deleted, the display at run time would look like this:

Now	1	Time
Nxt	5	0:00

It would not be possible to set Next to show 2, 3, or 4. If the Insert mode were used to put cues back in between 1 and 5, all cue numbers from 1.1 through 4.9 would be available, including the previously deleted cues 2, 3, and 4. However, any scene already recorded into these cues would be lost, and new scenes would be recorded as they are inserted.

## **7.0 Chaser**

The LP-1500, like most other Leprecon products, includes a chaser section for generating a regular, repeating sequence. Although the Cue Stack could be programmed for looping sequences, the separate chaser allows these patterns to be created easily without using Stack Cues. The operation of the chaser is independent of other board functions, but shares a similar approach when it comes to recording, previewing and editing chase sequences. Chase patterns can be attached to Preset Masters or Cue Stack steps, so that bringing up a scene will automatically start a chase at the same time. An audio signal can also be used to trigger the transition from one step to the next.

### **7.1 Pre-programmed Chases**

The LP-1500 chaser has a total of 11 different patterns available; 4 standard pre-programmed chases and 7 custom chases. The standard chases can be run immediately without recording steps, but cannot be altered. These chases are selected by setting the chase select switch to positions 1 through 4.

The four standard chases have the following effects:

- 1) Straight- a single channel on, advancing sequentially from 1-2, 2-3, and so on until step 6 loops back to channel 1.
- 2) Reverse- same as chase 1 except begins with channel 6, and proceeds to light lower channel numbers until 1 is reached. The next step loops back to channel 6.
- 3) Zip-Zag- a ten step chase that starts with only channel 1 up, and advances sequentially until channel 6 is lighted. Step 7 starts the chase back down from channel 6 to 5, and it proceeds back down to channel 1, when the pattern repeats.
- 4) Straight 12 channel- same as chase 1 except advancing sequentially from 1 to 12, when the loop repeats.

### **7.2 Running The Chaser**

The LP-1500 chaser consists of the controls necessary to enter and run chases, set the rate of the chase, and attach it to a scene. The most basic control is the "On" switch, which enables all other chaser functions. The level pot is located in the lower left corner of the board, this control allows the output level of the chases to be altered. A chase can be on and running and the output level brought up slowly with the level fader.

The buttons labeled "Run" and "Step" are used to start and stop the sequence. Pressing the chase "Run" switch will light the led next to the switch, and start the chase pattern advancing at the set rate. Pressing the chase "Run" button a second time will quench the led, and stop the pattern on the current step.



When the chase is not running, pressing the “Step” button will advance the pattern one step. If the chase is running, pressing the “Step” button will stop the chase for as long as the button is held down. The led next to the Step switch flashes each time the chaser advances one step.

The rotary switch labeled “Pattern” selects which of the 11 different chase patterns will be run by the chaser. Chase patterns 1 through 4 are pre-programmed, chases 5 through 11 must be programmed for each step before they can be used. See the section “Recording New Chases” for more information.

The pattern select position labeled “auto” is used only if chase patterns have been attached to Presets or Stack Cues. This position allows the LP-1500 to turn on and off any of the chases automatically with the Preset or Cue Stack scene. See the section “Linking Chases to Scenes” for more information.

The Rate control sets the speed at which the chaser advances from step to step. Turning the control clockwise increases the rate, indicated by the flashing of the led next to the Step switch. Turning the control counter-clockwise slows the rate of advance. The rate control has a special function when set to the minimum, or fully counter-clockwise position. This position disables the internal clock, and uses an external audio signal to advance the chaser from step to step. More information on this is available in the section labeled “Audio Input”.

### 7.3 Recording New Chases

The chaser section of the LP-1500 allows for seven custom chases to be programmed by the user. Each of these patterns can consist of up to twenty steps, each consisting of any combination of channels at any level. These programmable chases are available on patterns 5 through 11.

To record a custom chase:

- 1) Set the selector switch to one of the patterns 5 to 11. The chase cannot be running while steps are recorded.
- 2) Press the Chaser menu button. The LP-1500 will display a message:

CH Step Loop at 5 1 1
--------------------------

- 3) Press the Record button. The display will show:

CH Step Record 5 1 W/Sel.
------------------------------

- 4) Bring up the board channels that you wish to record as the first step. The manual scenes, or Preset Masters may be used to set these levels.

5) Press the “Select” button for the chaser. This will record the first chase step, and the display will verify this:

Recorded Ch. 5 Step 1
--------------------------

The chase will automatically advance to the next step for recording.

6) Repeat steps 4 and 5 until the entire sequence, up to 20 steps, has been recorded. When finished, press the Run button to end programming. The chase will end with the last step recorded, and loop back to the start from that step.

### 7.4 Editing Chases

Individual channel levels in a chase step can be adjusted after the chase has been recorded. The same editing features that are applied to the Preset Memories and the Cue Stack can be used with the chaser.

To edit a chase step, first press the “Chase” menu button below the display. If the chase is running, stop it by pressing the Chase Run button a second time. The LCD will show:

CH Step Loop @ 5 1 1
-------------------------

Press the “Step” button until the step you wish to edit is shown as the current step on the display. If the chaser is on and the level is up, the step will also be seen on stage.

Press the “Edit” Mode button. The console will say:

CH Step Edit 5 1 W/Sel.
----------------------------

Next, press the chase “Select” button to initiate the edit of the current step. The display will change to show active editing:

Ch Step	C1	C2
5 1	0%	50%

At the same time, the output level leds will switch from their usual output display to show the relative intensities in the chase step. The channel values on the LCD show actual levels in percentage, and values for all board channels can be brought into view by rotating the data wheel.

The faders in the upper scene may now be used to directly set new values for any channel. Moving the fader past the level recorded in memory captures the channel, and the new level can then be set with the fader. Also, channels can be edited with the data wheel by locating the cursor under the channel to be changed, holding down the Modify button, and rotating the data wheel until the new value is displayed. Release the “Modify” button to accept the value.

Use the upper scene of manual faders, or the data wheel, to edit as many of the steps as needed. When all steps are edited, press the “Run” mode button to end the Edit mode.

### 7.5 Inserting and Deleting Chase Steps

This feature of the LP-1500 allows steps to be added to or removed from an existing chase. Adding new steps will increase the length of the chase, deleting steps will shorten the chase. Only the custom chase patterns 5 through 11 can have steps added or deleted.

To add a step to an existing chase, first press the Chase menu button below the LCD. If the chaser is running, press the Run button to halt the pattern. The LCD will look like this:

Ch Step	C1	C2
5 2	0%	50%

Press the Step button until the step that you wish to insert after is shown on the display. In the previous example, with step 2 on the display, a new step would be inserted between steps 2 and 3. The step that was previously on step 3 would be moved to step 4, and so on. The total length would increase by one for each step inserted until the limit of 20 steps was reached. No new steps can be added once this limit is reached.

Once the step is selected, rotate the data wheel to the right until the following display is seen:

Ch Step	Insert
5 3	W/REC

Set the look on stage that is desired for the new step. The source can be manual scene faders, or Preset Masters. Once the levels are set, press the Record button once to insert the new step. The LP-1500 will respond:

Inserted
Ch. 5 Step 3

This message will remain for a few seconds, then be replaced with:

Ch Step	Insert
5 3	W/REC

Setting up and inserting a second cue at this time would insert it after the previously inserted cue. The step number, or insertion point, can be changed at any time by placing the cursor under the step number, holding down the Modify button, and turning the data wheel.

Steps are deleted in a similar manner. Press the Chase menu button, and stop the chaser if it is running. Set the chaser to the desired point with the Step button, or use the data wheel. When the step to be deleted is shown as the current step, turn the data wheel to the right until the following display is seen:

Ch Step	Delete
5 2	W/REC

In this case, step 2 would be deleted. The information programmed into step 3 would move down to replace the old step 2, and all other steps would also move down. As a result, the pattern would be shorter by one step. Pressing the Record button will delete the step, and the display will verify this action:

Deleted
Ch. 5 Step 2

After a few seconds, this message will be replaced with the original display:

Ch Step	Delete
5 2	W/REC

Pressing the Record button a second time would delete the current step 2, which was previously step 3. This can be repeated until there are no more steps above the current step left to delete.

## 7.6 Audio Input

The LP-1500 chaser can accept an audio input as a trigger to advance from step to step. This is useful in club settings, or a situation where no operator is at the board.

To use the audio trigger for the chase, connect a line-level audio signal to the LP-1500. This requires a ¼" phone plug connector plugged into the jack marked "Audio IN" on the back of the LP-

1500. Do not connect the 1500 to the output of a power amplifier, a signal large enough to drive a loudspeaker could damage the LP-1500.

Set the rate control on the front of the console to the fully counter-clockwise position. This enables the audio trigger, and lights the yellow led next to the rate knob to indicate this. Each time the audio signal reaches a level high enough to trigger the chase, the yellow Step led on the chaser will blink.

A small control knob marked “audio gain” on the back of the console can be adjusted to trigger the chaser at the desired volume level.

In addition to the gain adjustment on the back of the board, a menu setting of the chase controls can help get the best results with the audio input. Press the Chase menu button, and rotate the data wheel to the right until this display is seen:

Audio Trigger Mask = 0.00 S
--------------------------------

This trigger mask is used to keep the chaser from triggering too many times from one large audio signal. The value for the mask indicated how quickly a second trigger will be allowed. To change the value, hold the Modify button down and turn the data wheel. As an example, a display of 0.25 S would mean that a second trigger would be at least .25 seconds after the first.

The audio feed can come from any source, but certain signals lend themselves better to being used as a trigger. A feed from a drum machine or a mixer output that contains a kick drum or snare will work well to give a regular, rhythmic trigger for the chaser.

### 7.7 Linking Chases to Scenes

The LP-1500 can easily manage what is a challenge for a board operator; doing two things at once. The 1500 can be set to bring up a scene, and turn on (or off) the chaser at the same time. There are two ways to go about it.

If a scene, either a Preset Master or a Cue Stack step, is recorded with the chaser running, the scene will play back with the same chase. So, simply turn on the chase you wish to see as you record the scene.

Scenes that have already been recorded can have a chase attached later. For our example, let's attach chase 2 to Cue Stack scene 12.

While in Run mode, press the Stack menu button below the display. Turn the data wheel to the right until you see:

Now 0 Chase
NXT 1 0

This indicated that no chase is attached currently to the scene. Place the cursor under the digit 0, and turn the data wheel while holding down the Modify button. Two clicks to the right will display the digit 2 as the chase attached. Release the modify button and the chase has been attached.

The method for attaching a chase to a Preset Master is identical, except you begin by pressing the Preset menu button. The display might look like this:

Pg	Pre	Chase
10	12	0

Again, use the data wheel to set the desired chase number for the preset.

No matter where the chases are attached, Presets or Stack Cues, the chase pattern switch must be set to the Auto position before the chases can be started. This knob setting allows the LP-1500 to turn any chase on or off as scenes are advanced. No attached chases can run without the pattern switch set to Auto!

## 8.0 MIDI IMPLEMENTATION

The MIDI (Musical Instrument Digital Interface) protocol is a very well developed and versatile “language” which was originally developed to allow synthesizers from different manufacturers to communicate with each other. By means of a simple cable connection, a keyboardist could play a “slave” keyboard remotely from a master keyboard controller. But MIDI has rapidly expanded into the realm of effects processors, drum machines, sound consoles, personal computers, and – of course – lighting consoles, and now the possibilities for creating an integrated system of music, lighting, and computer equipment are virtually endless.

### 8.1 Midi Basics

What passes through the MIDI cables is a seemingly endless string of digital commands – binary ones and zeros – that reflect what each MIDI device in the system is doing. Each combination of these ones and zeros is a specific command, telling a device to perform a specific function. Though many of the MIDI commands are geared toward keyboard functions (such as note-on and note-off, pitch bend wheel, etc.), the designers of the MIDI protocol were farsighted enough to make the “language” easily adaptable to a wide range of products. In the case of the LP-1500, many keyboard-oriented commands serve completely different functions. For instance, if a synthesizer is connected via MIDI to the LP-1500, turning the synth’s modulation wheel forward will cause channel 2 of the console to increase in level. This is because the MIDI command isn’t really saying, “turn the modulation wheel,” it is saying “raise the value of this particular parameter to this particular level.”

Many controls on MIDI devices, such as synthesizer modulation wheels or lighting channel faders, operate over a wide range of values, allowing for smooth transitions from one setting to the next. Because of this, they are called “continuous controllers.” The MIDI Specification calls for 128 continuous controllers, with each having a range of 128 possible values (0 to 127). A basic switch function, such as a sustain pedal or a bump button, can be a continuous controller as well, by using a value of fully off (0) to be an “Off” setting, and a value of fully on (127) to represent “On”; values in between these two extremes are simply not used. It is these continuous controllers that form the basis of the LP-1500’s MIDI implementation. Nearly every fader and button on the console’s front

panel acts like a MIDI continuous controller; moving that control will send out MIDI data, and MIDI data that is received will mimic that control, duplicating its function remotely.

There are 16 MIDI “channels,” and, like a television set, a unit won’t receive a particular message unless it is set to the correct channel. To control a slave device remotely, the master controller must send out data on the same MIDI channel that the slave is set to receive on. If the slave is set to “Omni Mode,” then it responds to messages on all MIDI channels (a device can only transmit on one channel, however). While most devices send and receive data on the same channel, some – like the LP-1500 – offer the added versatility of being able to sent and receive on separate channels.

MIDI is a serial communications protocol, operating at 31.25 kilobaud, and connections are made through 5-pin DIN connectors (only three of the pins are actually used). There are three types of MIDI ports: MIDI In, MIDI Out, and MIDI Thru. Similar to an audio setup, the MIDI Out of one device feeds the MIDI In of another. If you are sending data from a keyboard to the LP-1500, then, you should plug a MIDI cable from the MIDI Out jack of the keyboard to the MIDI In jack of the LP-1500. The MIDI Out of a device sends only the data that device generates.

The LP-1500 is set up to run two completely separate MIDI “networks” – one in the normal fashion (the System Interface), which connects the LP-1500 to sequencers, computers, etc., and one specifically for operating special MIDI-controlled dimmers. The two networks are completely independent – MIDI data from one cannot “bleed over” to the other.

## **8.2 Midi Dimmer Interface**

The MIDI Dimmer Interface, with two MIDI Outs, is used for the sending of channel level data from the console to MIDI-controlled dimmers, such as the Leprecon LD-360M. This is provided in addition to the DMX-512 dimmer output, which works at a higher speed, but requires an expensive decoder for use with analog dimmers. The MIDI dimmers outputs are specially equipped so that cable lengths are not limited to the usual fifty feet (as outlined in the MIDI Specification) – runs of several hundred feet will work fine with quality low-capacitance cables.

The MIDI dimmer outputs are set to send MIDI continuous controller data. Leprecon MIDI-controlled dimmers respond automatically to this data type. Continuous controller output is used, because it is efficient, and doesn’t require as much data transmission as note-on/off.

## **8.3 Midi System Interface**

Even disregarding the MIDI System Interface, the LP-1500 functions beautifully as a multi-scene memory console, with lots of memory for storing scenes, chases, and patches. The MIDI capabilities add much more versatility, however.

In conjunction with a computer (with the necessary MIDI interface and software), or with a sequencer, the user can store and recall scenes, chases, and even console setups, and record and edit a performance in either real time, or by typing in a group of specific commands. Such a setup allows a complete lighting show to be recorded and then played back flawlessly each time, synced perfectly to the music. With a SMPTE-to-MIDI interface or a MIDI-tape sync unit, the LP-1500 can be even synchronized to tape recorded music, video, or any type of recorded program. It is through the MIDI System Interface – the In and Out jacks on the LP-1500’s rear panel – that the console can communicate with any other MIDI device.

## 8.4 Controlling the LP-1500 from a sequencer

Nearly every control on the LP-1500's front panel can be mimicked by a specific MIDI command. Whenever a fader is moved or a button is pressed, the LP-1500 will send out a corresponding MIDI message. Likewise, when another device sends such a command to the console, it will produce the same effect as if that control were physically moved. It is this concept that allows the LP-1500 to be controlled from a sequencer.

A MIDI sequencer is simply a device that records a stream of MIDI data, and then plays it back exactly as it was recorded. To be more useful, most sequencers have editing functions so that the data can be changed in helpful ways, such as correcting errors, or raising the volume of a specific musical passage. But mainly, the sequencer records MIDI data, and it doesn't care what that data is – it could be a command for a keyboard to play a note, it could be a command to set a digital reverb to a certain program, or it could be a command that mimics the LP-1500's GO button. Some keyboards have built-in sequencers, other sequencers are available as stand-alone units from several manufacturers, and there are many sequencers that are just software packages for personal computers equipped with MIDI interfaces. Keyboard-based and stand-alone sequencers are generally the most road-worthy, while software sequencers usually offer the greatest flexibility in editing and the greatest memory capacity.

In many ways, a sequencer operates like a multi-track tape recorder. There are multiple tracks, and each track is used to record a specific instrument, each on its own MIDI channel. To automate the LP-1500, it should be recorded as one of these "instruments" on its own track. So data has to be sent first from the console to the sequencer to be recorded, and then from the sequencer to the console for playback. The MIDI System Out of the LP-1500, therefore, needs to be connected to the MIDI In of the sequencer, and the sequencer's MIDI Out needs to be connected to the LP-1500's MIDI In. The track need to be set to the same MIDI channel that the LP-1500's MIDI Out is set to (see page 33) in order to record data. Similarly, to play back the light cues, the LP-1500 must be receiving on the same channel (MIDI In) that the track is set to. At first, it is simplest to set both the LP-1500's MIDI System In and Out to the same channel.

Most MIDI devices only have one output, yet a sequencer might be driving six keyboards, a drum machine, some effects processors, and the lighting console. To connect all these devices to the one MIDI Out requires a MIDI Thru box – essentially a box that splits the incoming MIDI signal into numerous signals, all exact copies of the original. So the LP-1500 will probably be hooked into this Thru box, which is no different from hooking it directly to the sequencer's MIDI Out.

While the MIDI Specification calls for 128 continuous controllers (numbered 0 through 127), only a small percentage of those are actually "defined" to control a specific function. Continuous controller number 1 is the modulation wheel on a MIDI-equipped keyboard, number 7 is its volume control, and number 64 is its sustain pedal, for instance. Most numbered controllers, though, have no set function, and are not used on most musical instruments. The LP-1500, however, utilizes nearly all 128 controllers (see Appendix 1 on page 46). Since the console has no modulation wheel, volume slider, or other typical "keyboard" control, these controllers take on new functions here.



Nearly every available sequencer will record any continuous controller data, whether the controller number is defined or not. A few sequencers, however, will not record the undefined controllers, or will have to be set in a special mode to record them. Check in the sequencer's manual or call the manufacturer to make sure your unit can record these undefined controllers; if it will not, you will not be able to record most light cues on a sequencer track.

Recording the motions of the individual faders and bump buttons is a powerful way to synchronize your lighting show. Since the cues are all recorded in the sequencer, a song could be started in the middle, and the lighting cues would still be synchronized. If any edits are made to a sequence, such as eliminating a verse, then the lighting cues for that verse will automatically be eliminated as well, and there is no need to do separate editing in the console. (Note, however, that if a fader is first brought up momentarily and then pulled back down, and a segment containing the latter cue is edited out, then the fader will be "stuck" on, since it is never told to fade out. So, any cues that overlap the boundaries of a removed segment will have to be fixed in the sequencer.)

### **Combining sequencing and Live control**

Probably the best approach to using the LP-1500 in a sequencer-based setting is to let the sequencer do what it does best, and let the board operator do what he or she does best. This calls for a combination of recorded cues and live control. The sequencer will be more accurate at executing complex scene changes perfectly every time, so it is best to let it handle this application. However, the sequencer cannot know when a sax player might ad lib a fill, or when a vocalist might step up and talk to the audience between songs, and this type of spur-of-the-moment activity warrants lighting cues as well. An excellent "division of labor" is to let the sequencer handle the scene work, and let the console operator handle the specials. Other effect, such as strobe lights, require on/off switching instead of control through dimmers, and they will therefore require manual control as well. With the sequencer handling the scene chores, the operator is much freer to concentrate on the auxiliary and effect lighting.

### **Step-Time sequencing of Lighting cues**

Rather than manually performing lighting cues in real-time as they are recorded into a sequencer, it is possible – mainly with software sequencers running on personal computers – to enter data from the computer keyboard in "step-time." In other words, without the sequencer actually running, the first lighting cue is typed in to occur in a specific measure of the song. Then, the next cue and its timing are typed in, and so on. With this method, it is possible to program extremely complex events with perfect timing and brightness accuracy.

Exactly how such cues are entered depends on the sequencer itself, but you will, in any case, need to know the MIDI continuous controller numbers that coincide with each of the LP-1500's functions. As an example, if you wanted to program a bump of channel 37, you would need to enter a command for continuous controller number 96 to go to a value of 127 when the bump starts, and to go to a value of 0 when the bump ends. For a table of this information, see section 8.5, MIDI Continuous Controller Assignment.

## Playing sequenced cues without the LP-1500

For specific applications, it is possible to use the LP-1500 to program a show where the console would not be used at all for playback, if MIDI dimmers are being used. The dimmers can be plugged into the MIDI Out from the sequencer just as the LP-1500 normally would, and they will respond to the data as if the console were in place. This method can be used for setups where minimal equipment is desired, but it does have some limitations. First of all, it leaves no margin for changing the show in any way, without connecting in the LP-1500 once again. Secondly, it leaves no way to manually bring up any lights if this becomes necessary (other than by controlling them, say, with a keyboard driving the dimmers).

The gist of this technique is that the show is recorded from the LP-1500, only the sequencer is fed from the MIDI Dimmer Out rather than from the System Out. Anything that the console does – scene changes, chases, etc. – will be recorded by the sequencer. The console can send out this data in either Continuous controller or NOTE mode (see page 35); again, the former is the most efficient. Be sure that on playback, the dimmers are set to the same MIDI channel that the sequencer data was recorded on.

### 8.5 MIDI Continuous Controller Assignment

Controller No.

(Decimal)	(Hex)	LP-1500 Function		Possible Values
0	00	X Scene	Channel 1 fader	0-127
1	01	X Scene	Channel 2 fader	0-127
2	02	X Scene	Channel 3 fader	0-127
3	03	X Scene	Channel 4 fader	0-127
4	04	X Scene	Channel 5 fader	0-127
5	05	X Scene	Channel 6 fader	0-127
6	06	X Scene	Channel 7 fader	0-127
7	07	X Scene	Channel 8 fader	0-127
8	08	X Scene	Channel 9 fader	0-127
9	09	X Scene	Channel 10 fader	0-127
10	0A	X Scene	Channel 11 fader	0-127
11	0B	X Scene	Channel 12 fader	0-127
12	0C	X Scene	Channel 13 fader	0-127
13	0D	X Scene	Channel 14 fader	0-127
14	0E	X Scene	Channel 15 fader	0-127
15	0F	X Scene	Channel 16 fader	0-127
16	10	X Scene	Channel 17 fader	0-127
17	11	X Scene	Channel 18 fader	0-127
18	12	X Scene	Channel 19 fader	0-127
19	13	X Scene	Channel 20 fader	0-127
20	14	X Scene	Channel 21 fader	0-127
21	15	X Scene	Channel 22 fader	0-127
22	16	X Scene	Channel 23 fader	0-127
23	17	X Scene	Channel 24 fader	0-127
24	18	X Scene	Channel 25 fader	0-127
25	19	X Scene	Channel 26 fader	0-127
26	1A	X Scene	Channel 27 fader	0-127
27	1B	X Scene	Channel 28 fader	0-127
28	1C	X Scene	Channel 29 fader	0-127

29	1D	X Scene	Channel 30 fader	0-127
30	1E	X Scene	Channel 31 fader	0-127
31	1F	X Scene	Channel 32 fader	0-127
32	20	X Scene	Channel 33 fader	0-127
33	21	X Scene	Channel 34 fader	0-127
34	22	X Scene	Channel 35 fader	0-127
35	23	X Scene	Channel 36 fader	0-127
54	36	Crossfade Slider		0-127
55	37	Master Slider		0-127
56	38	X Master		0-127
57	39	Y Master		0-127
58	3A	Chase Level		0-127
59	3B	Chase Rate		0-127

Controller No. (Decimal)	(Hex)	LP-1500 Function		Possible Values
60	3C	Y Scene	Channel 1 FADER	0=Off, 127=On
61	3D	Y Scene	Channel 2 FADER	0=Off, 127=On
62	3E	Y Scene	Channel 3 FADER	0=Off, 127=On
63	3F	Y Scene	Channel 4 FADER	0=Off, 127=On
64	40	Y Scene	Channel 5 FADER	0=Off, 127=On
65	41	Y Scene	Channel 6 FADER	0=Off, 127=On
66	42	Y Scene	Channel 7 FADER	0=Off, 127=On
67	43	Y Scene	Channel 8 FADER	0=Off, 127=On
68	44	Y Scene	Channel 9 FADER	0=Off, 127=On
69	45	Y Scene	Channel 10 FADER	0=Off, 127=On
70	46	Y Scene	Channel 11 FADER	0=Off, 127=On
71	47	Y Scene	Channel 12 FADER	0=Off, 127=On
72	48	Y Scene	Channel 13 FADER	0=Off, 127=On
73	49	Y Scene	Channel 14 FADER	0=Off, 127=On
74	4A	Y Scene	Channel 15 FADER	0=Off, 127=On
75	4B	Y Scene	Channel 16 FADER	0=Off, 127=On
76	4C	Y Scene	Channel 17 FADER	0=Off, 127=On
77	4D	Y Scene	Channel 18 FADER	0=Off, 127=On
78	4E	Y Scene	Channel 19 FADER	0=Off, 127=On
79	4F	Y Scene	Channel 20 FADER	0=Off, 127=On
80	50	Y Scene	Channel 22 FADER	0=Off, 127=On
82	52	Y Scene	Channel 24 FADER	0=Off, 127=On
84	54	Y Scene	Channel 25 FADER	0=Off, 127=On
85	55	Y Scene	Channel 26 FADER	0=Off, 127=On
86	56	Y Scene	Channel 27 FADER	0=Off, 127=On
87	57	Y Scene	Channel 28 FADER	0=Off, 127=On
88	58	Y Scene	Channel 29 FADER	0=Off, 127=On
89	59	Y Scene	Channel 30 FADER	0=Off, 127=On
90	5A	Y Scene	Channel 31 FADER	0=Off, 127=On
91	5B	Y Scene	Channel 32 FADER	0=Off, 127=On
92	5C	Y Scene	Channel 33 FADER	0=Off, 127=On
93	5D	Y Scene	Channel 34 FADER	0=Off, 127=On
94	5E	Y Scene	Channel 35 FADER	0=Off, 127=On
95	5F	Y Scene	Channel 36 FADER	0=Off, 127=On

**NOTES:** The following panel controls have no associated MIDI function: Data Wheel, Stack, presets, Chase & Setup menu buttons, Modify.

## **9.0 REPAIR AND WARRANTY INFORMATION**

CAE will repair any defects in materials or workmanship on the LP-1500 consoles for a period of one year from the date of sale. The equipment must be returned postpaid to the factory, and CAE will pay return shipping charges. CAE is not responsible for incidental damages, or for damages as a result of misuse or abuse. It is the responsibility of the owner to determine the suitability of the console for any specific application.

Any return to the factory must be authorized by our service department. Do not return any equipment without first calling for an authorization number. The CAE service department may be reached at 810-231-9373 during business hours, or a message may be left after hours. Our fax number is (810) 231-1631.



PRO LIGHTING EQUIPMENT

LP-1500 INSTRUCTION MANUAL ADDENDUM  
SOFTWARE REVISION 1.20

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## LP-1500 Manual Addendum Software Version 1.20

The LP-1500 series of consoles provides many functions in a small, inexpensive board. Since the introduction of the LP-1500 at LDI 1992, our customers have made many suggestions as to how these boards could be made more powerful and easier to use. We have implemented the best of these suggestions, and version 1.2 software reflects the latest enhancements to the LP-1500. The following is a list of changes from 1.1 to 1.20 software.

### 1) **MIDI Load and Save**

Used with a MIDI Data Disk, the LP-1500 now has the ability to save all show information to a 3.5" disk. This gives a permanent copy of the show for emergency backup, or future use of a show.

### 2) **Dimmer Preheat**

Allows a small voltage to be sent to the dimmers to keep lamps in the system warm. This decreases the response time of the lamps.

### 3) **Default Fade Times**

Allows the fade times for all Stack scenes to be set when an erase is performed.

### 4) **Chaser Tap Mode**

Chase rate can be set by simply tapping the Step button while chase is running. Also, chase rate can now be edited with the data wheel while chase is running.

### 5) **Preview and Edit Modes**

It is now possible to preview or edit several scenes in a row without re-entering the edit mode.

**Leprecon LP-1500 Software Revision 1.20**  
**Addendum to: LP-1500 Instruction Manual**

**Table of Contents**

The following pages describe the operation of the new features.

1.0	MIDI Load and Save ..	47
2.0	Dimmer Preheat .....	48
3.0	Default Fade Times ...	49
4.0	Chaser Tap mode.....	49
5.0	Preview and edit modes .....	50

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**1.0 MIDI Load and Save**

The MIDI Load and Save function allows the storage of the LP-1500's internal memory to another device, such as a computer or a second LP-1500, through a MIDI system exclusive (sysex) data dump. One common use for this ability is to save show data to a MIDI disk, such as the Alesis Data Disk. This allows all memory in the LP-1500, including patches, scenes and chases, to be stored on a 3.5" disk.

Data can be duplicated from one LP-1500 to another, even if the boards are of two different sizes. If data is sent from a large board to a smaller one, the scenes will be shortened to the number of channels available on the smaller board.

### 1.1 MIDI Save

To save the contents of an LP-1500 to an external device, first connect the two units with a standard 5-pin MIDI cable. These cables are readily available from your Leprecon dealer, or most music stores. Connect one end of the cable to the MIDI OUT jack on the back of the LP-1500. Connect the other end of the cable to the MIDI IN jack of the second device.

To start the data transfer, press the Setup button under the display. Rotate the data wheel to the right until the following display is seen:

Save all data to  
MIDI? (Mod=Yes)

Press the modify button to save the data from the LP-1500 to the external device. As the data is being moved, the display will indicate the transfer:

Save all  
Data to MIDI

After a few seconds, the transfer will be complete and the previous message will re-appear.

*Note:* For MIDI Load and Save, it is not necessary to select a MIDI in and out channel before starting the transfer. The Load and Save are System Exclusive commands, and are not restricted to particular MIDI channels.

### 1.2 MIDI Load

To load information into an LP-1500 from another device, connect a MIDI cable to the MIDI IN jack of the LP-1500. The other end of the cable attaches to the MIDI out of the sending device.

An incoming MIDI Load will overwrite ALL information stored in the LP-1500. For this reason, two levels of protection are provided in the LP-1500. These safety checks help ensure that data is not accidentally destroyed.

The first protection against incoming data is the Memory Lockout, which prevents any modification of memory. To unlock the memory, press the Setup button under the display, and rotate the data wheel to the right until the memory protect screen is seen:

Memory Lockout  
Locked ✓ Open

A check mark next to the word "Open" indicates that data can be written into memory, by means of recording, editing or a MIDI Load. If the memory is locked, hold the modify button and rotate the data wheel to move the check mark from the word "Locked" to the word "Unlocked".

The second safety feature disables only MIDI input. To check the status, press the Setup button and rotate the data wheel to the right until this screen is seen:



Load from MIDI:  
Disable ✓ Enable

If the check mark is next to the word “Enable”, the data load can proceed. If not, hold the modify button and rotate the data wheel to move the check mark from “Disabled” to “Enabled”.

Once the safety lockouts are correctly set, the transfer can be initiated from the transmitting end. In the case of loading from another LP-1500, start the MIDI Out as described above. For loading from a Data Disk or other device, see the manufacturer’s instructions for MIDI output.

The LP-1500 will continue to operate normally as data is received. Messages will appear briefly on the screen as new data arrives in the LP-1500, and memories will be updated instantly as the new data is received.

## 2.0 Dimmer Preheat

To ease the shock to lamps and dimmers and make lamps respond faster to chases and bumps, a preheat level can be set. The LP-1500 will then output a level of up to ten percent instead of zero when channels are down. Dimmers will not go completely off, but will output a small idle current to keep bulb filaments warm. If a slight glow of filaments, noise or power drain are objectionable, turn preheat off. A preheat setting of ten percent may produce a visible glow in some lamps, depending on lamp type, and dimmer response curve.

To set lamp preheat, first press the Setup menu button under the display. Turn the data wheel to the right until the Preheat screen is seen:

Dimmer Preheat  
Level 0%

When the cursor is located under the preheat percentage, holding the modify button and turning the data wheel will allow the value to be set within a range of zero to ten percent. The preheat setting takes effect immediately, and is stored automatically.

### 3.0 Default Fade Times

The Stack section of the LP-1500 stores up to 288 cues with an associated fade time for each cue. To make the task of setting fade times faster, a default time can be assigned as a starting point for all cues.

The default fade time is inserted as the fade time for each cue whenever cues are cleared with the Erase feature of the LP-1500. This allows the scenes to be cleared, and default fade times entered before programming a new show.

To set the default fade time, press the Setup menu button below the display. Rotate the data wheel to the right until the following display is seen:

Default Params Fade Time 0:00
----------------------------------

The cursor will be located under the digits representing fade time. Holding the Modify button and rotating the data wheel will allow values from 0:00 to 9:59 to be entered as default fade times. It is important to realize that this value is ONLY used when all scenes are erased. For instructions on erasing scenes, see section 3.5 of the LP-1500 manual.

### 4.0 Chaser Tap mode

Version 1.2 software includes two new ways to set chase rate. The first uses the chase Step button; the second uses the data wheel.

While any chase is running, tapping the Step button will synchronize the chaser with the tapping. Each time the button is pressed, the chase will advance to the next step, and the time between the taps is measured and stored in memory as the new rate for the chase.

Any time the chase is recalled, this set rate will be used regardless of the position of the rate pot.

Chase rate can be viewed by pressing the Chase menu button under the display, and rotating the data wheel three clicks to the right. A display similar to the one shown will be seen:

Ch Stp Rate
1 5 85%

Moving the rate pot or using the tap mode described above will cause the chase rate percentage to change. Also, the rate can now be directly set on the display while the chase is running. Simply move the cursor under the percentage show, hold down the Modify button, and rotate the data wheel until the desired setting is achieved. The rate is automatically stored, and the selected chase will run at that speed whenever it is turned on.

## 5.0 Preview and edit modes

The preview and edit modes of the LP-1500 allow scenes to be verified and changed quickly. The operation of these features has been changed slightly to reduce the number of keystrokes necessary to view and edit a series of several scenes.

In previous version, it was necessary to edit or preview each scene individually. For example, the screen for editing a Stack step looks like this:

Cue	Edit
1	w/SELECT

Pressing the Select button initiates the edit:

Cue	1	2
1	50	100

Each channel is adjusted using either faders or the data wheel. Conclude the edit by pressing the Record button:

EDIT RECORDED- CHANGES SAVED
---------------------------------

The display will return to the opening edit screen:

Cue	Edit
1	w/SELECT

Version 1.2 software allows the user to simply modify the cue number shown, instead of leaving, and re-entering the edit mode. To change the scene number, hold the modify button, and rotate the data wheel until the desired cue number is shown. Any number of cues can be edited by repeating this sequence.

Preview mode is similar to the editing example presented above. The preview screen for a Stack cue looks like this:

Cue	1	2
105	50	75

To preview any other cue while in preview mode, use the modify button and the data wheel to change the cue number on the display. The channel values shown on the display, and the channel led's will change to reflect the values for the new previewed scene.

