LP-X24 and LP-X48 Users Manual

LP-X24 and LP-X48 Users Manual

LP-X24 and LP-X48 Users Manual
Version 3.2

Contents

Introduction

Congratulations on your purchase of the LP-X24 or LP-X48 Console. The LP-X series consoles were designed to fill the need for an entertainment console with strong moving light capabilities for small- to medium-sized shows. The LP-X series consoles were specifically engineered to control both conventional and moving lights gracefully.

LP-X Series Console Features

The LP-X series consoles are cross-functional consoles that can be used in a wide variety of situations. Ideally, they will be used in productions that incorporate both moving and conventional light fixtures; however they are well suited to run either individually.

The LP-X24 has quick fader/button access to 24 dimmers and 24 moving light fixtures. Show sizes can vary and are limited to 512 DMX channels.

The LP-X48 has quick fader/button access to 48 dimmers and 48 moving light fixtures. As with the LP-X24, show sizes can vary but are limited to 1024 DMX channels.

The numeric keypad provides access to additional dimmers and fixtures. The shows built on the LP series consoles may be simple or complex. Programming is quick and easy; access to features requires a limited number of keystrokes and button presses.
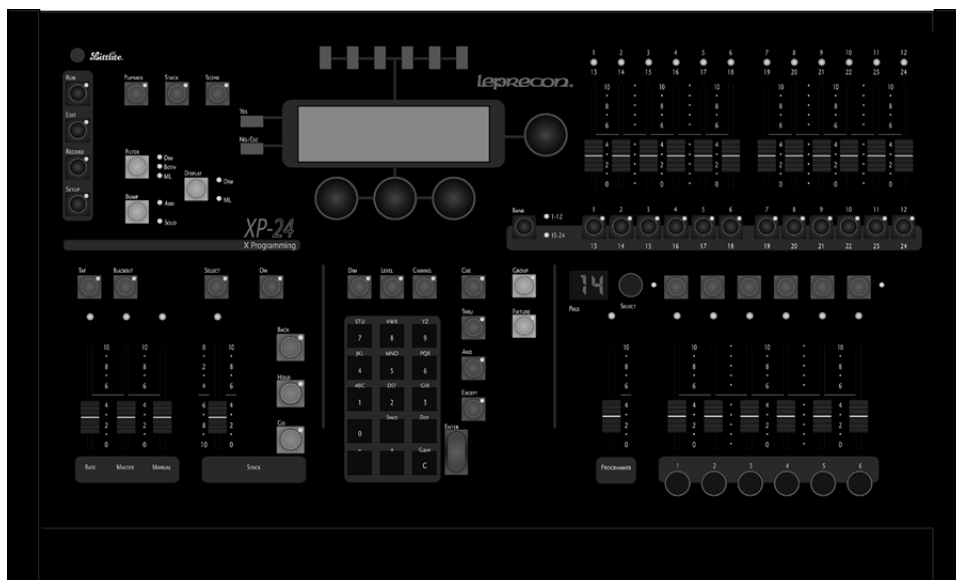
Feature	LP-X24	LP-X48
DMX Channels	512	1024
Conventional Channels	96	192
Simultaneous Moving Light Playbacks	6	12
Moving Light Autopatch	✓	✓
Custom Color Palette	✓	✓
Color Changer Control	✓	✓
Proportional Dimmer Patch	✓	✓
Blind Edit	✓	✓
Chase Memory	120 Programmable (6 Playbacks x 20 Pages)	240 Programmable (12 Playbacks x 20 Pages)
Theatrical Stack	✓	✓
Go, Back and Hold Buttons	✓	✓
Timed Fades (Separate In/Out)	✓	✓
Built-in 3.5" Disk Drive	✓	✓
Moving Light Effects	✓	✓
Video, keyboard and mouse support	✓	✓
Weight	29 lbs. (boxed)	36 lbs. (boxed)
Height, Width, Depth (in inches)	4.75" x 26.5" x 18"	4.75" x 36.5" x 18"

Board Layout

The LP-X series consoles consist of seven distinct sections.

- *Mode Controller Section:* Switch between Run, Record, Edit and Setup modes. Select Playback, Stack or Scene for Run or Edit. Set the recording filter to dimmer only, moving light only or both. Switch between dimmer and moving light programming displays. Switch between solo and add functions.
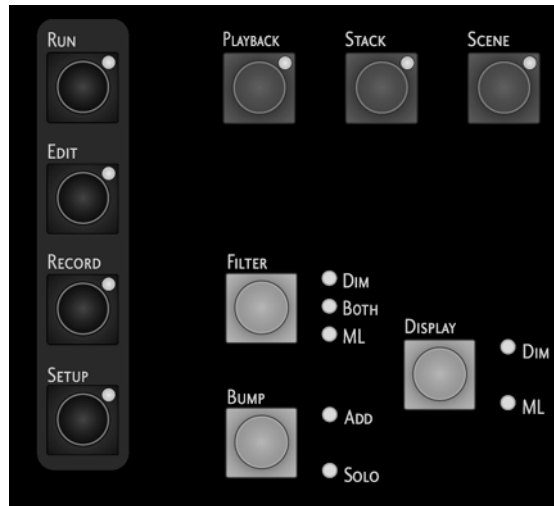
- *Display Section:* This section includes the LCD display, four selection wheels (left, right, center and side), six softkeys for menu selection, a **Yes** button and a **No/Escape** button.
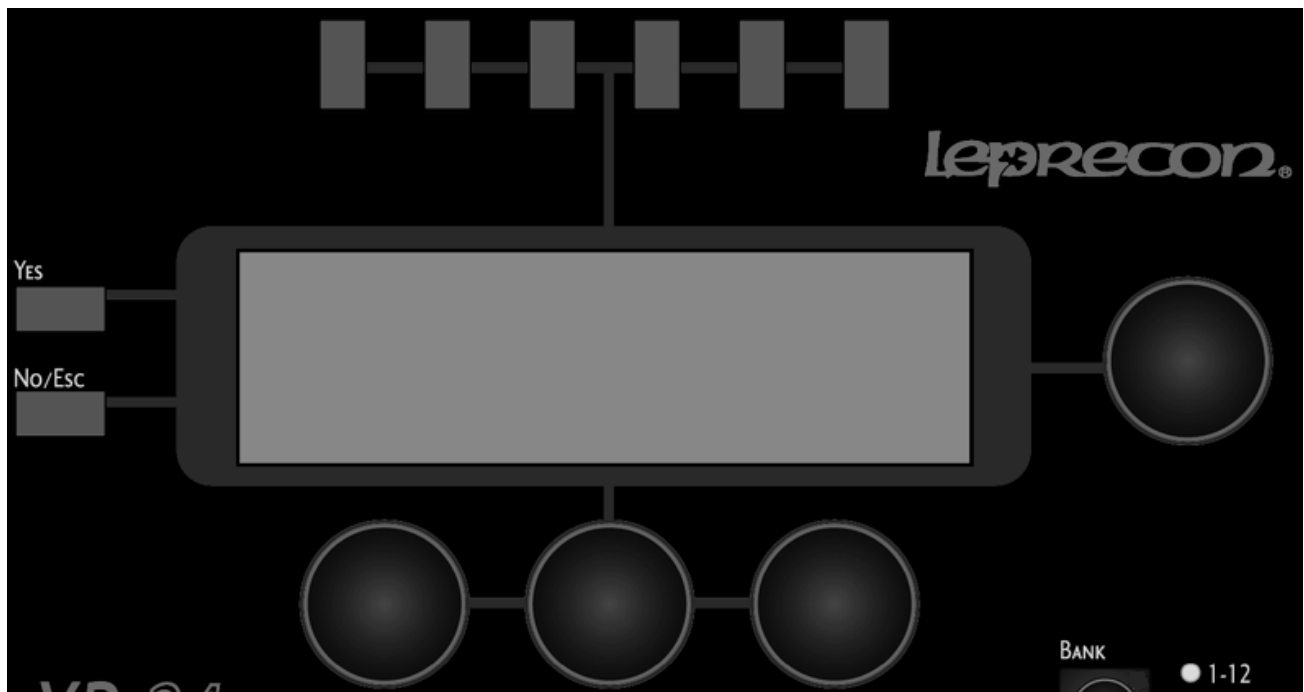
- *Master Section:* Includes the **Master** fader, the **Manual** fader and the **Blackout** button. Also includes two chase rate controllers—the **Rate** fader and a **Tap** button.
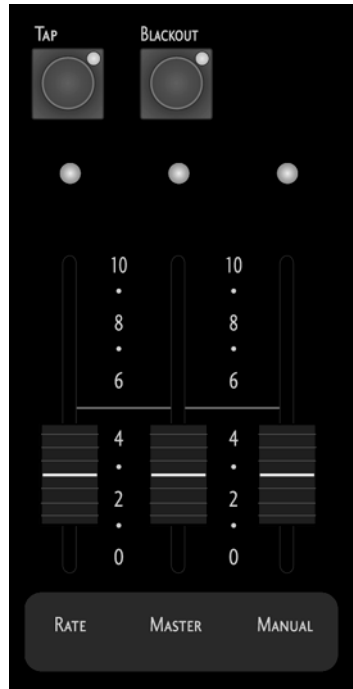
- *Stack Section:* Includes **Back**, **Hold** and **Go** buttons, the **Stack** cross-fader, the **On** button and the **Select** button.
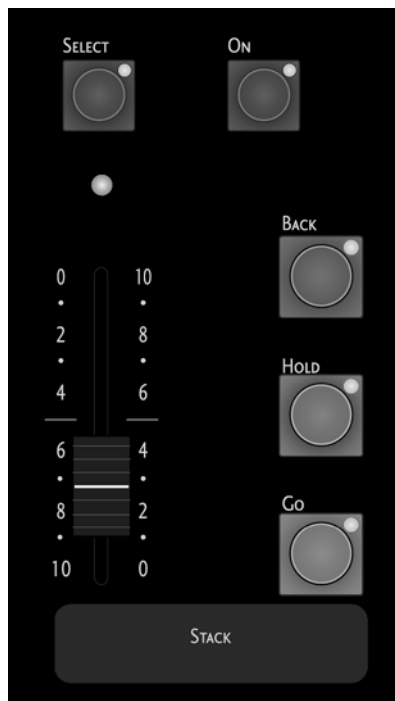
- *Keypad Section:* Includes numeric/text keys and an assortment of special function keys.

- *Manual Scene Section:* On the LP-X24 (shown below), this section includes 12 **Manual Scene Faders**, **Bump** buttons for each and the **Bank** switching button. **Bump** buttons are also used for moving light fixture selection. When this is the case, we refer to the buttons as **ML Selects**.
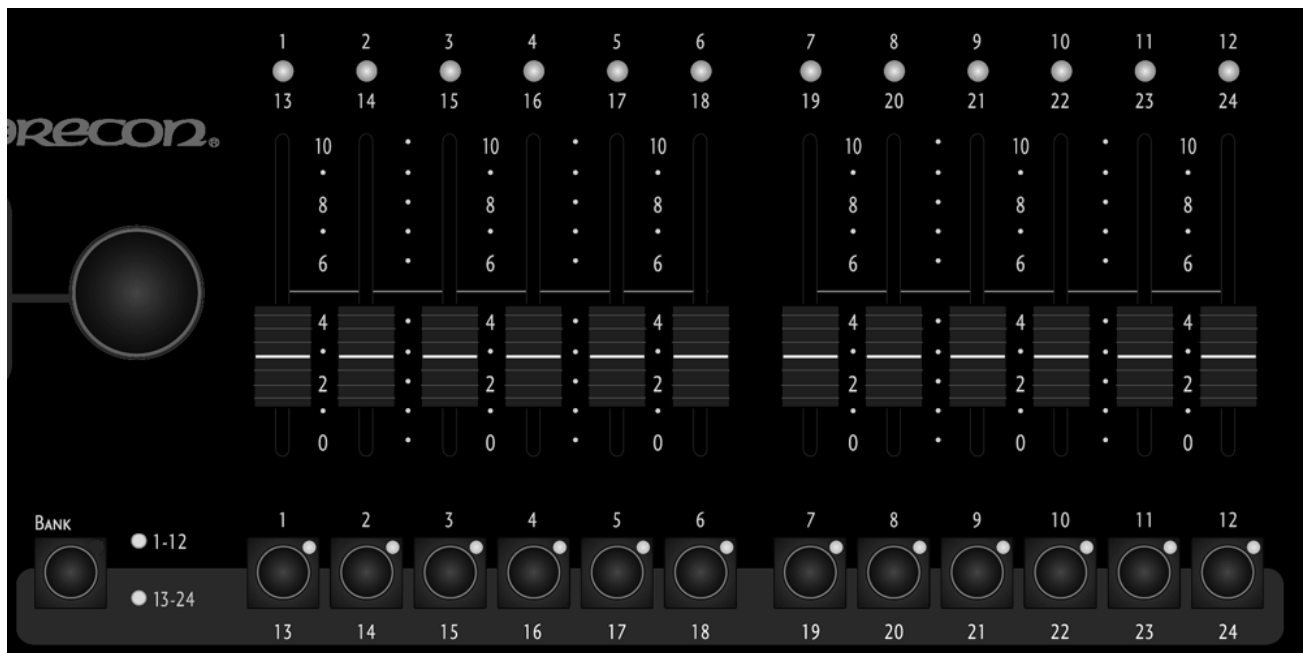
On the LP-X48 (not shown), this section includes 24 **Manual Scene Faders**, **Bump** buttons for each and the **Bank** switching button.

- *Playback Section:* Includes the **Page** selector and display, **Playback** select buttons, faders and bumps, and the **Programmer** fader. The LP-X24 (shown below) has six playbacks. The LP-X48 (not shown) has twelve playbacks.
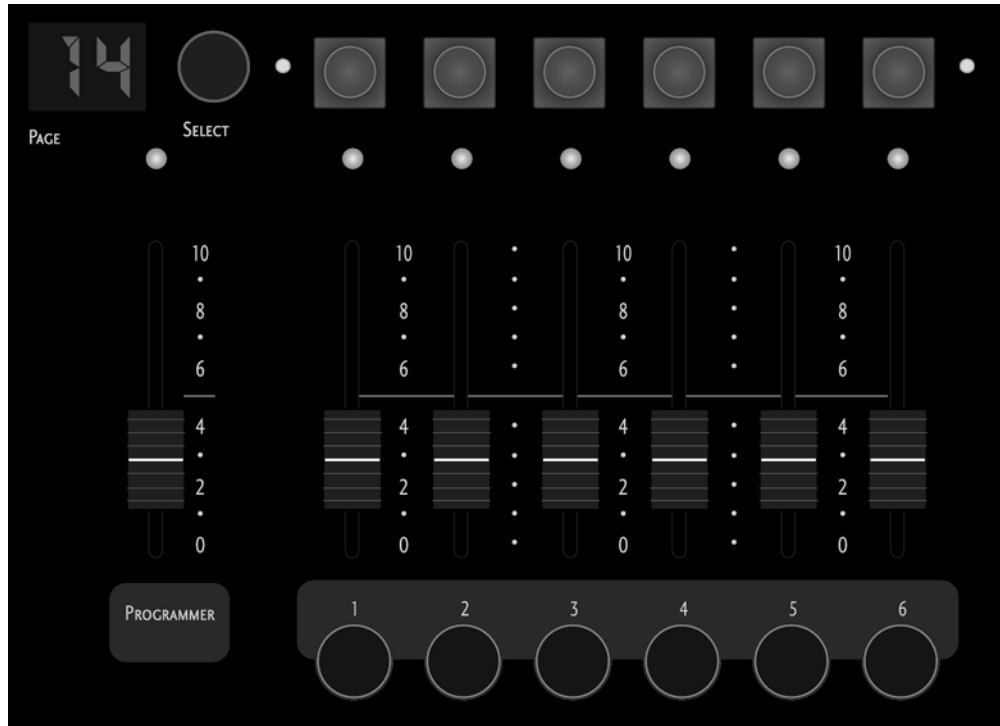
Power Up and Down Sequences

When the LP-X arrives from the factory, it will be set to operate on 110V current. To change the setting to 220V, move the red switch that is underneath the power jack from the 115 setting to the 230 setting.

To Power Up the LP-X

1. Move the power switch to the **On** position.

    The power switch is located on the back of the console next to the power cord jack.

    The LP-X starts in **Run/Scene** mode and displays the **Conventional Channels** screen.

LP-X24

```
┌─────────────────────────────────────────────────────────┐
│         Conventional Channels          12:00            │
│                                                          │
│  01  02  03  04  05  06  07  08  09  10  11  12         │
│                                                       ▼  │
│  13  14  15  16  17  18  19  20  21  22  23  24         │
│                                                          │
│  25  26  27  28  29  30  31  32  33  34  35  36         │
│                                                          │
└─────────────────────────────────────────────────────────┘
```

LP-X48

```
┌─────────────────────────────────────────────────────────┐
│         Conventional Channels          12:00            │
│                                                          │
│ 001  002  003  004  005  006  007  008  009             │
│                                                       ▼  │
│ 010  011  012  013  014  015  016  017  018             │
│                                                          │
│ 019  020  021  022  023  024  025  026  027             │
│                                                          │
└─────────────────────────────────────────────────────────┘
```
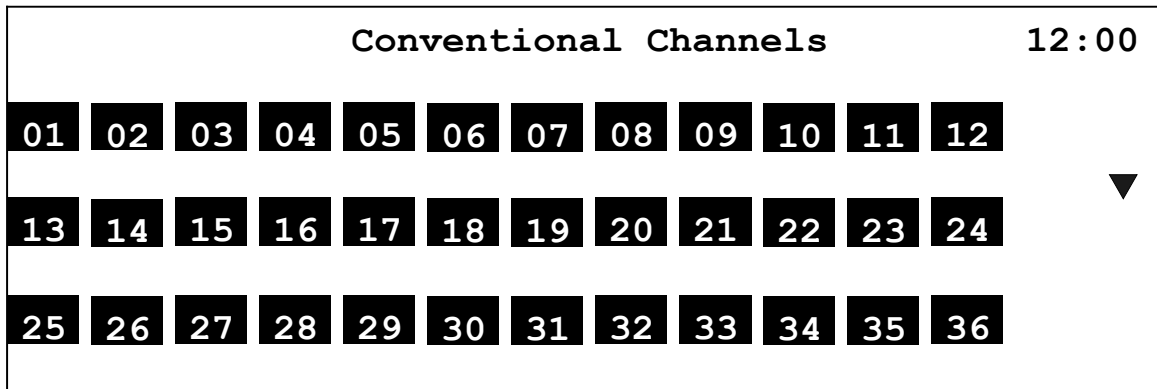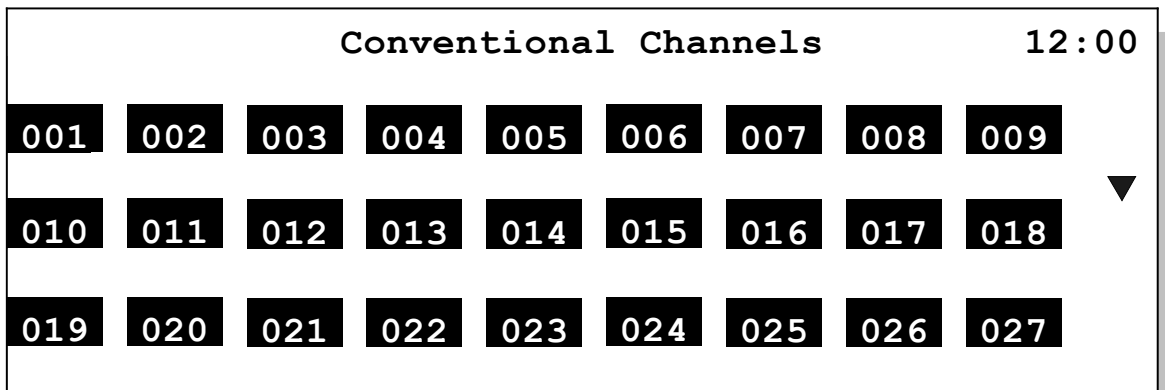
To Power Down the LP-X

1. To ensure that all show data is properly saved, we recommend that you always put the LP-X into **Run** mode before powering down.

2. Move the power switch to the **Off** position.

   All show information is saved.

Shows

All of the user-defined data of the LP-X—such as looks, scene lists, chases and patch tables—are saved as a computer file called the *Show* file. There is only one show on board at a time.

The LP-X autosaves information to the *Show* file every *N* minutes—where *N* is an interval between five and thirty minutes that can be set by the user. The LP-X also autosaves information whenever you put the board into **Run** mode. See "To Modify the Auto Save Interval" beginning on page 198 for complete details.

A show file can and should be copied to floppy for backup and for portability between boards. The LP-X saves one show per floppy disk.

Display Modes

The LP-X runs in two display modes—LCD Mode and Video Mode. In LCD Mode, there is minimal output to the monitor. In Video Mode, there is minimal output to the LCD.

The console starts up in LCD mode.

To use the video feature of the LP-X you will need:

- A VGA compatible monitor running at 1024X768 resolution
- A keyboard with a PC compatible PS-2 connection
- A Microsoft compatible mouse with a PS-2 connection

Connect the keyboard, mouse and monitor to the LP-X before turning on the console.

Touch Panel Monitor

Additionally, the LP-X series consoles are compatible with the ELO 1525 touch panel monitor.

Operating the console with a touch panel monitor provides an additional way in which to interact with the system. For example, to press a button you would normally point with a mouse pointer and then click the left mouse button. With a touch panel monitor, you literally press the button display on the monitor with your finger to activate it.

Every touch panel monitor responds a bit differently and, as a result, requires a few minutes to adapt. The ELO 1525 monitor does not sense pressure or heat, so there is no reason to press hard or to hold your finger in place. Simply press and let go—if the monitor doesn't perceive the press, try it again. Within a few minutes, you will find the right touch.

Switching Between Display Modes

To switch to Video Mode:

(1) Click or press the **Switch to Video** Mode button that appears on the video monitor.

The output to the LCD is minimized and the full video display appears on the monitor. The image below is a sample LP-X Video Setup Mode screen. The screen that you see will vary depending upon whether you were in Run, Record or Setup at the time you switched to Video Mode.
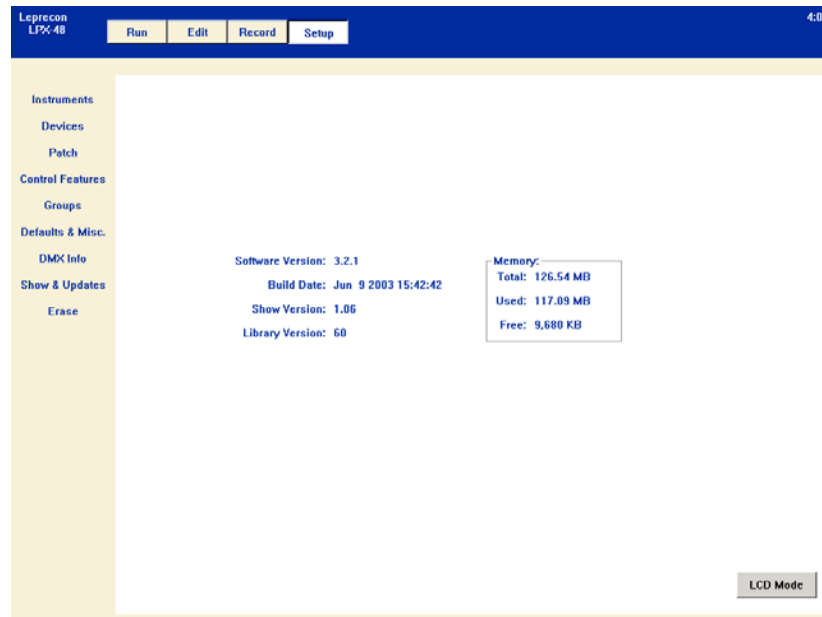
There are two ways to switch to LCD Mode:

(1) Press the first softkey on the console. The softkey is labeled **LCD** Mode.

(2) From the **Setup** screen, click or press the **LCD Mode** button in the lower right corner.

Orientation to LCD Mode

The LCD display has several sections to it.

Across the top are the menus. You make menu selections by pressing the button or "softkey" above the menu item of your choice. The display shown below has menu items for Color, Beam, Focus, Attributes and Labels. The fifth slot is empty.

One or more of the wheels will assist you in utilizing the functions and features on the display. In this case, all four wheels are useful:

- The left wheel scrolls the color label list on this display.

- The center wheel increases and decreases the delay time.

- The right wheel increases and decreases the fade time.

- The side wheel increases and decreases the intensity.

There may be instances when pressing the wheel down is meaningful. For example, on the screen shown above, pressing the center wheel makes the **Delay** time active. The highlight moves from the **Fade** to the **Delay**. Data entry on the keypad would affect the **Delay**. Also, pressing the side wheel on this screen toggles between Dowse and No Dowse modes. (See "*Dowse* versus *No Dowse* Mode" beginning on page 90 for further details.)

Orientation to Video Mode

Once you are familiar with the LP-X LCD mode operation, you will quickly adapt to Video Mode with just a few pointers.

Mode Buttons:

The **Mode Buttons** correspond to the buttons in the **Mode Controller Section** of the console itself. The **Playback**, **Stack** and **Scene** buttons are only displayed in **Run** and **Edit** mode.
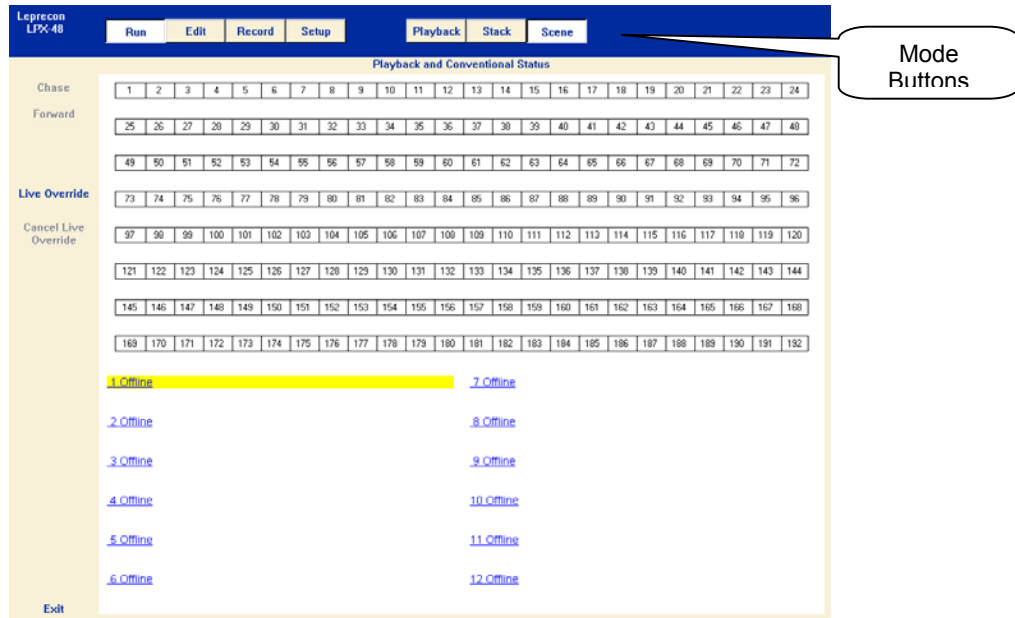
Menus:
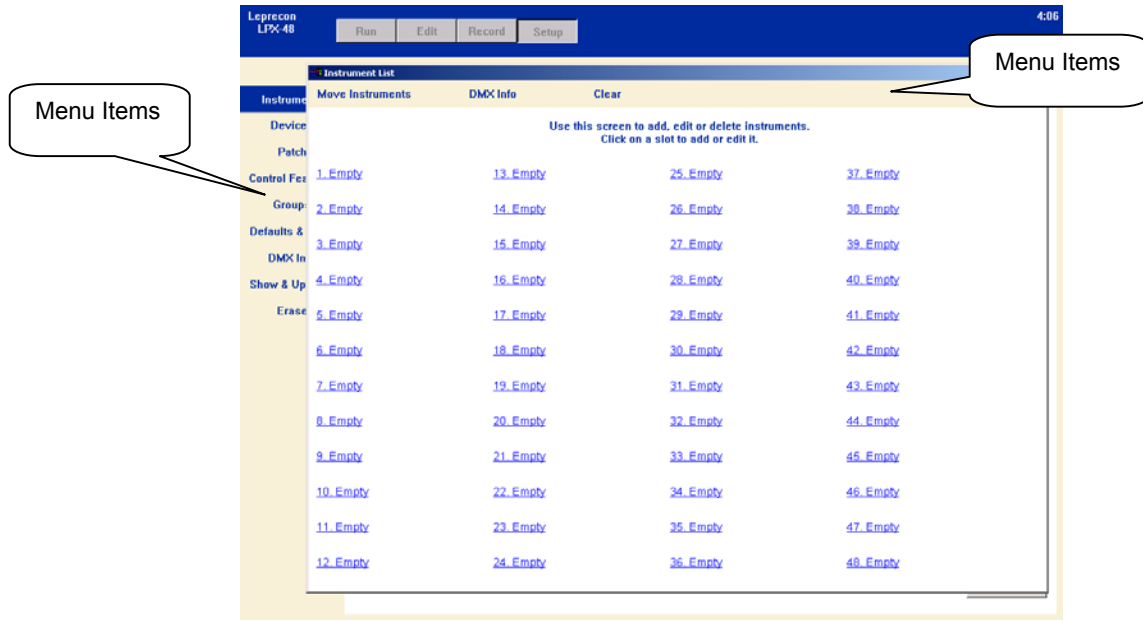
Most screens have menu items in one of two places: along the left side or across the top. Many menu items correlate with the softkeys used in LCD Mode, so they will seem familiar to the experienced user. Click a menu item to display the window or dialog box associated with it.

Underlined Items:

When an item is underlined, clicking on it provides access to additional functions that are uniquely associated with the item.

For example, the image below is of the **Moving Light Programmer** screen.
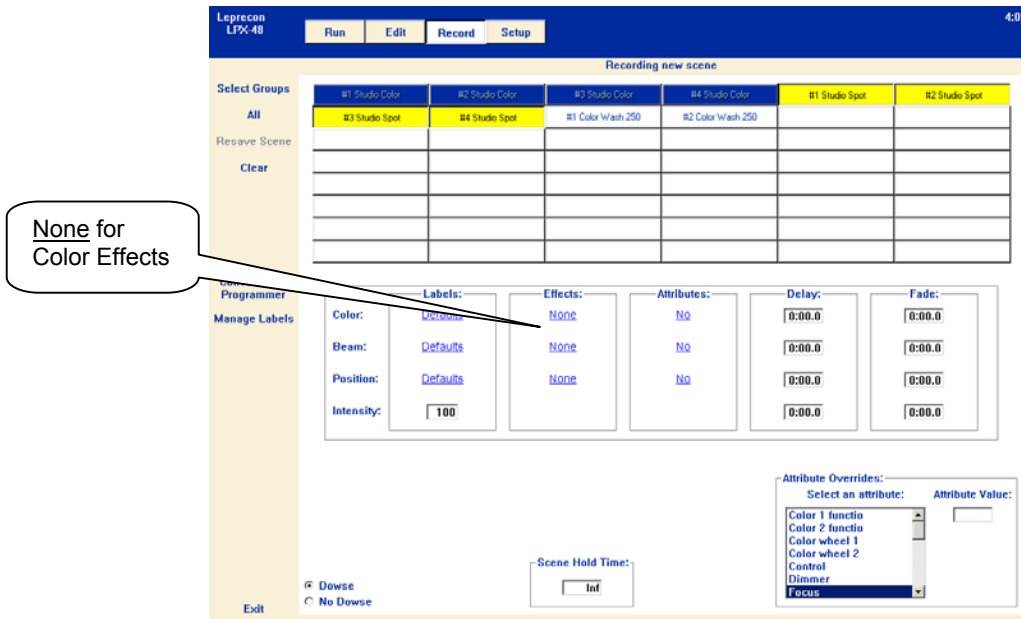
Clicking the **None** for the color effects opens the **Effects List** for colors, as shown below.
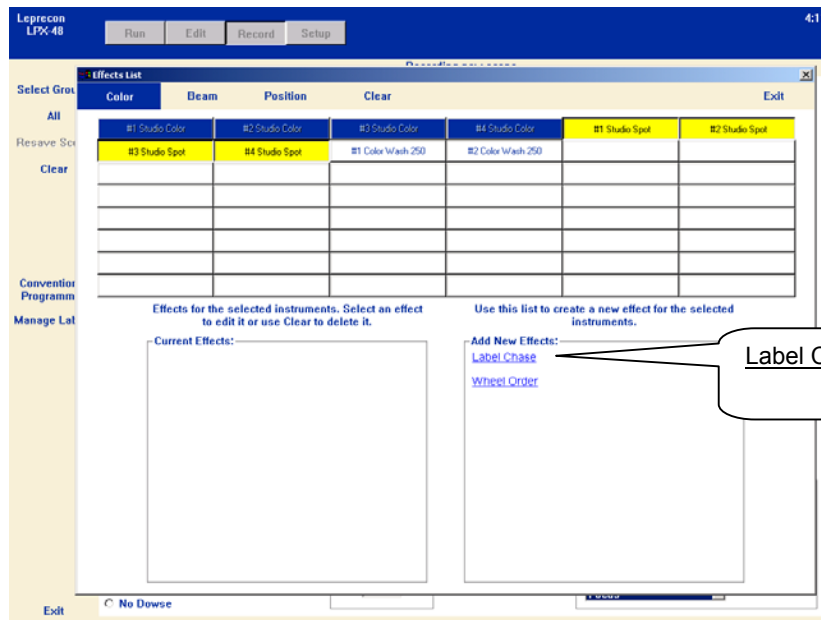
Clicking another underlined item, for example **Label Chase**, opens the **Effects Programmer**, as shown below.
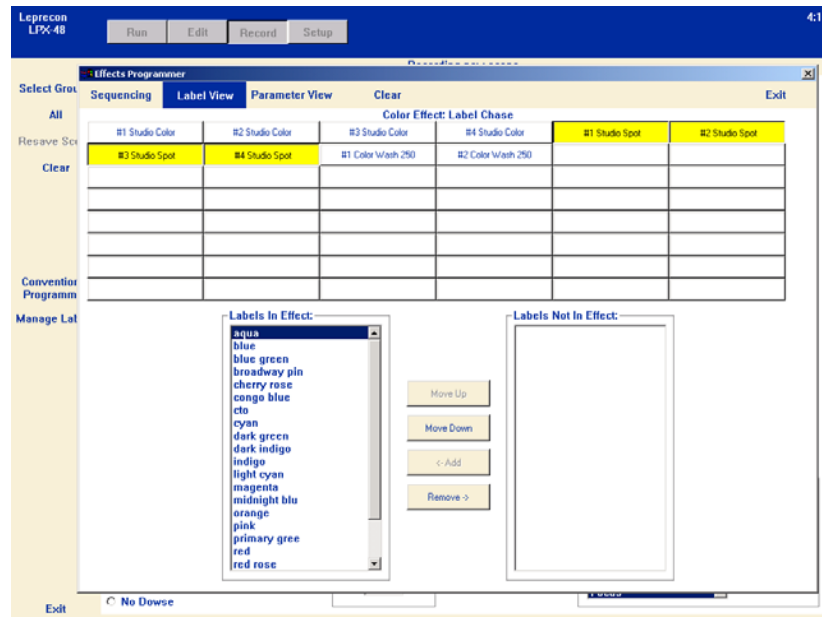
Conventions Used in this Manual

- The value 100% is represented as *FF* (*Fader Full On*) on the LP-X.

- Where instructions state that you use a wheel to scroll through a list or increase or decrease values, it is understood that turning the wheel to the right moves the highlight up through the list or increases the values. Turning the wheel to the left moves the highlight down through the list or decreases values. In many cases, the wheels have the same function when your LP-X is connected to a monitor.

- Where instructions state that you press a menu softkey, you press the softkey button that is aligned above the menu item. If your LP-X is connected to a monitor, you press or click the menu item that corresponds with the softkey. In some cases, the softkey text on the LCD is abbreviated but the menu item text is always written out in full.

- In most cases, you confirm an operation by pressing the **Yes** button in the *Display* section of the board. Pressing the **Enter** key in the *Keypad* section will frequently confirm an operation, too. In most cases, pressing the **Enter** key on a full-sized keyboard, if your LP-X has one attached, will also confirm an operation.

- In most cases, you cancel an operation by pressing the **No/Esc** button in the *Display* section of the board. In most cases, pressing the **Escape** key on a full-sized keyboard, if your LP-X has one attached, will also cancel an operation.

- We use the expression "match and grab" to indicate a situation where a value on a fader has been "remembered" by the LP-X. You must move the fader to the position that matches the remembered value before changes of fader position will have any effect. Once you have "matched" the value, subsequent changes of fader position **will** affect the output value of the light.

For example, the LP-X24 has one set of faders in the *Manual Scene* section of the console, but pressing the **Bank** button changes the faders from numbers 1 through 12 to numbers 13 through 24. Assume that you set fader 1 to a level of 50%. You then press the **Bank** button so that you are controlling faders 13 through 24. You set fader 13 to a level of 100%. You press the **Bank** button again, giving you control of faders 1 through 12 again. Fader 1 was set to a level of 50% but the fader position is at 100% because it was used to set the level for fader 13. You must move the fader to the 50% position (matching) before you can change the level (grabbing) for fader 1.

- The **Filter** (Moving Light/Dimmer/Both) setting determines what information is saved when you:

   (1) press a **Playback Select** button,

   (2) press the **Stack Select** button,

   (3) press the **Save** softkey on the **Conventional Programmer** screen or the **ML Programmer** screen,

   (4) press the **Save As** softkey on the **ML Programmer** screen.

   When the filter is set to **Moving Light**, only moving light information is saved. When the filter is set to **Dimmer**, only conventional light information is saved. When the filter is set to **Both**, information for moving lights *and* conventional lights is saved. In the manual, we always show the minimum filter setting that must be used to complete an operation—you may always set the filter to **Both**.

- On the **Moving Light Programmer** screen, pressing the **Color** softkey once displays color labels. The softkey button text changes from "Color" to "ColrFx". Pressing it a second time displays the **Color Effects** screen.

- On the **Moving Light Programmer** screen, pressing the **Beam** softkey once displays beam labels. The softkey button text changes from "Beam" to "BeamFx". Pressing it a second time displays the **Beam Effects** screen.

- On the **Moving Light Programmer** screen, pressing the **Focus** softkey once displays focus labels. The softkey button text changes from "Focus" to "FocsFx". Pressing it a second time displays the **Focus Effects** screen.

Using the Keypad

- When you use the keypad to enter a name, the first press of a letter key enters the first letter on the key. The second press of the same key changes the entry to the second letter on the key. The third press of the same key changes the entry to the third letter on the key. The fourth press of the same key changes the entry to the number of the key. The fifth press of the same key changes the entry to the first letter on the key—the same result as the first key press. If you wait more than 1.25 seconds between presses, the LP-X assumes that you have entered what you want and advances to the next square.

- When you press the **Space** key, the LP-X erases the entry in the current square, if any. Note that the **Space** key doesn't clear the current square if you've already entered something—it moves to the next square and clears its contents, if any.

- When you press the **Dot** key, the LP-X enters a decimal point in the current square. Note that the **Dot** key doesn't enter a dot in the current square if you've already entered something—it moves to the next square and enters a dot.

- In text entry situations, you use the **Plus** (**+**) button to move the cursor right and the **Minus** (**-**) button to move the cursor left. In non-text entry situations, you use the **Plus** (**+**) button to scroll up a list and the **Minus** (**-**) button to scroll down a list. Typically these buttons scroll the same list as the side wheel. However, if there are two or more lists on a screen, press the wheel that corresponds with one of the lists and then that list will respond to the buttons.

- In text entry situations, the **Clear** button is used as a delete key. It clears the current square and moves the rest of the text one space to the left. In non-text entry situations, the **Clear** button sometimes is used in combination with other buttons to accomplish specific tasks. For example, **Clear** plus an **ML Select** button will remove an instrument from a look. **Clear** plus **Enter** will clear all data from the programmer.

Conventional Channel Input

You may press the **Channel** key and specify one or a range of channels and then set their levels. You use the buttons **Level**, **Channel**, **Thru**, **And** and **Except** to do this. **Level** on some consoles is the **@** key.
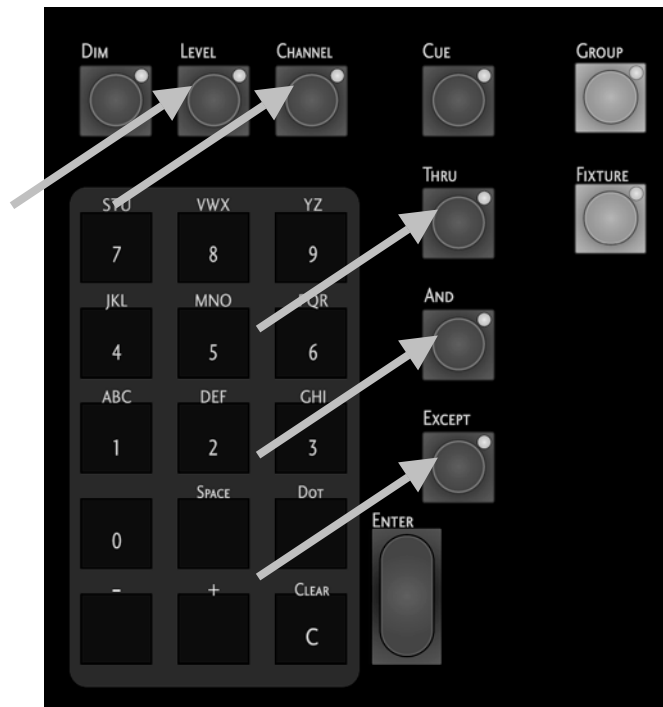
Here are some sample assignments. Where a word appears in bold capital letters, it indicates that you would press the corresponding button on the board. The numbers are entered using the numeric keypad.

CHANNEL 1 **LEVEL** 75. With this assignment we have set channel 1 at the level 75%.

CHANNEL 1 **THRU** 10 **LEVEL** 50. With this assignment we have set channels 1 through 10 at the level 50%.

CHANNEL 1 **THRU** 10 **EXCEPT** 5. With this assignment we have set channels 1 through 10 with the exception of channel 5 at the level 100% (the default value).

CHANNEL 1 **THRU** 10 **AND** 15 **LEVEL** 75. With this assignment we have set channels 1 through 10 and channel 15 at the level 75%.

CHANNEL 1 **THRU** 10 **LEVEL** 0. With this assignment we have set channels 1 through 10 at level 0%, essentially taking them out of the look.

CHANNEL 1 **THRU** 10 **AND** 15 **THRU** 25 **EXCEPT** 20 **EXCEPT** 21 **LEVEL** 75. With this assignment we have set channels 1 through 10 and 15, 16, 17, 18, 19, 22, 23, 24 and 25 at the level 75%.

The screen below shows the level assignment for channels 1 through 5 at the level 75%.

```
         Conventional Channel Input


   Chan ## [Thru ##] [Except ##]] [And ##]


CHAN 1 THRU 5




                         Level 75
```

Press **Enter** to save the level assignment. Press **No/Esc** to cancel the level assignment.

Recording new scene

01	02	03	04	05	06	07	08	09	10	11	12
75	75	75	75	75							

▼

| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |

Fade

Select   Level   0:00

Chapter One:
Quick Start

This chapter is designed for those users who are experienced with moving light consoles. We give a high level overview of the LP-X and then describe those features that are unique about the board.

If you are new to moving light consoles, we recommend that you turn to "Chapter Two: Setup Essentials" beginning on page 43 and work your way through "Chapter Four: Moving Light Programming". These chapters take you through the basics of setting up the LP-X, programming conventional lights and programming moving lights. Afterwards you will be able to study the remaining chapters in any sequence to learn the more advanced techniques that most interest you.

Orientation

The LP-X is similar to other moving light controllers in many ways. However, there are a few key concepts that, once understood, will help you quickly learn the features of this board. If you are an experienced programmer, the following items will help orient you to the operation of the LP-X.

Manual Scene Faders

The LP-X uses front panel faders to quickly set and adjust dimmer levels. Once the board is turned on, you have control over conventional instruments without navigating any of the menus.

On the LP-X24, the twelve faders can be switched between a low and high bank, giving twenty-four control channels for conventional instruments. On the LP-X48, the twenty-four faders can be switched between a low and high bank, giving forty-eight control channels for conventional instruments.

The Programmer

The LP-X programmer controls the state of both conventional and moving light instruments when the board is in **Record** or **Edit** mode. As soon as the operator switches from **Run** to **Record** or **Edit** mode, the programmer is turned on and the board output changes. The programmer retains its last state; the last look programmed (or edited) will still be in the programmer the next time it is used.

In **Record** or **Edit** mode, the **Programmer** fader controls the intensity level of all instruments.

The programmer overrides all other board controls, such as playback and stack run data.

To clear the programmer of all data, hold down the **Clear** key and press the **Enter** key. Confirm the warning prompt shown on the display by pressing **Enter** a second time.

Moving Light Select Buttons

When programming moving light looks, instruments may be selected using the conventional channel **Bump** buttons. As with the faders, these twelve (LP-X24) or twenty-four (LP-X48) **Moving Light Select** buttons (**ML Selects**) are switched between high and low instrument banks.

Instruments selected for programming have two states, inactive and active. Inactive instruments are still in the cue, but not currently selected for programming. This is indicated by a constantly lit LED in the **ML Select** for that instrument. Active instruments are indicated by a blinking LED, and will respond to changes in the settings of the programmer. To remove instruments from the programmer, hold down the **Clear** key and press the specific instrument's **ML Select** button.

Label Programming (Palette Programming)

The LP-X uses pre-defined and user-defined labels to set moving light looks. Other manufacturers call these *palettes*. These labels are shown in the main programmer and provide an easy way to set looks on different instrument types at the same time. The labels are selected by moving through the list using the left wheel or by pressing the **Plus** (**+**) and **Minus** (**-**) keys on the keypad.

Dowse/No Dowse

The LP-X gives you the option of keeping moving light instruments lighted or dark when they are in a look but are not selected for immediate programming. Keeping the lights on is called "No Dowse" mode. It can help build a complete moving light look by keeping all the lights on that are in a cue—even after they have been positioned and set as required. Dowse and no dowse functions are selected by pressing the side wheel (right side of the display) in the **ML Programmer** screen.

Playbacks Stack Deep!

The playbacks of the LP-X console can each contain a scene list of many steps (cues). This is true for conventional as well as moving light looks. When in **Record** mode, pressing the **Select** button above the playback saves the contents of the programmer to the next available step. The exact page, playback and step that were recorded are shown on the display.

In **Run** mode, when a playback is raised, the first step of the scene list is output. Subsequent steps are output, with associated fade times, when the **Select** button is pressed again.

It is easy to store a look to a playback that you believe is empty, only to find that bringing up the fader outputs a different look. Paying close attention to the actual stored location when the **Select** button is pressed tells you where in the scene list the look is being stored.

To completely clear all looks assigned to a playback, hold the **Clear** key and press the **Select** button above the playback.

Distinct Theatrical Stack

Although stacks with fade times can be built on all playbacks, the LP-X includes a fully-featured Stack section. This includes manual as well as timed crossfade and the ability to link playbacks or chases to a stack scene.

Chase Feature on Playbacks

A set of looks recorded to a playback can be converted into a repeating chase pattern. There is no separate 'Chase' function.

How do I…

…put moving lights into the board?

On the LP-X24, DMX channels 1 through 100 are reserved for conventional lights by default when a new show is created. On the LP-X48, DMX channels 1 through 200 are reserved for conventional lights by default when a new show is created.

1. In **Setup** mode, press the **Instr** softkey.

LP-X24

```
┌──────────┬─────────┬──────────┬─────────┬────────┬──────────┐
│Edit      │Move     │Delete    │Resrve   │        │          │
│              Instrument List                                 │
│1 #1 Cyberlight          101 Cyberlight                       │
│2 #2 Cyberlight          121 Cyberlight            ▼          │
│3 Empty                                                       │
│4 Empty                                                       │
│5 Empty                                                       │
│6 Empty                                                       │
└─────────────────────────────────────────────────────────────┘
```

LP-X48

```
┌──────────┬──────────┬──────────┬──────────┬──────────┬──────────┐
│ Edit     │ Move     │ Delete   │ Resrve   │          │          │
│          └          └          └          └          └          │
│                    Instrument List                              │
│ 1 #1 I Spot 150     A 201    I Spot 150                         │
│ 2 #1 X Spot         A 214    X Spot                             │
│ 3 # 2 X Spot        A 252  X Spot                        ▼      │
│ 4 Empty                                                         │
│ 5 Empty                                                         │
│ 6 Empty                                                         │
└─────────────────────────────────────────────────────────────────┘
```

2. Scroll to an empty slot and press the **Add** softkey.

    Each slot is assigned to an **ML Select**, so you have a total of 24 or 48, depending upon your board type. For the LP-X24, there are 12 slots in the first bank and 12 slots in the second bank. For the LP-X48, there are 24 slots in the first bank and 24 slots in the second bank.

    On the LP-X24, there are 24 additional slots that are "virtual", which is to say they are accessible from the software but are not accessible in the hardware. Please see "Programming Virtual Channels" beginning on page 119 for additional information.

    If you prefer, you may press an **ML Select** button rather than scrolling to its slot on the screen.

3. Select an instrument from the list and press the **Add** softkey.

4. Press the **Pan** or **Tilt** softkey to invert the pan or tilt for the instrument.

5. On the LP-X48, select the desired line—A or B.

6. Press the **Save** softkey for each instrument you want to add into the board.

    Pressing the **ML select** for an empty slot will also save the instrument.

7. Press the **No/Esc** button when you're done.

8. Repeat steps 2 through 7 for each instrument type that you want to add into the board.

…create groups of instruments?

After you have created a group, you can select it for programming by pressing and holding the **Group** key and then pressing the **ML Select** button to which the group is assigned. **ML Select** LEDs change to display group information when the **Group** button is held down. You may need to switch banks to reach the group.

1. From the **Setup Mode** screen, press the **Group** softkey.

```
Add        |         |         |         |         |
                    Group List
1   Empty
2   Empty
3   Empty                                          ▼
4   Empty
5   Empty
6   Empty
```

2. Scroll to an unassigned group and press the **Add** softkey.

   You may also press the corresponding **ML Select** button to jump to a slot.

3. Enter a name for the group, if desired.

4. Assign lights to the group by pressing the **ML Select** button for each.

```
Save       |         |         |         |         |
                    Edit Group
                      CYBERS
#1 Cyberlight
#2 Cyberlight                                      ▼


```

5. Press the **Save** softkey.

```
Edit       | Delete  |         |         |         |
                    Group List
1   CYBERS <2>
2   Empty
3   Empty                                          ▼
4   Empty
5   Empty
6   Empty
```

The **Group List** screen appears and shows the name for the group and the number of lights assigned to it **<2>**.

…strike my lamps?

Control features are only available for instruments that have DMX line assignments in the show that is currently open.

1. From the **Setup Mode** screen, press the **CtrlF** softkey.

2. Select one or more instruments to which a control feature will be applied.

   If you select instruments of different types, only the control features that they have in common will be displayed in the **Available Control Features** list.

```
Apply     |        |        |        |        |
                    Control  Features
Home
```
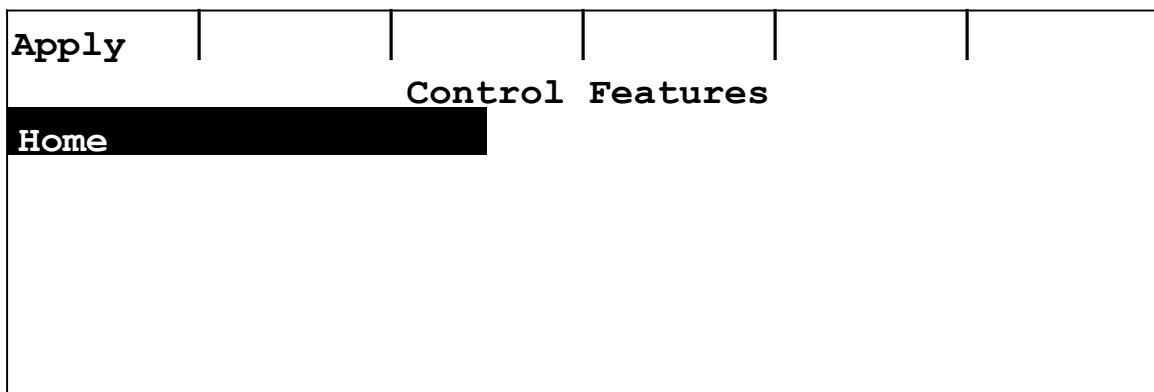
3. Use the side wheel to select a control feature from the list of available control features.

4. Press the **Apply** softkey.

   The control feature is loaded and sent.

   NOTE: If you are playing back a look, the control feature overrides the values for the selected instruments.

…program looks?

When you program looks, you have several options. First you may choose between viewing the **Moving Light Programmer** or the **Conventional Programmer** display by pressing the **Display (Dim/ML)** button. Second you may choose between recording conventional data, moving light data or all data by pressing the **Filter (Dim/Both/ML)** button. In this section we discuss the techniques for recording both moving and conventional lights.

1. Put the LP-X into the following modes for recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**

Button/Fader	Setting
Filter	**Both**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Up (typically full on)
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

```
┌─────────┬────────┬────────┬────────┬────────┬────────────────┐
│ ColrFx  │ Beam   │ Focus  │ Attrib │        │ Label          │
│            Recording new scene                                │
│                                                               │
│                                                     Dowse     │
│          No instruments selected.    Intensity:100%           │
│                                                               │
│                                                               │
│                              Delay           Fade             │
│                              0:00.0          0:00.0           │
└───────────────────────────────────────────────────────────────┘
```

2. Select moving lights for programming using the **ML Select** buttons.

   The LP-X displays the labels for the light or lights that you select. For example, with a Studio Color selected, you see the following screen when the *Color* labels are displayed (by pressing the **Color** softkey).

```
┌─────────┬────────┬────────┬────────┬────────┬────────────────┐
│ ColrFx  │ Beam   │ Focus  │ Attrib │        │ Label          │
│            Recording new scene                                │
│ No Change                                        No Dowse     │
│ Defaults                                     Intensity:100%   │
│ amber                                                         │
│ blue                                                          │
│ congo blue                   Delay           Fade             │
│ cto                          0:00.0          0:00.0           │
└───────────────────────────────────────────────────────────────┘
```

You see the following screen when the *Beam* labels are displayed (by pressing the **Beam** softkey).

```
┌─────────────────────────────────────────────────────────────┐
│ Color     BeamFx   Focus  │Attrib    │         │Label        │
│                  Recording new scene                         │
│ No Change                                        No Dowse    │
│ Defaults                                   Intensity:100%    │
│ belly                                                        │
│ fade                                                         │
│ off-center c                 Delay           Fade           │
│ open                         0:00.0          0:00.0         │
└─────────────────────────────────────────────────────────────┘
```

You see the following screen when the *Focus* labels are displayed (by pressing the **Focus** softkey.

```
┌─────────────────────────────────────────────────────────────┐
│ Color    │Beam      FocsFx   Attrib    │         │Label      │
│                  Recording new scene                         │
│ No Change                                        No Dowse    │
│ Defaults                                   Intensity:100%    │
│                                                              │
│                                                              │
│                              Delay           Fade           │
│                              0:00.0          0:00.0         │
└─────────────────────────────────────────────────────────────┘
```

When you select more than one instrument, the **Moving Light Programmer** displays an intersection of labels that are common to the instruments—that is to say, the ones that the instruments have in common.

3. If you haven't already done so, create a focus label or labels for the look or point the instruments by attribute programming.

    Please see "To Create a Focus Label" beginning on page 127 or "Chapter Seven: Working with Moving Light Attributes" beginning on page 137 for complete details.

4. Select the desired color, beam and focus labels and set the intensity for each light.

    The following is a common scenario for selecting the labels that you want or for setting the intensity.

    You have ten moving lights in the look. You want the five lights on the right side of the stage to be pink. You want the five lights on the left side of the stage to be blue.

    You select the five lights on the right side of the stage. The label *Pink* appears in the display, indicating that all five lights have that color in common. You select that label. You deselect the lights.

You select the five lights on the left side of the stage. The label *Blue* does not appear in the display, indicating that all five lights do not have that color in common. Your light group consists of two Technobeams and three Studio Spots. You deselect the Technobeams. The label blue now appears. You select that label for the three Studio Spots. You deselect the Studio Spots and select the Technobeams. The labels *Dark Blue* and *Light Blue* appear in the display. You select *Dark Blue*.

You repeat this pattern of selecting and deselecting lights over and over as needed to accommodate (1) the labels that the lights have in common and (2) the differences in the labels that you want to assign to each light.

5. Move the **Manual Scene Faders** to the desired levels for the conventional lights that you want in the look.

6. Select the desired page and then press the **Select** button for the desired playback.

    The LP-X displays the page, playback and step number information for the look just recorded.

7. To make changes to the look that you just recorded, repeat step 4 or 5 and then press the **Save** softkey.

    The LP-X confirms that it saved the new information to the look.
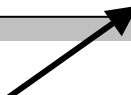
8. To record the next look, repeat step 4 and 5 and then press the **Select** for the same page and playback.

    The LP-X displays that it saved the information to the new look.

…set fade times?

Fade times are set on a per-property basis. You may set them while you are recording looks.

You may also set them while you are editing looks.

1. Put the board into **Edit/Playback** mode.

```
Edit       Chase      Global     |          Copy       Erase
                        Edit Playback
PG 01 PB 01 (4)
PG 01 PB 02 (6)                                                    ▼
PG 03 PB 06 (28)


```

2. Select a page/playback and press the **Edit** softkey.

```
Time       |          |Move▼     |Unloop    | Erase    |
                        Edit Scenelist
1
2                                                                 ▼
3
4
                            Hold
                            INF
```

3. Select a scene and press the **Time** softkey.

```
Inten      Color      Beam       Focus      |          |
                       Edit Scene Timing              Hold
                                                       INF
                            Delay                      Fade
Intensity                  0:00.0                     0:00.0
Color                      0:00.0                     0:00.0
Beam                       0:00.0                     0:00.0
Focus                      0:00.0                     0:00.0
```

The **Edit Scene Timing** screen is designed for both conventional and moving lights. Some of the features—for color, beam and focus—apply to moving lights only.

4. Set the fade times for each property.

5. Press the **Yes** button when you are done.

…play back looks?

1. Put the LP-X into the following modes for playback:

Button/Fader	Setting
Modes	**Run** and **Playback**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down

2. Raise the playback to the desired level (typically 100%).

   The LP-X displays the first look that you recorded to the playback.

   In **Playback** mode, you see which playbacks are active and what step number each is on.

```
                                                    12:00


1 Inactive
2 Inactive                                            ▼
3 Inactive
4 Inactive
5 Inactive
6 PG 1 Step: 1 of 2
```

3. To advance to the next look, press the **Select** button for the playback.
4. Repeat step 3 until you have shown all looks for the playback.
5. Lower the playback intensity to zero when you are done.

…toggle a playback between scene list and chase modes?

You may toggle the looks recorded on a playback between scene list and chase modes.

1. Put the board into **Run/Playback** mode.
2. Select a page/playback.

   In LCD mode, you must additionally raise the fader for the playback.

3. Press the **Chase** softkey.
4. Use the **Tap** button or the **Chase Rate** fader to set the chase rate.
5. To convert the chase back into a scene list, press the **Unchse** button.

…record scenes to the stack and play them back?

1. Save looks to the stack by pressing the stack's **Select** button.

   You use all the techniques that you normally would for recording to a playback.

2. To play back the looks, put the board into **Run/Stack** mode.

3. Turn the stack on by pressing the stack's **On** button.

4. Move from look to look by moving the stack's **Cross Fader** from one end of its travel to the other or by pressing the **Go** button.

…clear the programmer?

The programmer always displays the last look that was loaded or created. To clear the programmer so that you can start from the default settings (white, open beam and 50/50 focus position), hold down the **Clear** button and press the **Enter** button.

Working in Video Mode

When you are familiar with the LP-X LCD Mode, it is very easy to learn to work in Video Mode. This section describes the differences between the two modes.

Unique Features in Video Mode

The following features are unique to Video Mode.

The ML Programmer Screen

The **ML Programmer** screen includes a group of buttons, six across and eight down. These buttons correspond to the **Instrument Select** buttons.

On the LP-X24:

Row	Corresponding Instrument Select Buttons
1	Bank 1—**Instrument Select** buttons 1-6
2	Bank 1—**Instrument Select** buttons 7-12
3	Bank 2—**Instrument Select** buttons 1-6
4	Bank 2—**Instrument Select** buttons 7-12
5-8	Twenty-four "virtual" **Instrument Selects**. That is to say that there are twenty-four additional **Instrument Selects** accessible only through the software

On the LP-X48:

Row	Corresponding Instrument Select Buttons
1	Bank 1—**Instrument Select** buttons 1-6
2	Bank 1—**Instrument Select** buttons 7-12
3	Bank 1—**Instrument Select** buttons 13-18

4	Bank 1—**Instrument Select** buttons 19-24
5	Bank 2—**Instrument Select** buttons 1-6
6	Bank 2—**Instrument Select** buttons 7-12
7	Bank 2—**Instrument Select** buttons 13-18
8	Bank 2—**Instrument Select** buttons 19-24

Use the color of the buttons to determine the status of the instrument:

- Blue button with light blue text—in the cue but not in record mode. This corresponds with a glowing yellow light on the **Instrument Select**.

- Yellow button with blue text—in the cue and in record mode. This corresponds with a flashing yellow light on the **Instrument Select**.

- White button with light blue text—in the show but not assigned to the cue. This corresponds with an unlit **Instrument Select**.

Toggle back and forth between *In Cue, Not in Record Mode* and *In Cue, In Record Mode* by clicking the button.

Remove a moving light from a cue by clearing it. See "Clearing Settings" on page 41 for details.

Manage Labels/Label Picker

In Video Mode, the ML Programmer makes it significantly more convenient to select, create, edit, rename and delete labels.

When you click the **Manage Labels** menu item or click the color, beam or position label…
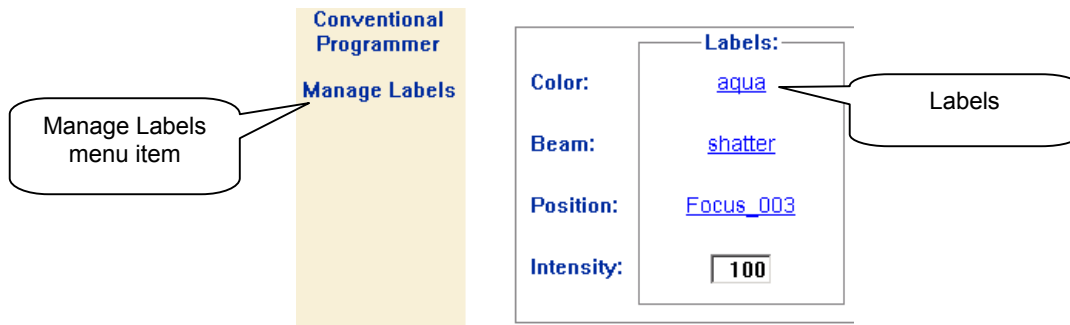
…the **Label Picker** appears.
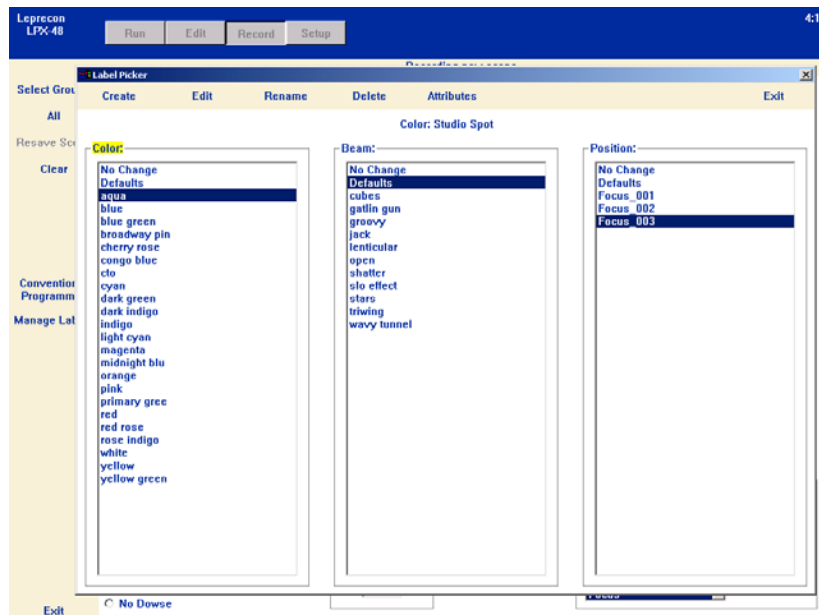
(1) To select labels, click one each for color, beam and position. Then click **Exit**.

(2) To modify a specific label, click the label and then click the appropriate menu item—**Create**, **Edit**, **Rename**, **Delete** or **Attributes**.

On-Screen Attribute Display

In Video Mode, you have access to attributes from the main screen of the **ML Programmer**.

The **Attribute Overrides** section of the screen displays all attributes for all selected instruments. In other words, with eight instruments selected, even if only four of them have the attribute *Effects 1*, the attribute appears in the list.
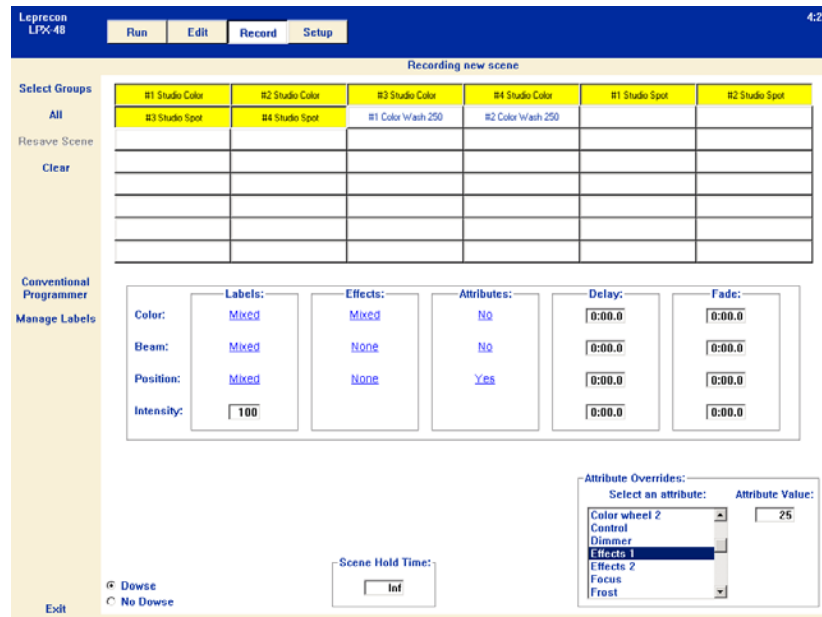
To override an attribute:

(1) Select the instruments to which the attribute override should apply.

(2) Select the attribute you want to override in the **Select and attribute** list box.

(3) Position the cursor in the **Attribute Value** box. Type the desired value or use the **Up Arrow** and **Down Arrow** to increase and decrease the value.

Timing is Readily Accessible

Color, beam, position and intensity delay and fade times are now accessible from **the ML Programmer** screen as is the overall scene hold time.

Live Override Mode

Live Override Mode permits you to make changes to lights that are in a scene as the scene is displayed or to introduce a light into a scene.

Override Mode works in conjunction with the **Programmer Fader**. There are two schools of thought on how to override a scene. The first school of thought is to set up the override with the **Programmer Fader** at the zero level and then raise the fader to introduce the override into the scene. The second school of thought is to work with the **Programmer Fader** at the 100% level and introduce overrides immediately as they are made.

One important thing to understand about Live Override Mode is how it handles intensity. If you have a conventional or moving light in a scene, you cannot make its intensity lower than its current value. You may only increase its intensity. This is because of the highest-takes-precedence nature of intensity values in the LP-X.

Other important notes about Live Override Mode:

• The **Programmer** starts out in a cleared state with nothing selected.

- When a light is selected, it starts with all labels set to *No Change* rather than the current values for the lights or the default values for the light. This enables you to change only the properties you want.

- Timing and *No Dowse* are not available.

(1) In Run Playback mode, click or press the **Live Override** menu item.
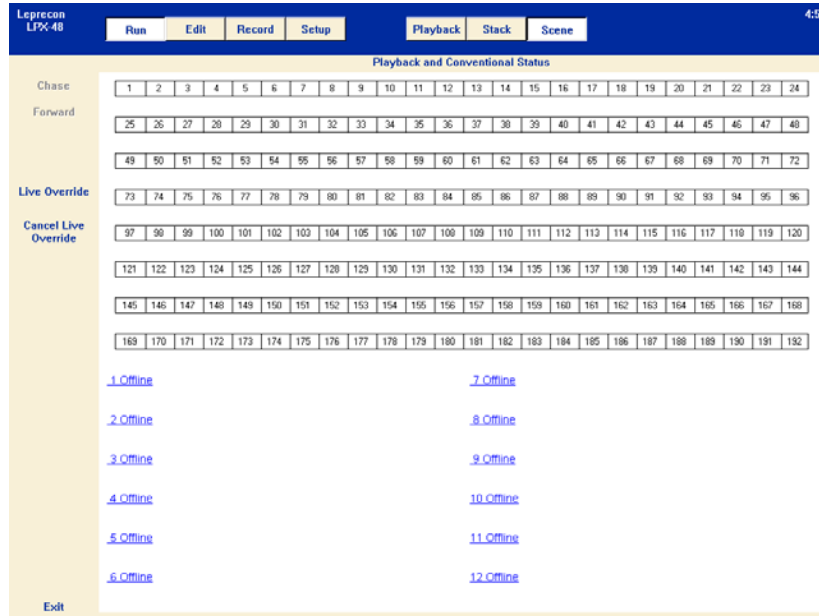
The ML or Conventional Programmer appears, depending upon which was the last selected. You may toggle between these two programmers using the **Conventional Programmer** and **Moving Light Programmer** menu items.
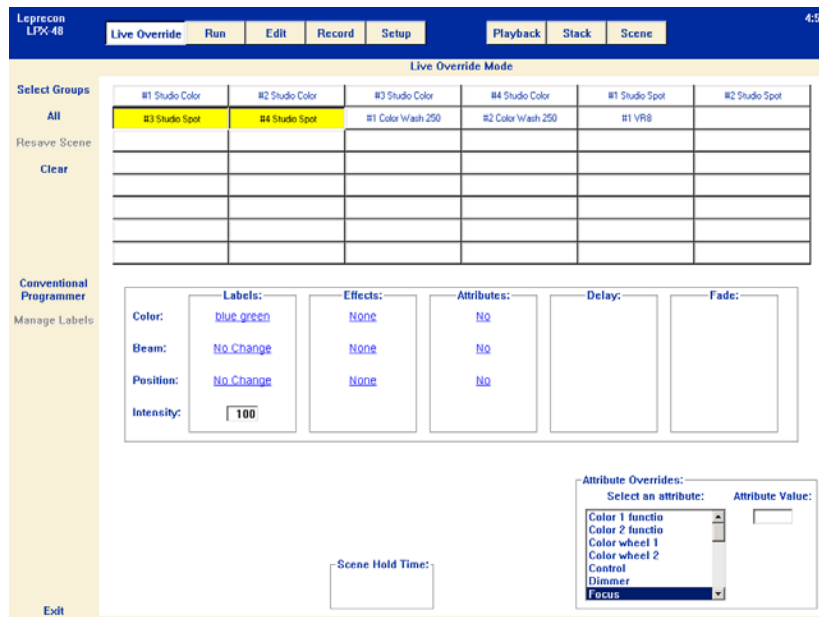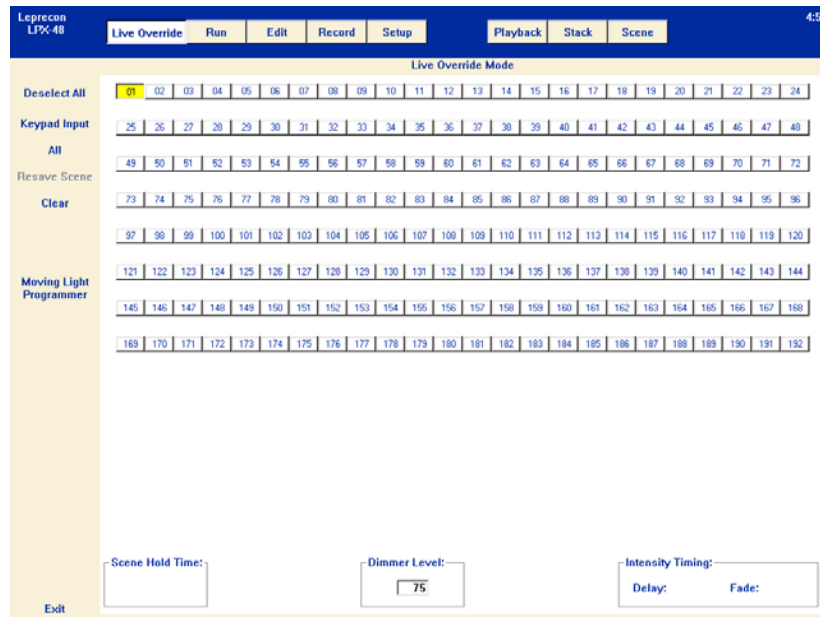
The **Run** mode button flashes when you are in live override mode.

(2) Click or press the lights you want to override.

(3) Adjust the properties of the fixture or fixtures that you want to override.

If you make adjustments with the **Programmer Fader** at 10% or higher, the changes you make will be visible immediately. Otherwise, you must raise the **Programmer Fader** to the desired level when you have adjust the fixtures as desired.

(4) When your have completed all overrides and want to step out of Live Override mode, click or press the **Run** button and then the **Cancel Live Override** menu item.

Live Override will also be cancelled if you leave **Run** mode.

Console and Keyboard Buttons

Console Buttons that are Disabled in Video Mode:

- Only softkey 1 (Switch to LCD Mode) is enabled in Video Mode. All other softkeys are disabled.

- The **Fixture** button does not work in Video Mode. It has a point-and-click replacement in video mode.

Items that are Still Controlled Only from the Console:

Some functions are still controlled only from the console. They do not have a Video Mode counterpart.

- Bump and Filter buttons

- Playback and Stack Select buttons

Console Buttons that Work in Both Modes:

- **Channel**, **Thru**, **Except**, **And**, **Level** and **Dim** buttons all work the same. The dialog box that appears when the buttons are pressed is very similar to the on-board display.
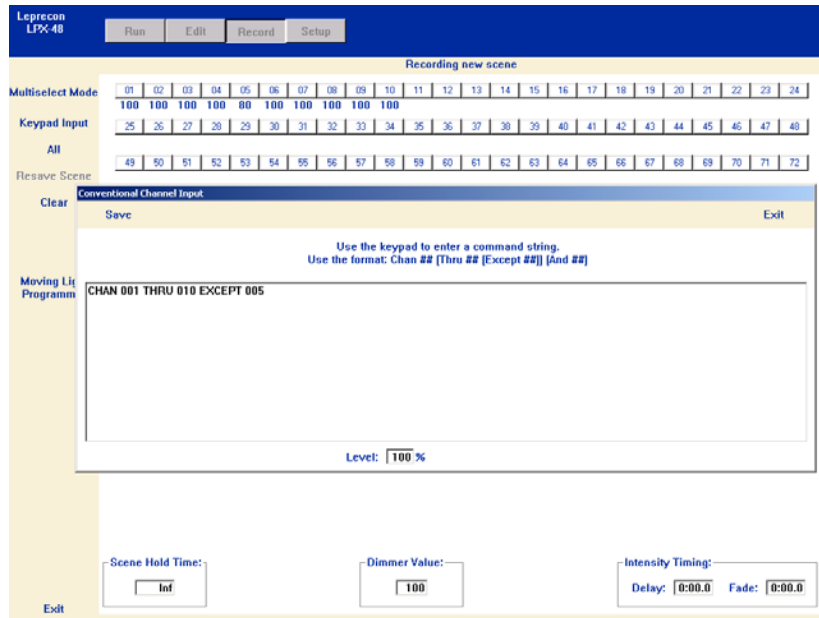
- Use the **Clear** key on the console to clear instrument selections during programming.

- **Yes** and **No/Esc** work in both modes.

- The four encoders (wheels below and to the right of the LCD) are enabled only in some instances. For example, they scroll the label lists in the **Label Picker** screen.

Keyboard Tips:

The keyboard provides a few additional shortcuts for use in Video Mode.

- Use the **Up Arrow** and **Down Arrow** keys to move through list boxes or scroll numeric values 1 item/value at a time

- Use the **Page Up** and **Page Down** keys to move through list boxes or scroll numeric values 10 items/values at a time.

- Use the **Escape** key to close and exit a window.

Typing Text or Numbers:

When you type text or numbers in Video Mode, the behavior is significantly different from the Windows or Macintosh style that most users are familiar with. Some differences:

- **Arrow** keys work in number boxes, as well as **Page Up** and **Page Down**.

- In text boxes, you may use the **Backspace**, **Delete**, **Home**, **End** and **Arrow** keys. In number boxes, you may not use any of these keys except **Delete**.

- In text boxes, typing moves text. In other words, if you position the cursor in the middle of a word and begin typing, the letters to the right of the cursor will shift.

- In number boxes, typing replaces text.

- If your mouse has a scroll wheel, when a number box is active you can scroll the wheel to increase or decrease the value in the active number box.

Clearing Settings

Many screens include a **Clear** button on one of the menus. When you click the **Clear** button, the cursor changes from a pointer to an eraser. The console is now in **Clear Mode**.

The results of clicking on an item when the console is in **Clear Mode** vary. For example:

- Clicking an on-screen **Instrument Select** button removes the light from the cue and erases its settings.

- Clicking on a label changes it from its current setting, if any, to **No Change**.

- In **Setup** mode on the **Group** screen, clicking on a group deletes the group.

To take the console out of **Clear Mode**, click the **Clear** button a second time.

Note: You may use the **Clear** key on the console's keypad instead of the video **Clear** button. It works like a Shift key rather than a toggle; hold down the **Clear** button on the console and then use the mouse pointer to point at the item that you want to clear and click it.

Playback Titles

In video mode, you may assign your own titles to each page and playback.

(1) In **Edit Playback** mode, select a playback scenelist.

(2) Click or press the **Name** button.

The **Name Playback** dialog box appears.

(3) Enter a name for the playback scenelist and then click or press **Ok**.

The name now appears in the playback scenelist list.

Chapter Two:
Setup Essentials

Setup Mode provides the following features and functionality. This mode is always accessible by pressing the **Setup** button in the **Mode Controller** section of the console.

```
Instr    Device   Patch    Groups   Defalt   CtrlF
                     Setup Mode


Software Version: 1.01.10Fx D                    Next▶
Build Date: Sep 13 2001 16:38:39
Show Version: 1.01
Lib Version: 51
CPU Version: D              50
```

Menu	Function
Instr	Use to add moving light instruments into a show.
Device	Use to create a new device—one not already included in the LP-X's fixture library.
Patch	Assign dimmers to board channels.
Groups	Create groups of instruments for easy editing.
Default	Use to set timing and show defaults.
CtrlF	Execute control features such as turning lamps on and off.
Show	Use to create a new show and perform all show maintenance such as backup and restore.
Update	Use to load program and library updates.
Erase	Use to erase patch, stack or playbacks.
DMX	View DMX line assignments and reserve DMX channels.
Lock	Lock a show, preventing recording.
Misc	Used for a variety of miscellaneous features such as setting MIDI In and MIDI Out channels and setting the time.

At the bottom of the **Setup Mode** screen you see the **Contrast Control**. Adjust the display contrast using the center wheel.

In this chapter we discuss the features of Setup Mode that are essential to operating the LP-X. The remaining Setup Mode features are discussed in "Chapter Twelve: Other Setup Features" beginning on page 191.

The Instrument Menu

The **Instrument** menu provides functionality to add, edit and delete moving lights within the system.

DMX Line Assignment

Before controlling instruments with the LP-X, you must configure the system with the correct numbers and types of instruments. DMX line assignment locates a moving light instrument at a specific DMX address.

The LP-X24 drives one DMX line with 512 channels. By default, the first 100 DMX channels are reserved for conventional lights—a setting that can be changed if desired.

The LP-X48 drives two DMX lines with 512 channels each. By default, the first 200 DMX channels on Line A are reserved for conventional lights—a setting that can be changed if desired.

Different moving light instruments require different numbers of channels. For example, the Martin 218 requires nine channels whereas the Cyberlight requires twenty channels. The number of attributes that an instrument has usually determines the number of channels it requires. In rare instances, two attributes are assigned to the same channel, with one attribute responding to DMX values of 1 to 128 and the second attribute responding to DMX values of 129 to 255. These are called "split attributes".

If you were to assign a start address of 101 to the Cyberlight, the next available start address would be 121. If you were to assign a start address of 101 to the Martin 218, the next available start address would be 110.

To help manage large systems, the LP-X maintains a list of the instruments that you assign to your system. The LP-X assists you in making DMX line assignments by keeping track of the number of channels required for each instrument and by suggesting start addresses that will accommodate the requirements of new instruments as you add them. As equipment is added, the LP-X will help you find available space for additional addresses required.

Some instruments can only be assigned to specific channels. For example, the Cyberlight can only function if assigned to channel 1, 21, 41, 61 and so forth. Consult the manufacturer's literature to determine if such restrictions are relevant to your instruments.

The LP-X Instrument Library

The LP-X ships with a standard library of moving light instruments. If you have moving light instruments that are not included in the LP-X library, you will have to add them into the board before you can make DMX line assignments for them. Please refer to "Creating Moving Light Devices" beginning on page 203 for complete details.

Many instruments support more than one DMX mode. For example, the MAC 500 has four DMX modes.

- In Mode 1, only 12 channels are required. The least sophisticated pan and tilt controls are supported.

- In Mode 2, 14 channels are required. The most sophisticated pan and tilt controls are supported.

- In Mode 3, 14 channels are required. Only the least sophisticated pan and tilt controls are supported—but unlike Mode 1 and Mode 2, Vector features are supported.

- In Mode 4, 16 channels are required. The most sophisticated pan and tilt controls *and* Vector features are supported.

When the LP-X supports more than one DMX mode for an instrument, the DMX modes are included in the instrument names—MAC 500 Mode 1, MAC 500 Mode 2 and so forth. For complete information regarding supported instruments, see the document "Leprecon Moving Light Library".

To Add a Moving Light Instrument into the System

This procedure will determine the DMX assignments for moving lights and allow you to give names to the instruments for easier reference during programming.

1. From the **Setup Mode** screen, press the **Inst** softkey.

   The **Instrument List** screen appears.

```
Add           |            |           |Resrve  |           |           |
                        Instrument List
1   Empty
2   Empty                                                              ▼
3   Empty
4   Empty
5   Empty
6   Empty
```

2. Press the **Add** softkey.

   Use the side wheel to scroll to an empty slot if the **Add** softkey is not visible.

The instrument list appears. This list displays all instruments that are included in the LP-X library. The left column displays manufacturers. The right column displays instruments.

```
Add       |         |         |         |         |
_____
All                          1220 CMYR
Abstract                     1220 RPR
American DJ                  1220 XR
Clay Paky                    218
Coemar                       218 MkII
FAL                          518
```

3. Use the left wheel to select a manufacturer.

4. Use the right or side wheel to select an instrument.

5. Press the **Add** softkey.

   There may be a slight delay as the LP-X opens the library.

```
Save      | Pan     | Tilt    |         |         |
             Add New Instrument

#1 Cyberlight                    Cyberlight


   Slot                        DMX
    1                          101
```

The LP-X provides a default name for the instrument. You may use the keypad to change the name.

The LP-X automatically assigns the instrument to an unassigned slot. Each slot corresponds to a **ML Select** button in the **Manual Scene** section of the console.

On the LP-X24, Slots 1 through 12 correspond to **ML Select** buttons 1 through 12 in bank 1. Slots 13 through 24 correspond to **ML Select** buttons 1 through 12 in bank 2. Slots 25 through 48 do not correspond to any **ML Select** buttons. They are "virtual" slots, meaning that they exist in the computer's memory but do not have a corresponding button on the hardware. Slots 25 through 48 are programmable through the user interface, but not through the use of **ML Select** buttons.

On the LP-X48, Slots 1 through 24 correspond to **ML Select** buttons 1 through 24 in bank 1. Slots 25 through 48 correspond to **ML Select** buttons 1 through 24 in bank 2. Slots 49 through 96 do not correspond to any **ML Select** buttons. They are "virtual" slots, meaning that they exist in the computer's memory but do not have a corresponding button on the hardware. Slots 49 through 96 are programmable through the user interface, but not through the use of **ML Select** buttons.

Use the left wheel to change the slot to which the instrument is assigned.

The LP-X automatically assigns the instrument to the first available DMX channel. Use the right wheel to change the DMX start address.

The LP-X48 automatically assigns the instrument to Line A, if it can accommodate the fixture. Use the right wheel to change the line assignment.

6. You can invert the pan or tilt for the instrument by pressing the **Pan** or **Tilt** softkey. Pressing either key a second time toggles the setting off.

```
Save        Inv Pan  InvTlt
                   Add New Instrument


#1 Cyberlight                    Cyberlight



   Slot                       DMX
     1                        101
```

Inverting the pan or tilt switches the orientation of the pan or tilt for the light. For example, let us say that a DMX value of zero for the pan typically moves the light all the way to the right and a DMX value of 255 moves the light all the way to the left. Inverting the pan changes a value of zero to all the way left and a value of 255 to all the way right.

7. Press the **Save** softkey to save your settings.

The LP-X offers the opportunity to add another of the same instrument into the system. It automatically sets the slot and DMX values to the next available.

```
┌──────────┬─────────┬─────────┬─────────┬─────────┬─────────┐
│ Save     │ Pan     │ Tilt    │         │         │         │
│              Add New Instrument                            │
│                                                            │
│ #2 Cyberlight                    Cyberlight               │
│                                                            │
│                                                            │
│    Slot                          DMX                       │
│      2                           121                       │
└────────────────────────────────────────────────────────────┘
```

8. Modify the settings and press the **Save** softkey to add another of the same type of fixture. Or press **No/Esc** to return to the Manufacturer/Instrument screen and **No/Esc** a second time to return to the **Instrument List**.

```
┌──────────┬─────────┬─────────┬─────────┬─────────┬─────────┐
│ Edit     │ Move    │ Delete  │ Resrve  │         │         │
│              Instrument List                               │
│ 1 #1 Cyberlight            101 Cyberlight                 │
│ 2 #2 Cyberlight            121 Cyberlight           ▼     │
│ 3 Empty                                                    │
│ 4 Empty                                                    │
│ 5 Empty                                                    │
│ 6 Empty                                                    │
└────────────────────────────────────────────────────────────┘
```

9. To add instruments of a different type, scroll to an empty slot, press **Add** and repeat this procedure.

    You may also press an **ML Select** button to jump to a specific slot. The **ML Select** button LEDs are lit for slots that are already assigned and unlit for empty ones.

Note: During this procedure, you may also press a **ML Select** button to save DMX assignment settings to a specific slot. Pressing the **ML Select** for an empty slot is the equivalent of scrolling to the slot and pressing the **Save** softkey at Step 7—but much faster. The **ML Select** LEDs will be lit for slots that are full and unlit for available slots.

To Edit a Moving Light Instrument

Use this procedure if you want to change the name or DMX assignment for an instrument that you have already added into the system.

1. From the **Setup Mode** screen, press the **Inst** softkey.

    The **Instrument List** screen appears.

2. Using the side wheel, scroll to select a moving light instrument for editing or press the **ML Select** button for the slot.

```
┌─────────┬─────────┬─────────┬─────────┬─────────┬─────────┐
│Edit     │Move     │Delete   │Resrve   │         │         │
│              Instrument List                              │
│1 #1 Cyberlight           101 Cyberlight                   │
│2 #2 Cyberlight           121 Cyberlight              ▼    │
│3 Empty                                                    │
│4 Empty                                                    │
│5 Empty                                                    │
│6 Empty                                                    │
└───────────────────────────────────────────────────────────┘
```

3. Press the **Edit** softkey.

    This screen looks similar to the screen you see after you first add a moving light instrument into the system.

```
┌─────────┬─────────┬─────────┬─────────┬─────────┬─────────┐
│Save     │Pan      │Tilt     │         │         │         │
│              Edit Instrument                              │
│                                                           │
│#1 Cyberlight                  Cyberlight                  │
│                                                           │
│                                                           │
│  Slot                       DMX                           │
│    1                        101                           │
└───────────────────────────────────────────────────────────┘
```

4. Change the instrument name, DMX start address, or, on the LP-X48, DMX Line as desired.

    The slot assignment cannot be changed from this screen. Use the procedure described in the section "To Move a Moving Light to a Different Slot" beginning on page 49 to change the slot assignment.

5. Invert the pan or tilt as desired.

6. When you are done, press the **Save** softkey.

To Move a Moving Light to a Different Slot

1. From the **Setup Mode** screen, press the **Inst** softkey.

    The **Instrument List** screen appears.

2. Using the side wheel, scroll to select a moving light instrument to move to a different slot or press the **ML Select** button for the slot.

```
Edit      Move     Delete   Resrve
                  Instrument List
1 #1 Cyberlight            101 Cyberlight
2 #2 Cyberlight            121 Cyberlight
3 Empty                                        ▼
4 Empty
5 Empty
6 Empty
```

3. Press the **Move** softkey.

```
                  Move Instrument
              Select a destination slot:
1 #1 Cyberlight            101 Cyberlight
2 #2 Cyberlight            121 Cyberlight
3 Empty                                        ▼
4 Empty
5 Empty
6 Empty
```

4. Use the side wheel to select the slot to which you want to move the light or press the **ML Select** button for the slot.

5. Press the **Yes** key to complete the move.

```
Edit      Move     Delete   Resrve
                  Instrument List
1 Empty
2 #2 Cyberlight            121 Cyberlight
3 #1 Cyberlight            101 Cyberlight      ▲
4 Empty                                        ▼
5 Empty
6 Empty
```

To Delete a Moving Light Instrument from the System

1. From the **Setup Mode** screen, press the **Inst** softkey.

   The **Instrument List** screen appears.

2. Using the side wheel, scroll to select a moving light instrument to delete from the system or press the **ML Select** button for the slot.

3. Press the **Delete** softkey.

```
           Delete Instrument


     Are you sure you want to delete this
    instrument and all data associated with
                     it?


                  Yes / No
```

4. Press the **Yes** key to delete the instrument. Press the **No/Esc** key to stop the delete operation.

To Reserve and Un-reserve DMX Channels

By default, the LP-X reserves DMX channels 1 through 100 (LP-X24) or channels 1 through 200 (LP-X48) for conventional lights. You may prefer to reserve more, fewer or different channels for conventional lights. Use this procedure to make such changes.

1. From the **Setup Mode** screen, press the **Inst** softkey.

   The **Instrument List** screen appears.

   Note that you can display the same screen when you press the **DMX** softkey from the **Setup Mode** screen and then the **Resrve** softkey.

2. Press the **Resrve** softkey.

```
Resrve  Delete │          │          │          │          │

001 - 100 <100> Default Reserved




    Space                        DMX
     1                           141
```

3. Use the left wheel to specify the number of DMX channels to reserve.

4. Use the center wheel to specify the start address for the reserved channels.

5. On the LP-X48, use the right wheel to specify the DMX line for which the channels will be reserved.

6. Press the **Resrve** softkey.

```
Resrve  Delete │          │          │          │          │

001 - 100 <100> Default Reserved
141 - 141 <01> Reserved                                   ▼


    Space                        DMX
     1                           142
```

7. To un-reserve DMX channels, use the side wheel to select the channel(s) and then press the **Delete** softkey.

Dimmer Patch

Dimmer Patch is the system used to interconnect conventional lights to board channels. The LP-X allows you to assign conventional lights to board channels using software controls. Up to five custom patches plus the standard 1:1 default patch are available in the board.

The most common use of Dimmer Patch is to connect several conventional light channels to a single board channel. Another common use is to allow the operator to build a logical layout of the dimmers on the control board regardless of the dimmer circuit that is used. For example, all lighting from the left side of the stage might be

assigned to board control channels 1 through 6, even if they were physically wired to dimmer circuits 101 through 106.

To Create a New Dimmer Patch

1. From the **Setup Mode** screen, press the **Patch** softkey.

    The **Patch List** screen appears.

```
|         |         | Copy    | New     |         |         |
                        Patch List
 Default [ACTIVE]



```
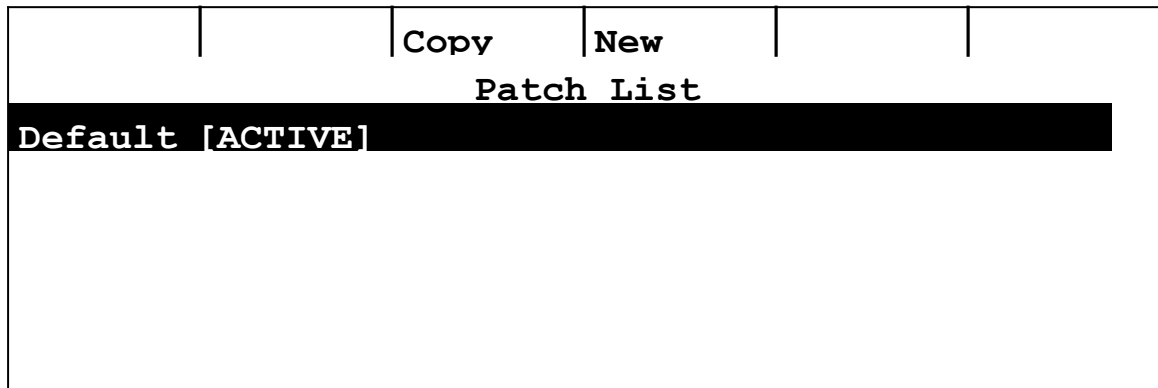
The **Default** patch is 1:1 with channels 1 through *N* set to 100% intensity.

The first *N* channels are mapped, where *N* is the number of hardware and "virtual" faders—currently 96 (LP-X24) or 192 (LP-X48).

2. Press the **New** softkey.

```
                  Enter a patch name



 Name:
 Patch 01



                     Yes / No
```
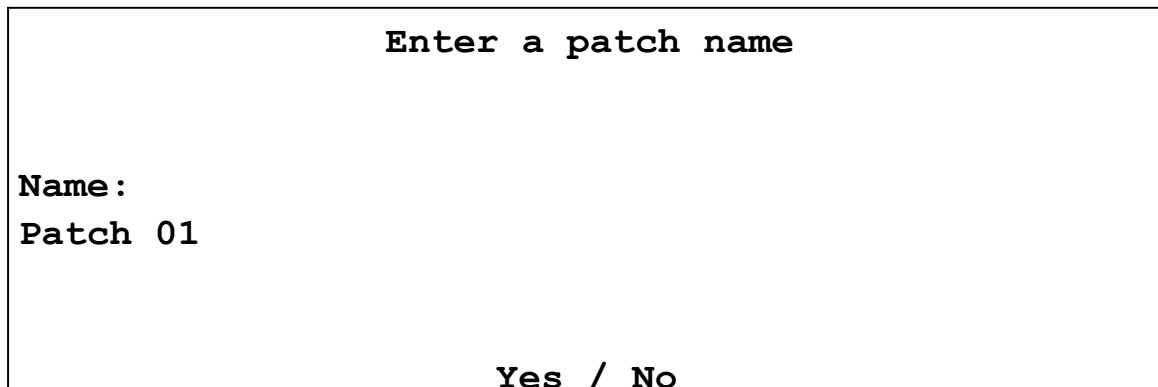
3. Using the keypad, enter a name for the patch.
4. Press **Yes** to proceed or **No/Esc** to cancel.
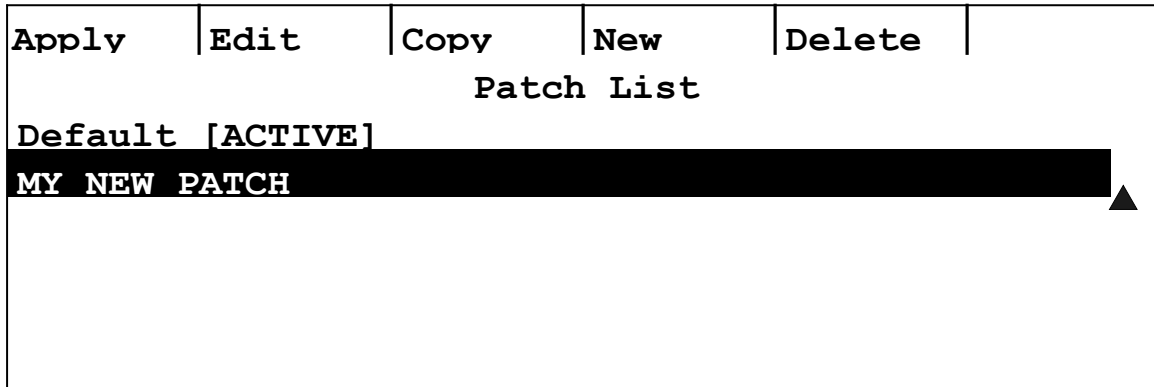
```
┌─────────┬─────────┬─────────┬─────────┬───────────┬─────────┐
│ Apply   │ Edit    │ Copy    │ New     │ Delete    │         │
│         │         │    Patch List                           │
│ Default [ACTIVE]                                             │
│ MY NEW PATCH                                              ▲  │
│                                                             │
│                                                             │
│                                                             │
│                                                             │
└─────────────────────────────────────────────────────────────┘
```

The LP-X displays the **Patch List** screen. Note that there are additional softkeys for activating, editing and deleting your custom patch.

To Copy a Dimmer Patch

1. From the **Setup Mode** screen, press the **Patch** softkey.

    The **Patch List** screen appears.

```
┌─────────┬─────────┬─────────┬─────────┬───────────┬─────────┐
│         │         │ Copy    │ New     │           │         │
│         │           Patch List                              │
│ Default [ACTIVE]                                            │
│                                                             │
│                                                             │
│                                                             │
│                                                             │
│                                                             │
└─────────────────────────────────────────────────────────────┘
```

2. Press the **Copy** softkey.

```
┌─────────────────────────────────────────────────────────────┐
│                  Enter a patch name                         │
│                                                             │
│ Name:                                                       │
│ Patch 02                                                    │
│                                                             │
│                                                             │
│                                                             │
│                       Yes / No                              │
└─────────────────────────────────────────────────────────────┘
```
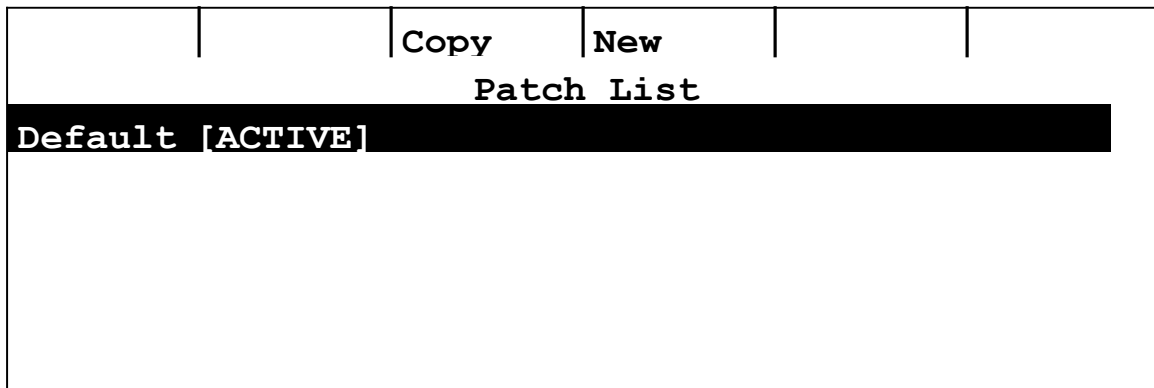
3. Using the keypad, enter a name for the patch.

```
                 Enter a patch name


Name:
PATCH FOR MATINEE




                              Yes / No
```

4. Press **Yes** to proceed or **No/Esc** to cancel.

```
          Edit      Copy      New
                        Patch List
 Default [ACTIVE]
 PATCH FOR MATINEE                                    ▲
                                                      ▼
```

The LP-X displays the **Patch List** screen. Note that there are additional softkeys for activating, editing and deleting your custom patch.

To Change which Patch is Active

1. From the **Setup Mode** screen, press the **Patch** softkey.

   The **Patch List** screen appears. The active patch has the word **[ACTIVE]** after it.

2. Using the side wheel, select the patch you want to activate.

3. Press the **Apply** softkey.

```
       |Edit    |Copy    |New      |        |
                  Patch List
Default
MY NEW PATCH [ACTIVE]                               ▲
```
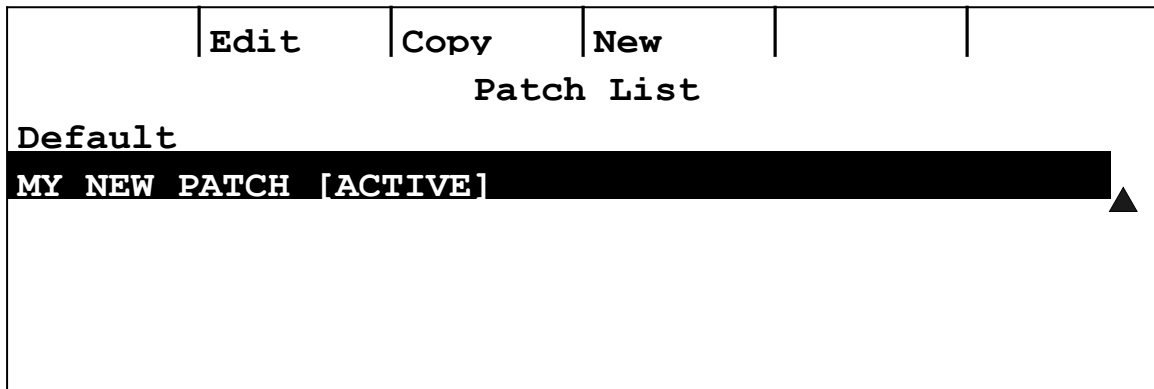
To Delete a Patch

1. From the **Setup Mode** screen, press the **Patch** softkey.

   The **Patch List** screen appears.

2. Using the side wheel, select a patch to delete and then press the **Delete** softkey.

   Note that the **Delete** softkey will not be available when the active patch is selected.

```
                    Delete Patch


         Are you sure you want to delete this
                       patch?



                      Yes / No
```
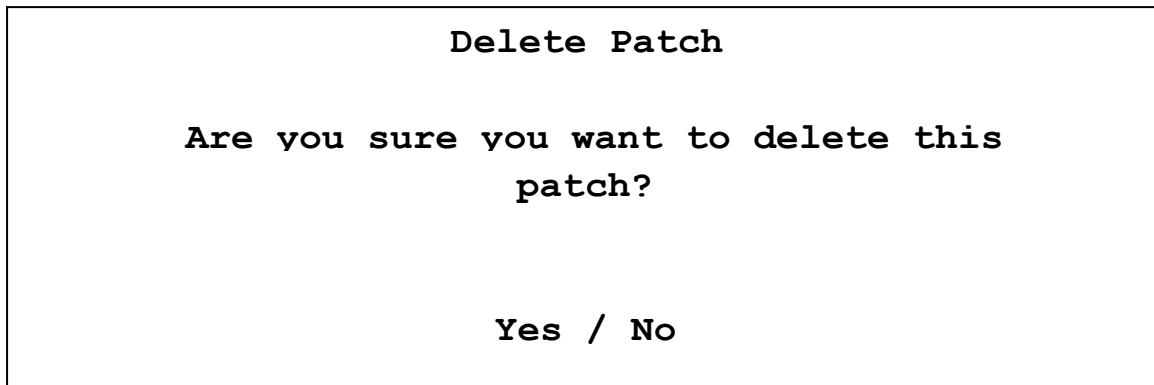
3. Press the **Yes** key to delete the patch. Press the **No/Esc** key to cancel the operation.

To Edit a Patch

1. From the **Setup Mode** screen, press the **Patch** softkey.

   The **Patch List** screen appears.

2. Using the side wheel, select a patch to edit and then press the **Edit** softkey.

   Note that the **Edit** softkey will not be available when the default patch is selected.

```
Add       By Dim  Delete
              Edit Patch: MY NEW PATCH
CHAN    DIMMERS
   1
   2                                                    ▼
   3
   4
   5
```

3. Press the **Add** softkey or the **Dim** button.

```
                       Patch Input


        Dim ## [Thru ##] [Except ##] [And ##]


DIM



Channel 1                     Level 100%
```

4. Create the first channel assignment.

   You use the buttons **Dim**, **Level**, **Channel**, **Thru**, **And** and **Except** to create the patching assignment. **Level** on some consoles is the **@** key. On the LP-X48, pressing the **Dim** button toggles between DMX Line A and DMX Line B.
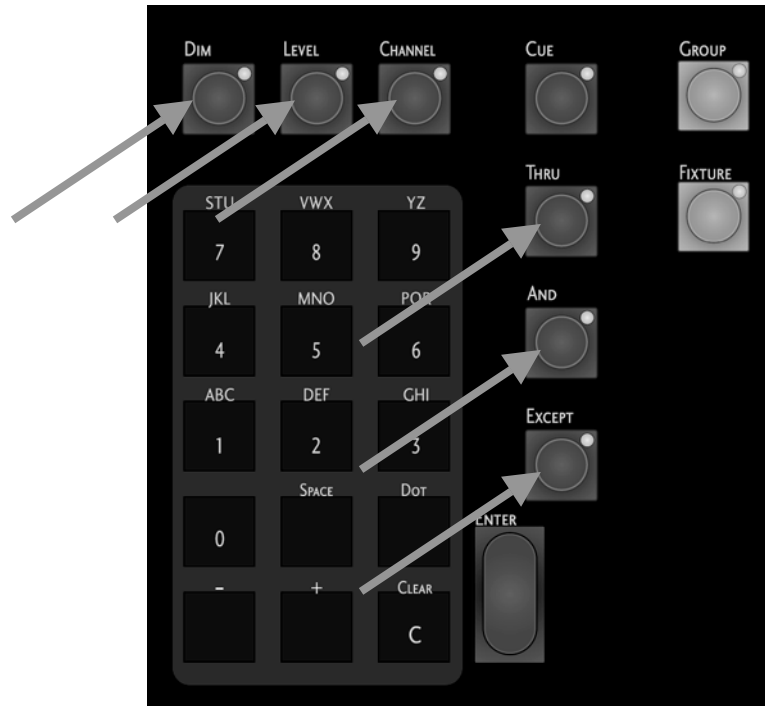
Here are some sample assignments. Where a word appears in bold capital letters, it indicates that you would press the corresponding button on the board. The numbers are entered using the numeric keypad.

DIM 1 **CHANNEL** 1 **LEVEL** 75. With this channel assignment we have assigned dimmer 1 to channel 1 at the level 75%.

DIM 1 **THRU** 10 **CHANNEL** 1 **LEVEL** 50. With this channel assignment we have assigned dimmers 1 through 10 to channel 1 at the level 50%.

DIM 1 **THRU** 10 **EXCEPT** 5 **CHANNEL** 1. With this channel assignment we have assigned dimmers 1 through 10 with the exception of dimmer 5 to channel 1 at the level 100% (the default value).

DIM 1 **THRU** 10 **AND** 15 **CHANNEL** 1 **LEVEL** 75. With this channel assignment we have assigned dimmers 1 through 10 and dimmer 15 to channel 1 at the level 75%.

DIM 1 **THRU** 10 **CHANNEL** 0 **LEVEL**. With this channel assignment we have unmapped channels 1 through 10.

DIM 1 **THRU** 10 **AND** 15 **THRU** 25 **EXCEPT** 20 **EXCEPT** 21 **CHANNEL** 1 **LEVEL** 75. With this channel assignment we have assigned dimmers 1 through 10 and 15, 16, 17, 18, 19, 22, 23, 24, and 25 to channel 1 at the level 75%.

The screen below shows the channel assignment for dimmers 1 through 5 to channel 1 at the level 75%.

```
┌─────────────────────────────────────────────────────────────┐
│                     Patch Input                              │
│                                                              │
│                                                              │
│        Dim ## [Thru ##] [Except ##] [And ##]                 │
│                                                              │
│                                                              │
│ DIM 1 THRU 5                                                 │
│                                                              │
│                                                              │
│                                                              │
│ Channel 1                          Level 75%                 │
└─────────────────────────────────────────────────────────────┘
```

5. Press **Enter** to save the channel assignment. Press **No/Esc** to cancel the channel assignment.

   This screen shows the result of saving two channel assignments: dimmers 1 through 5 to channel 1 and dimmers 6 through 9 and 101 to channel 2.

```
┌────────┬────────┬────────┬──────┬──────┬──────┬──────┐
│ Add    │ By Dim │ Delete │      │      │      │      │
├────────┴────────┴────────┴──────┴──────┴──────┴──────┤
│              Edit Patch: MY NEW PATCH                 │
│ CHAN    DIMMERS                                       │
│ ▐1 001 002 003 004 005                              ▌ │
│  2 006 007 008 009 101                            ▼  │
│  3                                                    │
│  4                                                    │
│  5                                                    │
└───────────────────────────────────────────────────────┘
```

Viewing Channel Assignments by Dimmer or by Channel

1. From the **Setup Mode** screen, press the **Patch** softkey.

   The **Patch List** screen appears.

2. Using the side wheel, select a patch to edit and then press the **Edit** softkey.

   Note that the **Edit** softkey will not be available when the default patch is selected.

```
┌──────────┬──────────┬──────────┬──────────┬──────────┬──────────┐
│ Add      │ By Dim   │ Delete   │          │          │          │
├──────────┴──────────┴──────────┴──────────┴──────────┴──────────┤
│              Edit Patch: MY NEW PATCH                            │
│ CHAN     DIMMERS                                                 │
│  1 001 002 003 004 005                                           │
│  2 006 007 008 009 101                                        ▼  │
│  3                                                               │
│  4                                                               │
│  5                                                               │
└──────────────────────────────────────────────────────────────────┘
```

The **By** softkey gives you the ability to view channel assignment information either by dimmer circuits or by board channel.

If **By Channels** is active (the default, shown above), the list will display in increasing board channel numbers. Each board channel lists the dimmers that it controls.

If **By Dimmers** is active (shown below), the list will be organized by increasing dimmer number and each dimmer will show only one channel value.

```
┌──────────┬──────────┬──────────┬──────────┬──────────┬──────────┐
│ Add      │ ByChan   │ Delete   │          │          │          │
├──────────┴──────────┴──────────┴──────────┴──────────┴──────────┤
│              Edit Patch: MY NEW PATCH                            │
│ DIM        CHANNEL                                               │
│ 001    ▶   1 @ 75%                                               │
│ 002    ▶   1 @ 75%                                            ▼  │
│ 003    ▶   1 @ 75%                                               │
│ 004    ▶   1 @ 75%                                               │
│ 005    ▶   1 @ 75%                                               │
└──────────────────────────────────────────────────────────────────┘
```

To Delete a Channel Assignment

You may delete channel assignments in either viewing mode. In **By Channel** mode, you delete everything assigned to the selected channel. In **By Dimmer** mode, you delete only the selected dimmer. All other dimmers on that channel (if any) are unaffected.

You may also delete channel assignments by mapping them to channel 0. This allows you to unmap a group of dimmers.

1. From the **Setup Mode** screen, press the **Patch** softkey.

   The **Patch List** screen appears.

2. Using the side wheel, select a patch to edit and then press the **Edit** softkey.

   Note that the **Edit** softkey will not be available when the default patch is selected.

3. Using the side wheel, select a channel assignment to delete.

4. Press the **Delete** softkey.

```
            Delete Channel?


    Are you sure that you want to remove all
           mappings for this channel?


                  Yes / No
```
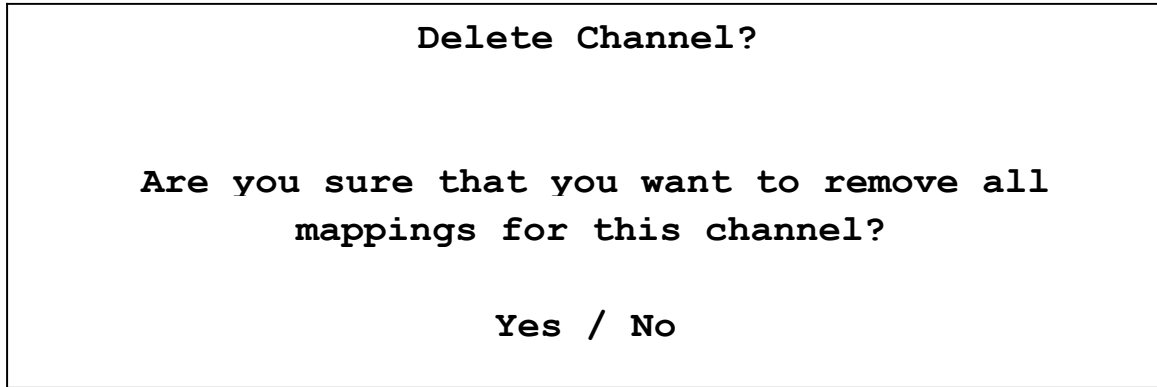
5. Press **Yes** to delete the channel assignment. Press **No/Esc** to cancel the operation.

Control Features

Some Moving Light devices have attributes that enable the user to send control signals that strike, reset and douse lights from the LP-X console. These attributes are called *control features*.

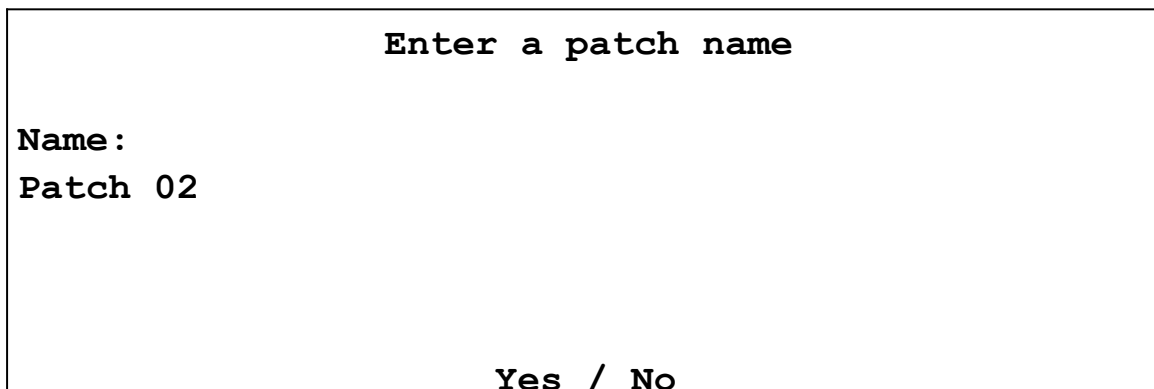| Feature	When to Use
Lamp On	Some fixtures do not start up automatically. Use the Lamp On feature to strike the lamp.
Lamp Off	Some fixtures do not shut off automatically. Use the Lamp Off feature to douse the lamp.
	You can also use this feature if an instrument needs to be shut down during a show due to a mechanical problem.
Home	Resets the fixture. Use if an instrument is behaving erratically due to a technical difficulty.

For a complete list of instruments that have control features, please refer to the document "Leprecon Moving Light Library".

To use Control Features

Control features are only available for instruments that have DMX line assignments in the show that is currently open.

1. From the **Setup Mode** screen, press the **CtrlF** softkey.

    The **Control Features** screen appears.

```
Control Features
Select the instruments you want to use
control features on.
```
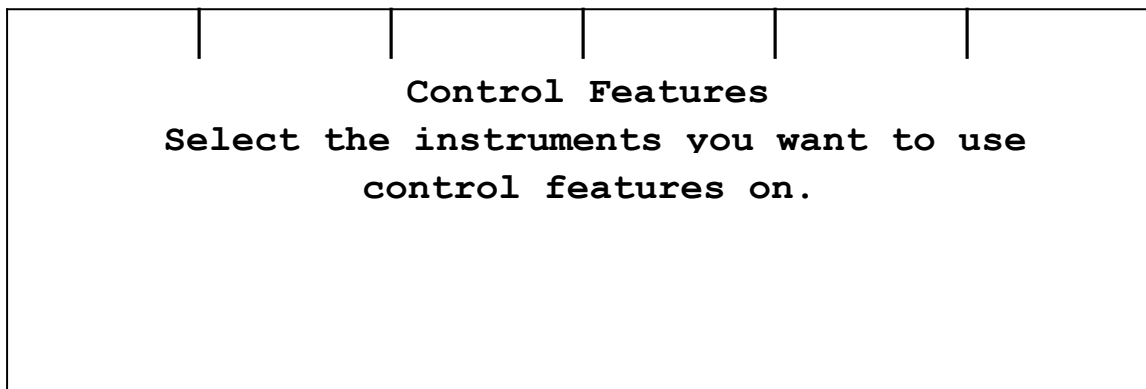
2. Select one or more instruments to which a control feature will be applied.

    There are several selection methods available.

To	Do
Select a single instrument.	Press the **ML Select** button for the instrument.
Select several instruments.	Repeat the procedure for selecting a single instrument until all desired instruments are selected. **Note:** all instruments that you select must have the control feature you intend to use—only the control features the instruments have in common will be displayed.
Select a group of instruments.	Hold down the **Group** button and press the **ML Select** button for the group. **Note:** all instruments in the group must have the control feature you intend to use—only the control features the instruments have in common will be displayed.

If you select instruments of different types, only the control features that they have in common will be displayed in the **Available Control Features** list. For example, the Studio Color has the control features *Home* and *Lamp Off*. The Cyberlight Mode 2 has the control feature *Home*. With instruments of both types selected, only the control feature *Home* appears in the **Available Control Features** list.
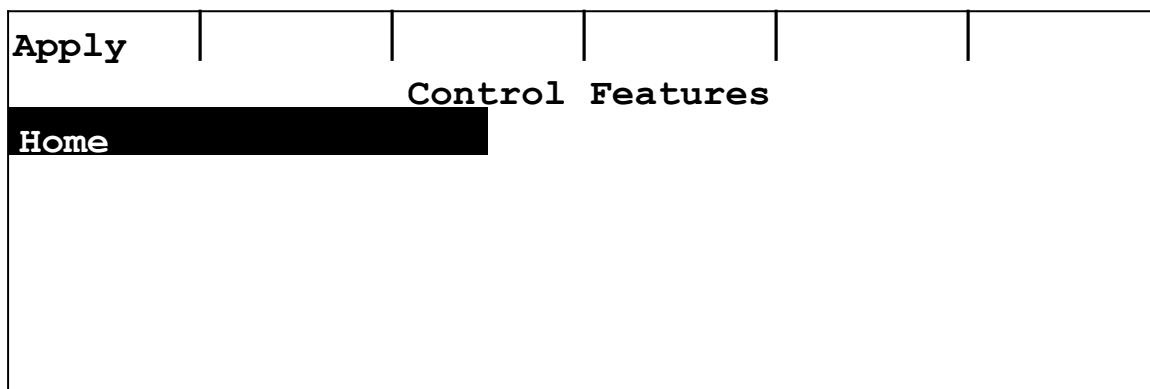
```
┌─────────────────────────────────────────────────────────────────────┐
│ Apply      │          │          │          │          │          │  │
│                         Control Features                               │
│ ███████████████████████████████                                       │
│ Home                                                                   │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
└─────────────────────────────────────────────────────────────────────┘
```

3. Use the side wheel to select a control feature from the list of available control features.

4. Press the **Apply** softkey.

   The control feature is loaded and sent.

   NOTE: If you are playing back a look, the control feature overrides the values for the selected instruments.

Show Maintenance

The **Show Maintenance** menu includes functionality to create a new show, back up the current show to a floppy disk and restore a show from a floppy disk.

To Create a New Show

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

```
┌─────────────────────────────────────────────────────────────────────┐
│ Show    │ Update  │ Erase   │ DMX     │ Lock    │ Misc              │
│                         Setup Mode                                     │
│                                                                        │
│ Software Version: 1.01.10FxD                          ◀ Prev          │
│ Build Date: Sep 13 2001 16:38:39                                      │
│ Show Version: 1.01                                                     │
│ Lib Version: 51                                                        │
│ CPU Version: D            50                                           │
└─────────────────────────────────────────────────────────────────────┘
```

2. Press the **Show** softkey.

   The **Show Maintenance** screen appears.

Backup	Reload	New			

<div align="center">

Show Maintenance

</div>

3. Press the **New** softkey.

<div align="center">

Clear Show?

Are you sure you want to clear all of the data in the show?

Yes / No

</div>
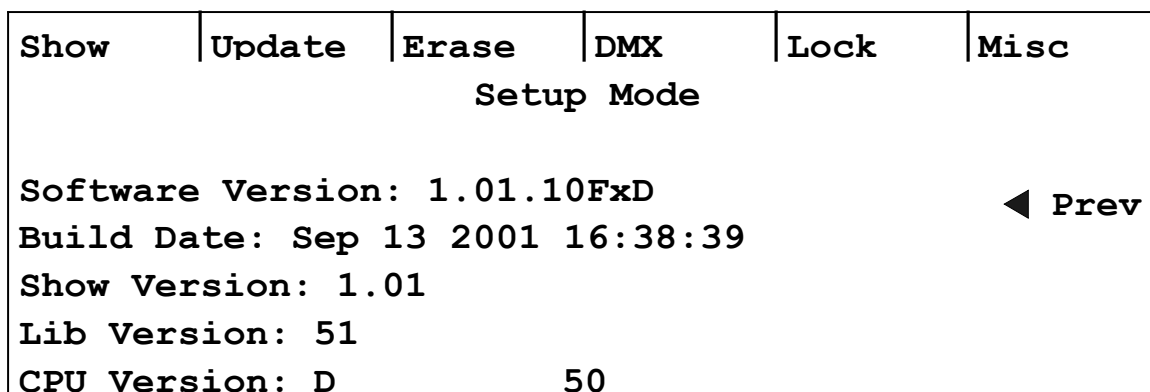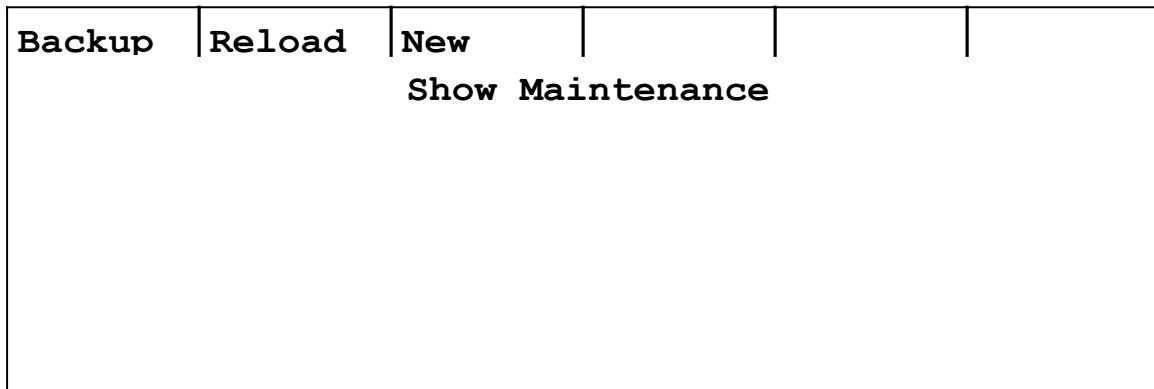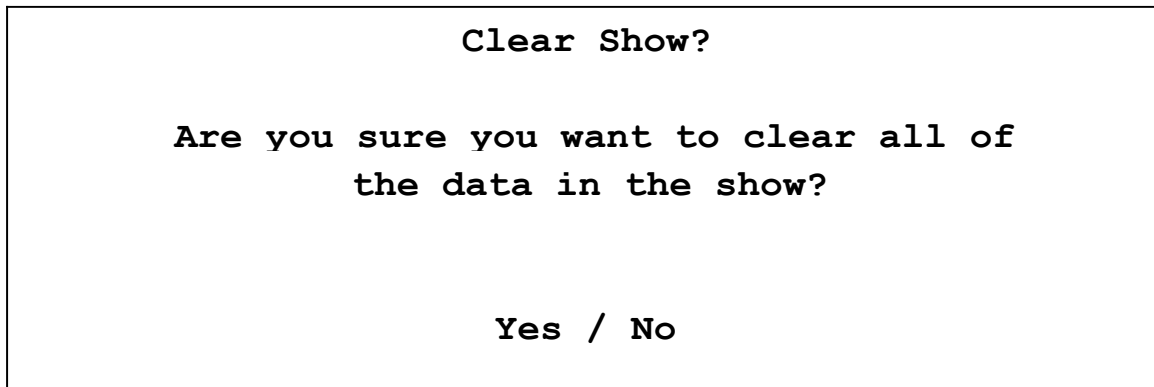
When you create a new show, the LP-X clears all data in the show. This includes moving light instrument DMX line assignments, patching assignments and all looks, stacks and chases.

4. To clear all data and create a new show, press the **Yes** key. Press **No/Esc** to cancel the operation.

To Back up a Show to Floppy Disk

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **Show** softkey.

   The **Show Maintenance** screen appears.

3. Press the **Backup** softkey.

```
                    Backup Show


      This will save the current show and back
            it up to the floppy drive.
        Please place a blank formatted disk in
        the drive and press Yes to continue.
                    Yes / No
```

4. Insert a blank, formatted disk in the drive and then press **Yes**.

   The LP-X has a progress indicator that informs you which show file is being copied and when the show file backup is completed.

NOTE: The LP-X checks the floppy disk that you insert into the drive to determine whether or not it is blank. If there is any information on the disk, the LP-X warns you if it will have to overwrite any of the files.

To Restore a Show

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **Show** softkey.

   The **Show Maintenance** screen appears.

3. Press the **Reload** softkey.

```
                   Restore Show


        This will load a show from the floppy
        disk and overwrite the current show.
        Please place a show disk in the drive
              and press Yes to continue.
                    Yes / No
```

4. Insert a show disk into the disk drive and press **Yes**.

   The LP-X has a progress indicator that informs you which show file is being restored and when the operation is complete.

Transferring a Show from an LP-X48 to an LP-X24

There are very few issues that you will have to address if you need to transfer a show from an LP-X48 to an LP-X24.

The LP-X24 will not delete any information. It ignores information above channel 96 and on DMX Line B.

If you want to, you may re-patch conventional lights and re-assign moving lights to slots recognized by the LP-X24.

The Erase Menu

Use the **Erase** menu to erase any of the following:

Softkey	Function
Stack	Erasing the stack will discard all information for the stack. It will not discard information stored in linked playbacks. For more information about linked playbacks, see "Linking to a Playback" beginning on page166.
Patch	Deletes all custom patches.
Playback	Erasing playbacks removes all looks from all playbacks.
Show	Erasing the show clears all information from the LP-X and restores it to factory presets. This is the same as creating a new show.

NOTE: There is no way to recover information after erasing.

To Erase the Stack

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **Erase** softkey.

   The **Erase** screen appears.

Stack	Patch	Plybck	Show		

Erase

**Choose which part of your show you want
to erase.**
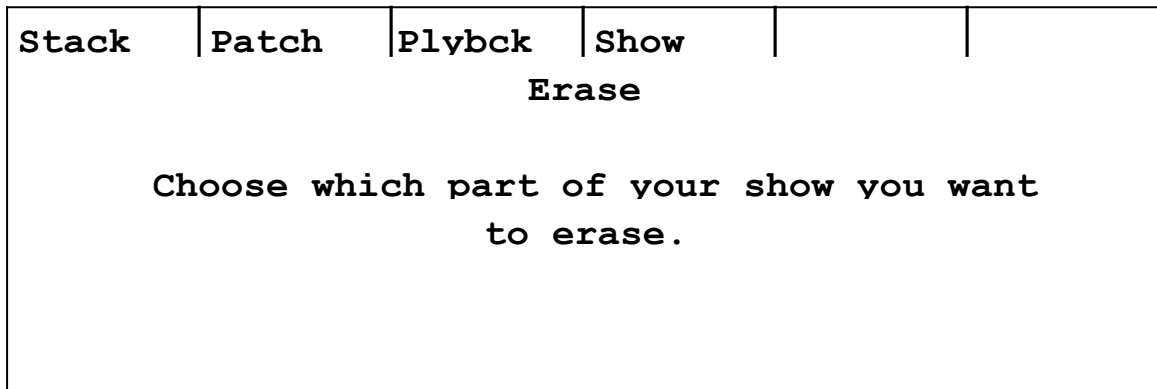
3. Press the **Stack** softkey.
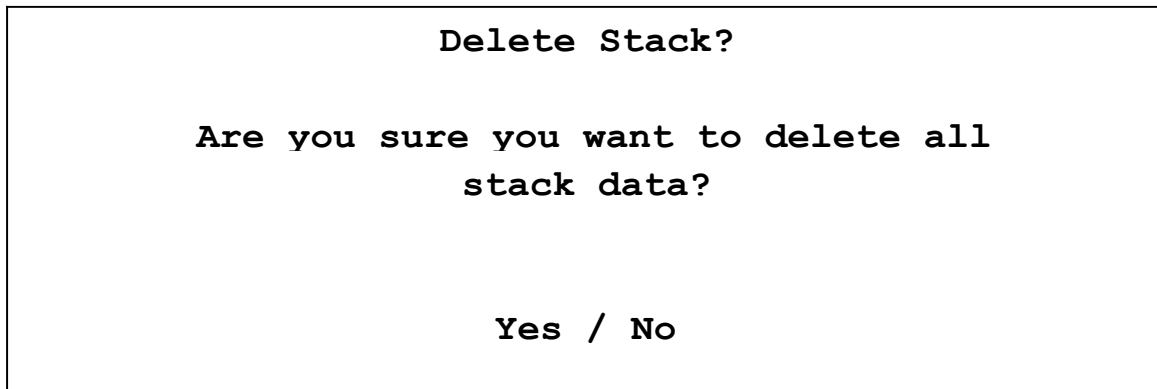
Delete Stack?

**Are you sure you want to delete all
stack data?**

Yes / No

4. Press the **Yes** key to confirm deleting the stack. Press **No/Esc** to cancel the operation.

To Erase Custom Patches

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **Erase** softkey.

    The **Erase** screen appears.

3. Press the **Patch** softkey.

```
              Delete Patch?


     Are you sure you want to delete all
                 patch data?



                 Yes / No
```
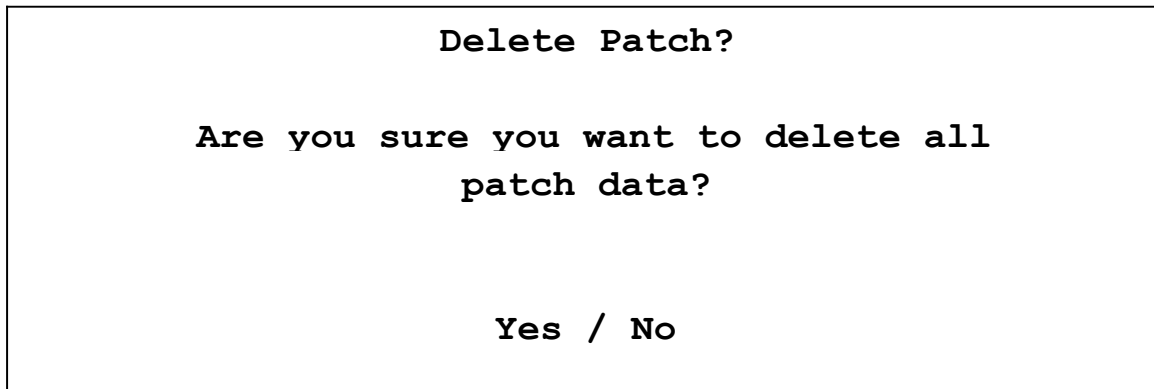
4. Press the **Yes** key to confirm deleting all custom patch data. Press **No/Esc** to cancel the operation.

To Erase Playbacks

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **Erase** softkey.

    The **Erase** screen appears.

3. Press the **Plybck** softkey.

```
            Delete Playbacks?


     Are you sure you want to delete all
                 scene data?



                 Yes / No
```
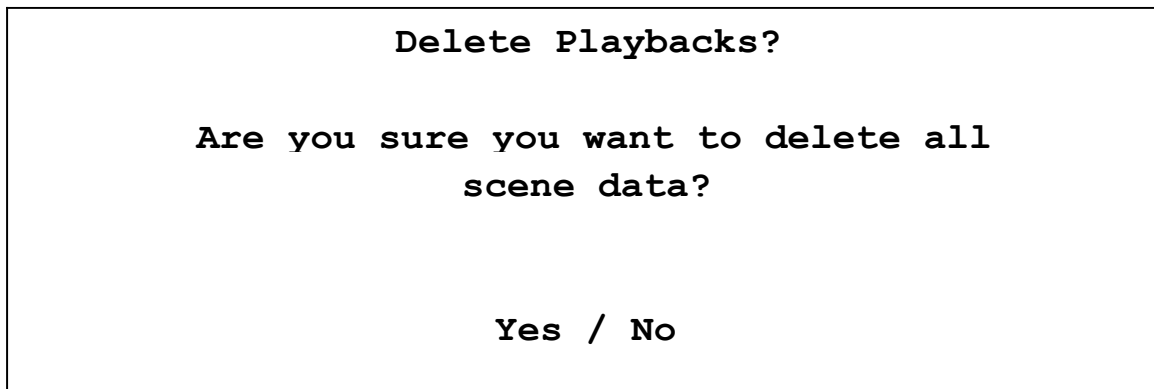
4. Press the **Yes** key to confirm deleting all scene data. Press **No/Esc** to cancel the operation.

To Erase a Show

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **Erase** softkey.

    The **Erase** screen appears.

3. Press the **Show** softkey.

```
                    Clear Show?

        Are you sure you want to delete
             everything in the show?



                    Yes / No
```
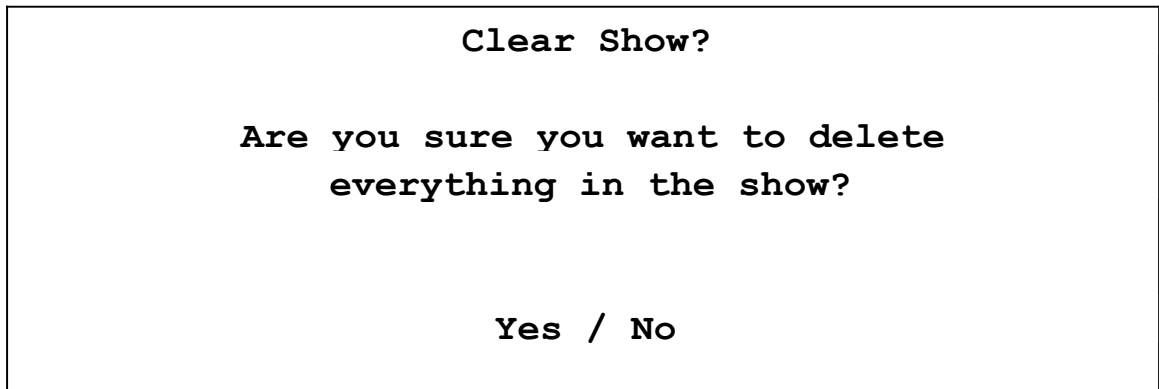
4. Press the **Yes** key to confirm clearing the show. Press **No/Esc** to cancel the operation.

Chapter Three:
Conventional Light Programming

The following controls are the ones you will use when you operate the LP-X as a conventional light console—that is, to operate non-moving light fixtures with intensity only.

Master Fader

Bank Button

Blackout

Page Roller

Manual Scene Faders

Master Fader

Manual Fader

Playbacks
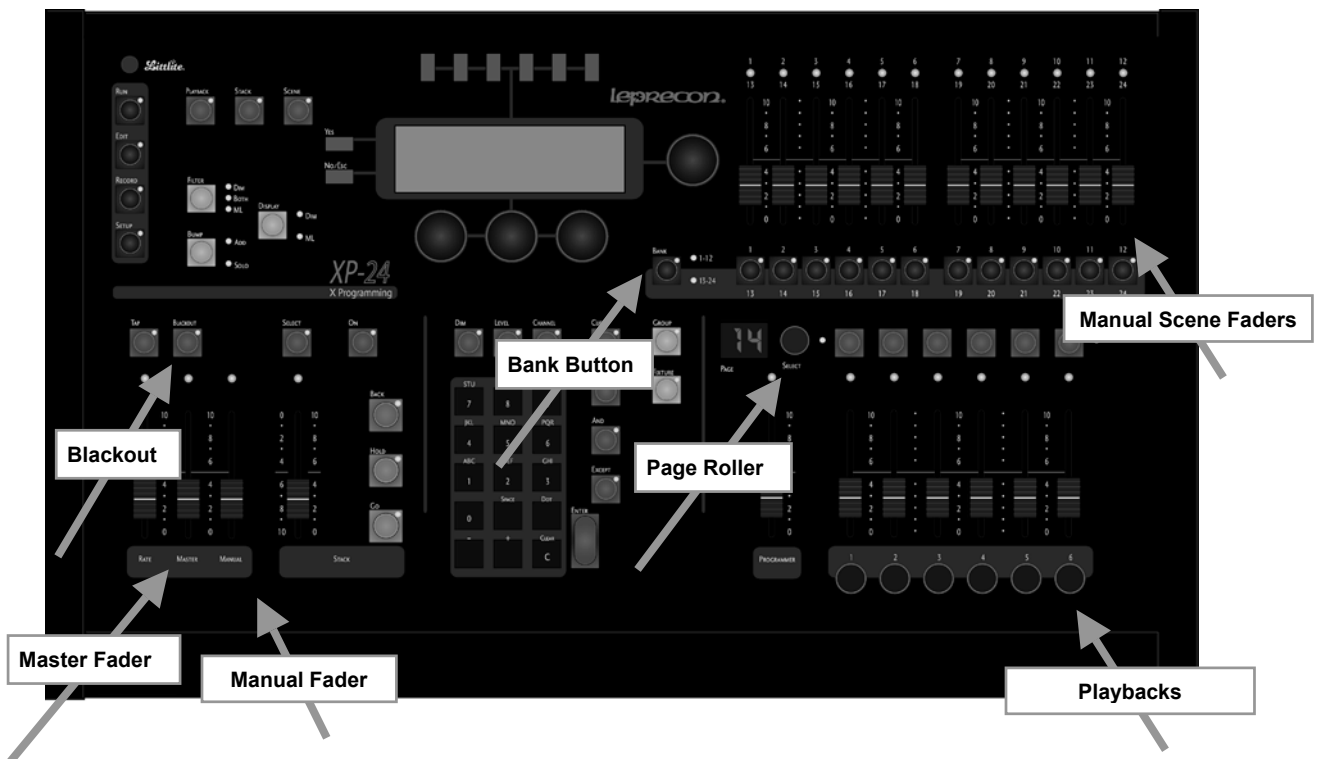
Master Fader

The **Master** fader is used to adjust the level for the console's entire output. If this fader is down, nothing will be output from the manual scene faders. The intensity of the LED above the **Master** fader indicates the fader's position.

Manual Fader

The **Manual** fader is used to adjust the overall level for the manual scene faders. If this fader is down, nothing will be output from the manual scene faders. The intensity of the LED above the **Manual** fader indicates the fader's position.

Blackout Button

The **Blackout** button has the same effect as bringing down the **Master** fader and is handy for blacking out the entire stage suddenly. **Blackout** is a toggle switch; pressing it

once blacks out the board and pressing it a second time returns the board to normal operation. An LED in the **Blackout** switch indicates its status. When **Blackout** is active this LED flashes.

Manual Scene Faders and Output LED Indicators

In typical LP-X usage, conventional lights are patched to **Manual Scene Faders** to give the user control of the conventional light intensities. The green LEDs above each fader indicate fader level. **Manual Scene Fader** levels are mastered by the **Manual Fader** and the **Master Fader**.

Bank Button

The LP-X24 provides twelve faders in the *Manual Scene* section of the board. The **Bank** button effectively doubles the number of faders by permitting you to switch between controlling faders 1 through 12 and faders 13 through 24.

The LP-X48 provides twenty-four faders in the *Manual Scene* section of the board. The **Bank** button effectively doubles the number of faders by permitting you to switch between controlling faders 1 through 24 and faders 25 through 48.

When you switch between banks, you may have to match and grab levels previously set in order to control the fader's level again. For information about match and grab, please see "Conventions Used in this Manual" beginning on page 14.

Playbacks

When you have set a look that you like, you save it to one of the **Playbacks** by pressing the **Select** button above the fader. Every time you press the **Select** button for the fader, you add another look to the playback, giving you the ability to sequence many looks on a single playback. Playbacks operate in a "pile-on" mode, allowing multiple playbacks to be up at any one time.

Page Roller

Although there are only six physical playbacks on the LP-X24 and twelve on the LP-X48, the **Page Roller** selects any of twenty pages that will be active for a playback. This effectively increases the number of playbacks from six to one hundred twenty or from twelve to two hundred forty. To switch between pages, turn the **Page Roller** until the desired page number appears on the **Page Display**.

During playback, when the **Page Roller** is moved to a new page, only the playbacks that are at zero level will be loaded with new looks. Any fader that is not at zero will be in "page hold" and will retain its current assignment until the fader is returned to zero. As soon as the fader is moved to zero, the playback for the currently selected page is automatically loaded.

Solo and Add "Bump" Buttons

In **Run** mode, the buttons beneath the six **Playbacks** and the twelve **Manual Scene Faders** (LP-X24) or twelve **Playbacks** and twenty-four **Manual Scene Faders** function as **Solo** or **Add** buttons—or are turned off—depending upon the **Bump** mode set for the board.

Add, Solo or off
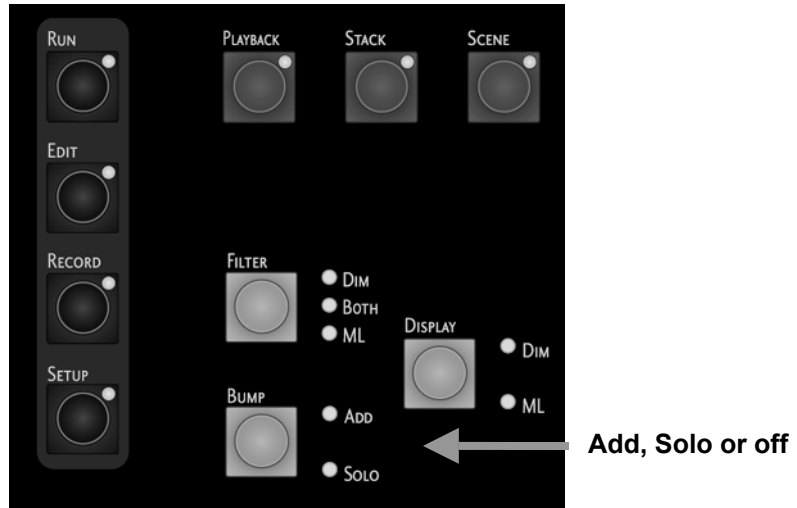
Pressing and holding an **Add** button has the same effect as bringing up the fader. The selected scene is added to the current look on stage. When you release the button, the scene is removed from the look.

Pressing and holding a **Solo** button temporarily blacks out the rest of the console and leaves only the selected scene up. Releasing the button restores normal operation.

Solo and **Add** buttons operate independently of the **Master** fader level.

Recording and Playing Back Conventional Light Looks

Before you begin, you must decide whether or not to use the default patch or to create a custom patch of conventional lights to manual scene faders. Please see the section "Dimmer Patch" beginning on page 52 for more information.

To Record Conventional Light Looks

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**DIM**
Filter	**DIM or BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Up (typically full on)
Programmer Fader	Up (typically full on)

2. Raise the manual scene faders for the lights in the first look.

Start with the **Bank** button set to the first bank. Raise the faders for the lights you want to include. Switch the **Bank** button to the second bank. Raise the faders for the lights you want to include. Note: If you raised Manual Scene Fader 1, for example, and now want to include the lights on Manual Scene Fader 13 (LP-X24) or 25 (LP-X48), you will need to bring the fader down to the zero level and then raise it. This is called *match and grab*.

The LP-X display shows you the manual scene faders and their levels.

All faders at zero:

```
                    Recording new scene
01  02  03  04  05  06  07  08  09  10  11  12

13  14  15  16  17  18  19  20  21  22  23  24      ▼

                                          Fade
       Select                 Level        0:00
```
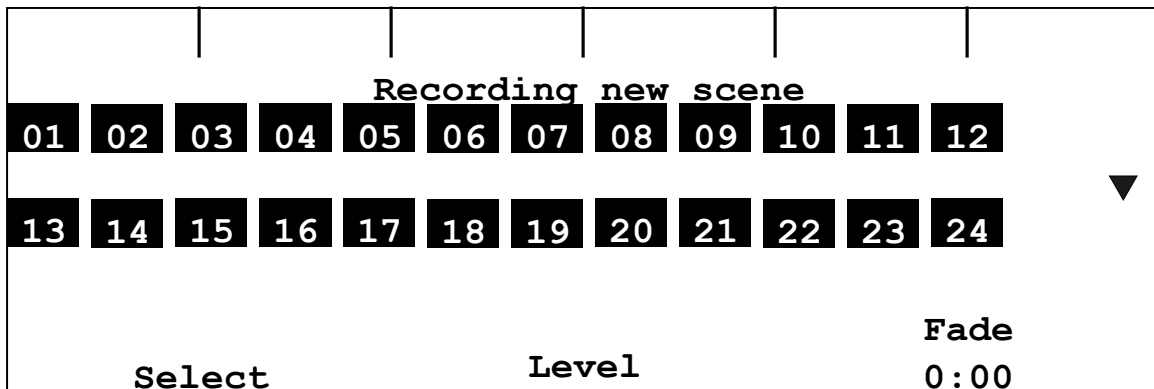
Manual Scene Fader 1 set to 50% and Manual Scene Fader 2 set to 100% (FF).

```
                    Recording new scene
01  02  03  04  05  06  07  08  09  10  11  12
50  FF
13  14  15  16  17  18  19  20  21  22  23  24      ▼

                                          Fade
       Select                 Level        0:00
```
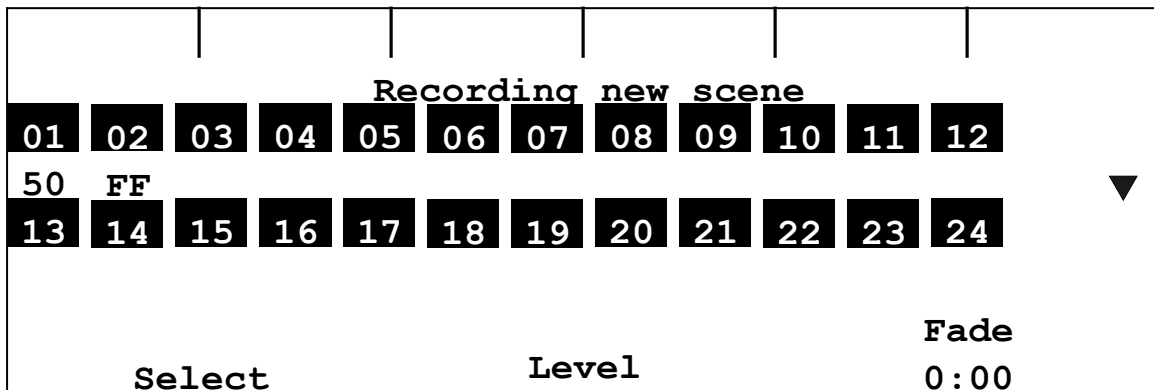
3. Using the **Page Roller** select the desired page.

4. To save the first look, press the **Select** button for the desired playback.

   The LP-X display shows the page, playback and step that you just recorded.

Page 1, Playback 6, Step 1

```
Save        |        |        |        |        |
                  Record: PG 1 PB 6 Step: 1
 01  02  03  04  05  06  07  08  09  10  11  12
 50  FF                                              ▼
 13  14  15  16  17  18  19  20  21  22  23  24


                                              Fade
        Select            Level               0:00
```
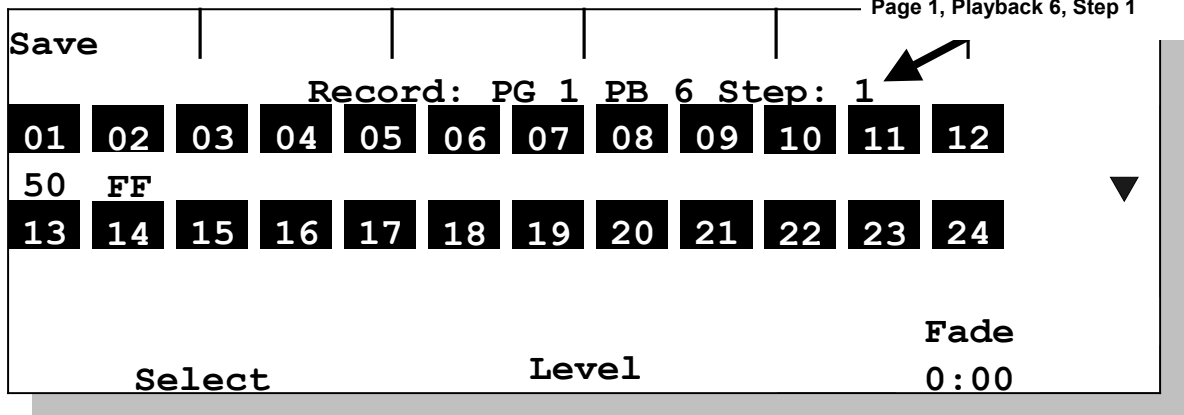
5. To add another look to the playback, use the Manual Scene faders to create the look
    and then press the **Select** button for the same page and playback.

```
Save        |        |        |        |        |
                  Record: PG 1 PB 6 Step: 2
 01  02  03  04  05  06  07  08  09  10  11  12
 81  17                                              ▼
 13  14  15  16  17  18  19  20  21  22  23  24
 FF        50  50  50  FF

                                              Fade
        Select            Level               0:00
```
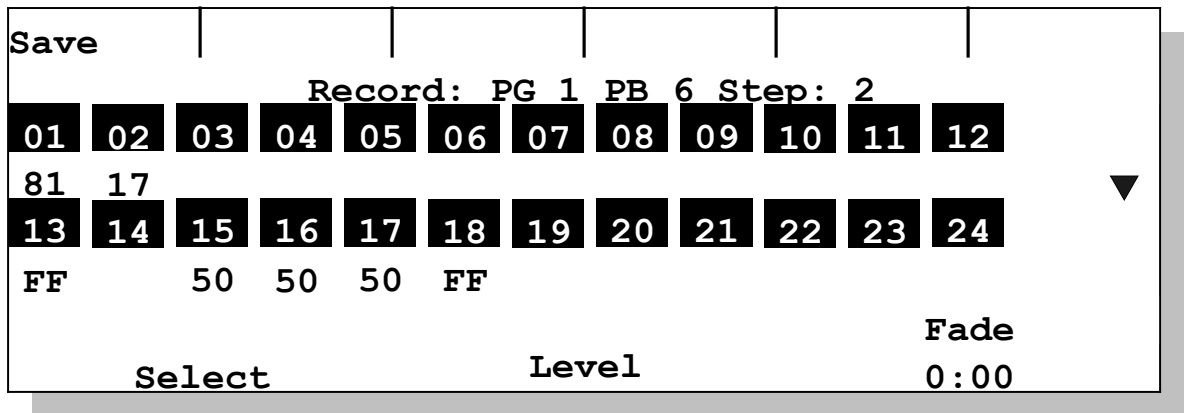
6. Repeat Step 5 until you have recorded all desired looks.

To Play Back Conventional Light Looks

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Run** and **Playback** or **Scene**
Display	N/A
Filter	N/A
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down

2. Raise the playback to the desired level (typically 100%).

The LP-X displays the first look that you recorded to the playback.

In **Playback** mode, you see which playbacks are active and what step each is on.

```
                                                          12:00

1 Inactive
2 Inactive                                                    ▼
3 Inactive
4 Inactive
5 Inactive
6 PG 1 Step: 1 of 2
```

In **Scene** mode, you see conventional channels and the intensity that each is currently outputting.

```
              Conventional Channels          12:00

01  02  03  04  05  06  07  08  09  10  11  12
50  FF                                            ▼
13  14  15  16  17  18  19  20  21  22  23  24

25  26  27  28  29  30  31  32  33  34  35  36
```

3. To advance to the next look, press the **Select** button for the playback.

4. To move backward to the previous step, hold down the **Except** button and press the **Select** button for the playback.

   If the scene list is already at Step 1, pressing **Except + Select** moves to the last step of the scene list if the playback is set to loop.

5. Lower the playback intensity to zero when you are done.

Manual Scene Fader Bump Buttons

The twelve or twenty-four **Manual Scene Faders** have **Bump** buttons. The function of the **Bump** buttons is determined by the setting on the **Bump Master** in the *Mode Controller Section*.

When the **Bump Master** is set to **Add**, pressing a **Bump** button automatically adds the light into the look at 100%.

When the **Bump Master** is set to **Solo**, pressing a **Bump** button automatically kills all other lights and solos the light at 100%.

When the **Bump Master** is off, pressing a **Bump** button has no effect.

Modifying Conventional Light Looks

You use two different techniques to modify conventional light looks. The first technique assumes that you want to see the changes as you are making them. This is called a "live" edit. The second technique assumes that you do not want to see the changes as you are making them. For example, during a show, you may need to make a change to an upcoming look without disturbing the current look. This is called a "blind" edit.

To Modify a Conventional Light Look When You are Not Running a Show—Live Edit

This operation will work on any playback except one that is in *page hold* mode. For example, if you are running a scene list on Page 1, Playback 1, you will not be able to edit a scene list on Page 2, Playback 1. This is because Playback 1 is in *page hold* mode and will not switch to Page 2 until the Playback 1 level is brought to zero.

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Edit** and **Scene**
Display	**DIM**
Filter	**DIM** or **BOTH**. Should be set to **BOTH** if you have any moving light information recorded with the scene.
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Down (typically zero)
Programmer Fader	Up

The LP-X displays the following message:

```
                         Edit Mode


         Please select a scene to edit using the
               playback & stack select buttons.
```

2. Press the **Select** button for the playback repeatedly until you reach the look you want to edit.

    You may press and hold the **Minus** (**-**) button and press the **Select** button for the playback to move backward through the looks.

    The LP-X displays information for that look of the playback. The LP-X copies the look to the **Programmer Fader**.
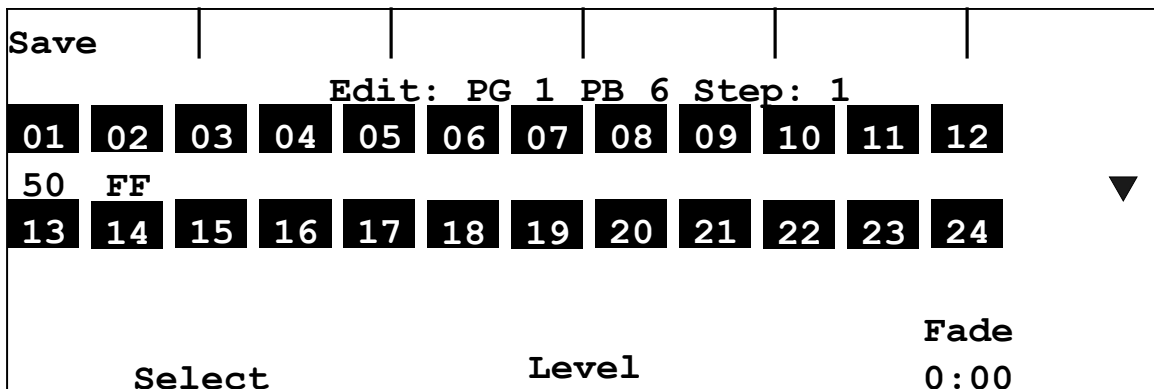
```
Save

                  Edit: PG 1 PB 6 Step: 1
 01  02  03  04  05  06  07  08  09  10  11  12
 50  FF                                            ▼
 13  14  15  16  17  18  19  20  21  22  23  24

                                         Fade
       Select              Level          0:00
```

3. Raise or lower manual scene faders to add lights to, remove lights from or change current levels in the look.

    For example, match and grab the 50% level on Manual Scene Fader 1 and then increase it to 100%.

    For example, match and grab the 100% level on Manual Scene Fader 2 and then decrease it to 25%.

    For example, match and grab the 0% level on Manual Scene Fader 3 and then increase it to 50%.

    Note that the level changes will be reflected in the **Manual Scene Fader** LEDs but may not be visible on stage. Whether or not you see the level changes on stage will be determined by the level of the **Programmer Fader** and the levels to which the lights are set in other active playbacks.
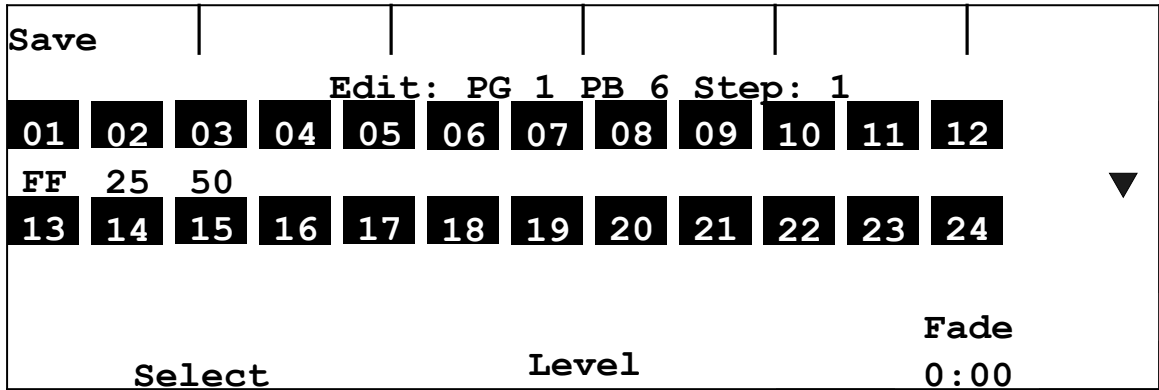
```
┌─────────────────────────────────────────────────────────────┐
│ Save          │        │        │        │        │         │
│                    Edit: PG 1 PB 6 Step: 1                    │
│ ▐01▌▐02▌▐03▌▐04▌▐05▌▐06▌▐07▌▐08▌▐09▌▐10▌▐11▌▐12▌             │
│ FF  25  50                                               ▼   │
│ ▐13▌▐14▌▐15▌▐16▌▐17▌▐18▌▐19▌▐20▌▐21▌▐22▌▐23▌▐24▌             │
│                                                              │
│                                               Fade           │
│       Select            Level                 0:00           │
└─────────────────────────────────────────────────────────────┘
```

4. Press the **Save** softkey.

5. Repeat steps 2 through 4 for each look you want to modify.

6. When you are done, return to **Run** mode.

7. Optional: Return all **Manual Scene Faders** to the desired levels and then raise the **Manual Fader** up from the zero level.

To Modify a Conventional Light Look When You *are* Running a Show—Blind Edit

This operation will work on any playback except one that is in *page hold* mode. For example, if you are running a scene list on Page 1, Playback 1, you will not be able to edit a scene list on Page 2, Playback 1. This is because Playback 1 is in *page hold* mode and will not switch to Page 2 until the Playback 1 level is brought to zero.

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Edit** and **Scene**
Display	**DIM**
Filter	**DIM** or **BOTH**. Should be set to **BOTH** if you have an moving light information recorded with the scene.
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Down (typically zero)
Programmer Fader	Down

The LP-X displays the following message:
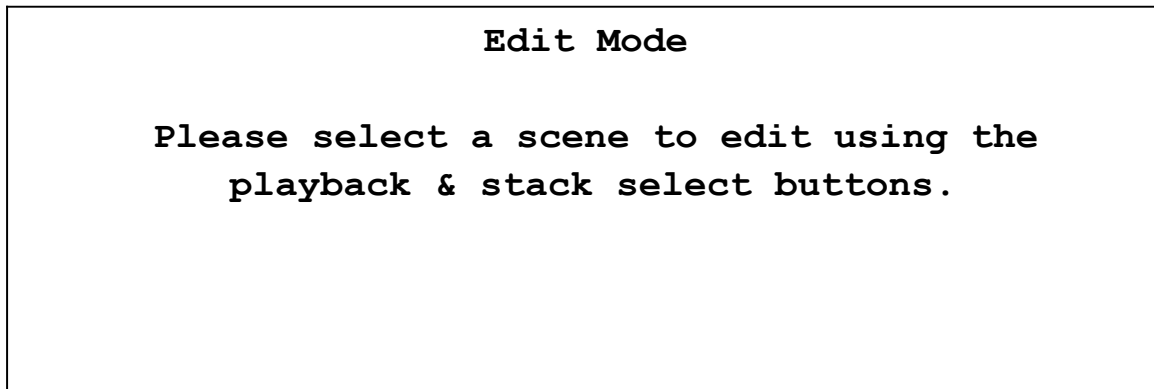
```
                         Edit Mode


        Please select a scene to edit using the
              playback & stack select buttons.



```

2. Press the **Select** button for the playback repeatedly until you reach the look you want to edit.

   The LP-X displays information for that look of the playback. Because the **Programmer Fader** is set to zero, no data for the look is output to the stage.
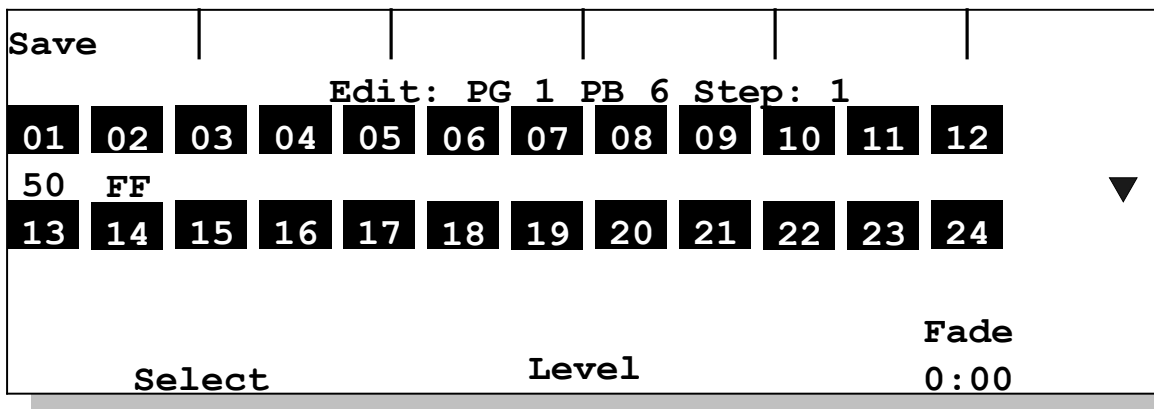
```
Save       |         |         |         |         |

                 Edit: PG 1 PB 6 Step: 1
 01  02  03  04  05  06  07  08  09  10  11  12
 50  FF                                             ▼
 13  14  15  16  17  18  19  20  21  22  23  24


                                           Fade
        Select              Level          0:00
```

3. Raise or lower manual scene faders to add lights to, remove lights from or change current levels in the look.

   For example, match and grab the 50% level on Manual Scene Fader 1 and then increase it to 100%.

   For example, match and grab the 100% level on Manual Scene Fader 2 and then decrease it to 25%.

   For example, match and grab the 0% level on Manual Scene Fader 3 and then increase it to 50%.

   Note that these changes will not be visible in the lights, regardless of the positions of the **Master Fader** and **Manual Fader**. All edits are done blind. The level changes will be reflected in the LEDs for the **Manual Scene Faders**.
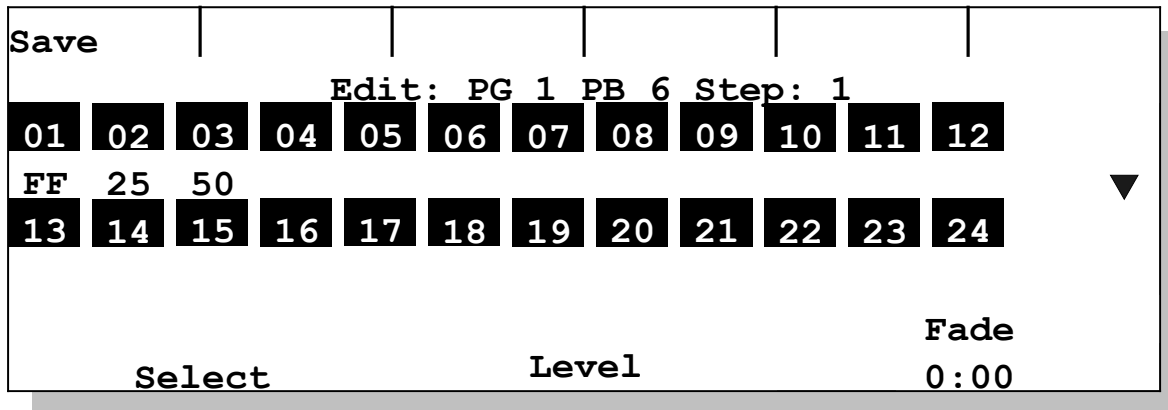
```
Save          |        |        |        |        |
                 Edit: PG 1 PB 6 Step: 1
 01  02  03  04  05  06  07  08  09  10  11  12
FF  25  50                                                      ▼
 13  14  15  16  17  18  19  20  21  22  23  24


                                            Fade
      Select                   Level        0:00
```

4. Press the **Save** softkey.

5. Repeat steps 2 through 4 for each look you want to modify.

6. When you are done, return to **Run** mode.

7. Optional: Return all **Manual Scene Faders** to the desired levels and then raise the **Manual Fader** up from the zero level.

Overriding Conventional Light Looks at Run Time

There may be times when you want to make a change to a conventional light look but you don't want to save it. For example, an unexpected guest may step onto an unlit portion of the stage to take a bow. You need to bring up a light, but there is no reason to save the change. This is called "overriding" a look. It is done in Run mode.

To Override a Look

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Run**
Display	N/A
Filter	N/A
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Down (typically zero)
Programmer Fader	Down

2. Zero out all **Manual Scene Faders**.

   To do this, bring all **Manual Scene Faders** to zero for the current bank. Press the **Bank Switch** button. Raise all faders to 100% and lower them to zero.

3. Now raise the **Manual Fader** to the desired level—typically 100%.

4. Raise individual **Manual Scene Faders** to introduce new lights into the look or increase the intensity of lights that are already in the look.

    Note that you can only add lights to a look or raise the intensity of lights that are already in the look. You cannot lower the intensity of lights using this procedure.

5. When you are done, lower the **Manual Fader** to zero.

6. Zero out all **Manual Scene Faders** using the technique described in step 2.

Chapter Four:
Moving Light Programming

In this chapter we introduce the subject of moving light programming and provide the key information you will need to use the LP-X as a moving light programmer.

You will find additional information on advanced or specialized moving light programming techniques in subsequent chapters.

Moving Light Definitions

The basic premise has been accepted that only four properties of a beam of light can be changed. These properties are called:

- Color—The color of the light, whether controlled by a single color wheel or a group of color mixing wheels.

- Beam—The shape of the beam as modified by passing it through a variety of modifiers (shutter, iris, gobo).

- Intensity—The brightness of the beam, usually controlled by a mechanical dimmer in a moving light.

- Focus—The position of the beam and sharpness or definition of the beam edge.

All effects produced by moving lights are based on these four properties. The following list details the elements that are present in most moving lights. It also describes some terminology that is unique to the LP-X.

Color (Color Property)

Color effects in a moving light are generally produced by placing a color media in the path of the beam. Dichroic filters are the media of choice. Usually a disc with several filters is placed so that rotating the disc will move one of the filters into position. Some fixtures have the ability to spin the color wheel continuously for an entertaining effect.

Color Mixing (Color Property)

Some advanced instruments use the combination of three-color media to produce a wide range of colors. Usually referred to as CYM or color mixing, three channels are used to set the relative saturation of the component colors. This also allows fading from one color to another without the abrupt change that is characteristic of a rotating color wheel.

Gobo (Beam Property)

A gobo is a cut out pattern that is inserted into the beam so as to project a pattern on the stage. Scholars have traced the term "gobo" to the Italian term for an idiot, translated as "dim bulb". We are unsure of the significance of this fact. Suffice to say that the gobo has been around about as long as instruments with lenses.

As with color wheels, gobo wheels are positioned in the light beam and can be rotated to the proper position on cue. Some gobo sizes are standardized which allows custom gobo patterns to be fabricated and inserted into the gobo wheel for specific effects.

Shutter (Beam Property)

To produce a fast blackout, a mechanical shutter is used that blocks all light output very quickly. Opening and closing the shutter rapidly is used as a strobe effect.

Iris (Beam Property)

The iris of a Moving Light is identical to any other iris—a clever multi-leaf element that produces a variable sized round aperture. As the iris size changes, the intensity of the remaining beam remains constant.

Rotating and Indexed Gobos (Beam Property)

Another special effect is the ability to rotate a gobo pattern. This is not to be confused with spinning the entire wheel. Still another stepper motor is used to rotate the individual gobo in its position on the gobo wheel. Usually another control channel is used to set the rate and direction of the rotation. An associated effect allows the gobo to be precisely oriented, or indexed. This is important when the pattern is projected, such as a corporate logo.

Effects: Prisms and Frost (Beam Property)

The number of elements that can be introduced into the optic path is limited only by the imagination of instrument designers and the budgets of the users. Besides the standards of gobo and color, several popular instruments incorporate another general-purpose wheel for effects. These can include prisms to split the beam, color correction filters and diffusion media or "frost". The exact features that are loaded in an effects wheel can vary widely.

Zoom and Focus (Beam Property)

Because Moving Lights are used for their static properties as well as their ability to move, manufacturers have added motor controls to the optics. The results are the ability to control the "sharpness" or definition of the beam edge (focus) and the size of the projected beam (zoom). Controlling the beam size with the iris maintains the intensity as the area of coverage changes. Zooming the fixture concentrates the light into a larger or smaller area with a corresponding change in illumination.

Dimmer (Intensity Property)

The high-performance Moving Lights of today usually utilize discharge lamps as a light source. These arc lamps are compact, efficient and have a high color temperature. On the down side, they require a large and heavy ballast and cannot be dimmed electrically. As a result, the dimming system usually consists of a mechanical element such as a disk with progressively narrower slots.

Mirror (Focus Property)

The positioning of the mirror is responsible for the "focus" or position of the beam. Generally, stepper motors are used to set the mirror position, with an XY axis for pan and tilt. Some instruments use a single 8-bit value for mirror position; other instruments use a 16-bit value. This information is significant only for ensuring that the LP-X set-up for an instrument is correct.

Because of the limitations in the pan and tilt mechanisms, the area that a moving mirror can light is restricted.

Instruments such as the Mac 500 and Studio Color, on the other hand, are moving head or true moving lights. These instruments are less restricted in their range of movement but use all of the features of the LP-X Moving Light Controller software as a moving mirror instrument would.

No Change

On the LP-X, there is an important feature known as *No Change*. This is referred to as *Transparency* in some moving light controllers.

Moving light programming requires that each light in a look be assigned values for the four properties described above—beam, color, focus and intensity.

There may be instances where you want the light to retain the value of whatever precedes it. This is accomplished by setting the light to *No Change*.

For example, you know that the playwright will walk on stage for a bow in a specific location but you do not know when it will happen. You want to light the playwright using the same colors that are currently in use on stage. You create a look that includes a specific value for the beam, focus and intensity. You set the color value to *No Change*. When the playwright walks on stage, you play back the look. The light moves into the prearranged position with a specific beam and intensity—but the color is whatever was last specified for the light.

No Change applies to color, beam and focus. It does not apply to intensity.

The Moving Light Library

The LP-X includes a library of the moving light fixtures that are in common use. Because of this library, the LP-X "knows" all of the basic information about a light—and you don't have to program it in. The basic information consists of the following:

1. A list of the attributes for the fixture and the property with which each attribute is grouped. For example, the Intellabeam 8 Channel has eight attributes.

Attribute	Property Affected
Color Wheel 1	Color
Shutter	Beam
Gobo Wheel 1	Beam
Iris	Beam
Speed	Beam
Pan	Focus
Tilt	Focus
Dimmer	Intensity

2. The range of values available for each attribute, typically from 0 to 255.

3. A set of labels for the Color property for each fixture. A label may represent the value of one attribute or the values of several attributes that—combined together—control the appearance of a property. In the Intellabeam 8 Channel, the Color property is controlled by one attribute—Color Wheel 1. The label for the attribute value "Color Wheel 1=79" is "Pink".

4. A set of labels for the Beam property for each fixture. In the Intellabeam 8 Channel, the Beam property is controlled by four attributes—Shutter, Gobo Wheel 1, Iris and Speed. The label for the attribute values "Gobo Wheel 1=119" and "Iris=128" might be "Half Open Star".

5. Settings for a "Default" label. Typically the Default label for Color is set to *white*, the Default label for Beam is set to *open* and the Default label for Focus is set to *50/50*.

You are not limited to using the labels that are included in the LP-X library. You can create custom labels, as described in "Creating Labels" beginning on page 123.

Getting Started

Adding Moving Lights to the Instrument List

Before you can program moving lights, you must add them to the instrument list. This procedure:

1. assigns the instrument to a DMX start address and to an **ML Select**,

2. makes the library information for the fixture available.

To do this, follow the steps given in "To Add a Moving Light Instrument into the System" beginning on page 45.

You may also want to stripe the LP-X with masking tape under the manual faders and then mark down which instrument corresponds with each **ML Select** button.

One way to streamline programming is to create groups of instruments. For example, you may have a set of lights for the drummer, a set of lights for the right side of the stage and a set of lights for the left side of the stage. By creating a group for each of these, you provide yourself with a one-button selection/deselection mechanism for each set of instruments. You create groups by following the procedure "To Create a Group" beginning on page 193.

Note that you may find it more convenient to include only instruments of the same or similar fixture types in a group—that is to say, instruments that have all or many labels in common. This is because when two or more instruments are selected, the LP-X only displays the labels that they share. Including vastly different instruments in a group would reduce the number of labels that are displayed when you select the group for programming.

Button and Fader Settings for Moving Light Recording

You put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML or BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the Moving Light Programmer.

```
ColrFx   Beam     Focus    Attrib            Label
                Recording new scene
                                               Dowse
         No instruments selected.   Intensity:100%


                        Delay           Fade
                        0:00.0          0:00.0
```
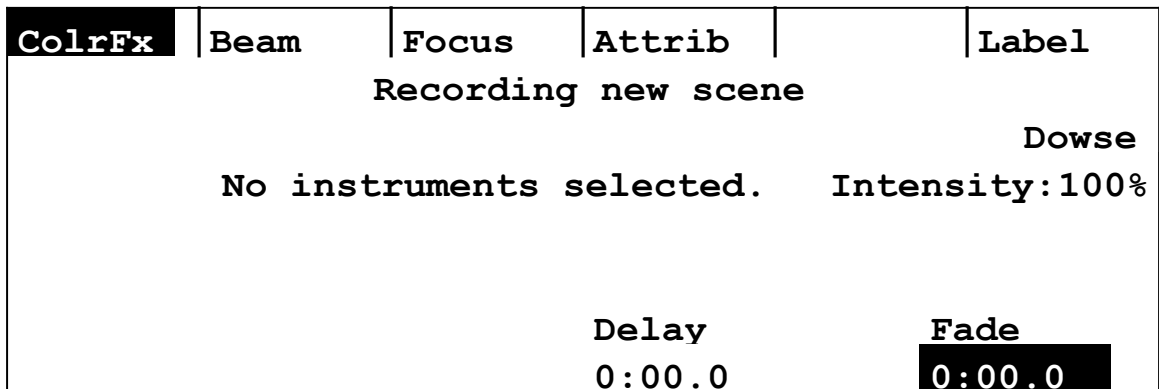
The first time you enter this mode, the LP-X informs you that no instruments are selected.

Selecting Moving Lights for Programming

A light can be in one of three states. It can be:

- in the look and selected for programming

- in the look but not selected for programming—deselected

- not in the look.

1. To select a light for programming, you press its **ML Select** button.

    ML Select buttons are located under the **Manual Faders** and are assigned when you add the light to the instrument list. For details, please see "To Add a Moving Light Instrument into the System" beginning on page 45.

    - The first time you press the **ML Select**, the light is added to the look and is selected for programming. This is indicated by a blinking LED in the **ML Select**.

    - The second time you press the **ML Select**, the light remains in the look but is deselected for programming. This is indicated by a glowing (not blinking) LED in the **ML Select**.

- Each subsequent press of the **ML Select** toggles the light between the selected and the deselected state.

2. To remove the light from the look, press and hold the **Clear** button and press the **ML Select** (**Clear + ML Select**).

   This is indicated by an unlit LED in the **ML Select**. Note that if you clear a light from a look, you also clear any information you recorded for that instrument in that look. If you add the light back into the look, it will have default values—like any light newly added to a look.

3. If you have created groups of instruments, you can select and deselect them by pressing and holding the **Group** button and pressing the **ML Select** for the group (**Group + ML Select**).

Selecting Moving Lights for Programming using the Select Instruments Screen

You use this selection technique when you are programming moving lights that have been assigned to virtual slots—that is, moving lights that have been assigned to slots that are higher than number 24 (LP-X24) or 48 (LP-X48).

1. In **Record** mode with the display set to **ML**, press the **Fixture** button.

   The LP-X displays the **Select Instruments** screen. Instruments that are already selected are highlighted.

```
          Select Instruments    │Clear
          ## [THRU ##] (+ -)

2 #1 Studio Spot                    Selected
3 #1 Studio Color                 Deselected
4 #1 Technobeam                   Out of Cue
5 #2 Technobeam                   Out of Cue
6 #3 Technobeam                   Out of Cue
```

2. To select one instrument, enter its number on the numeric keypad and then press the **Plus** (**+**) key on the keypad.

3. To deselect one instrument, enter its number on the numeric keypad and then press the **Minus** (**-**) key on the keypad.

4. To select a range of instruments, enter the lowest number in the range on the numeric keypad, press the **Thru** key, enter the highest number in the range, and then press the **Plus** (**+**) key on the keypad.

```
┌─────────────────────────────────────────────────┬─────────┐
│            Select Instruments            │Clear    │
│       ## [THRU ##] (+ -)                 │         │
│            4  THRU  5                     │         │
├──────────────────────────────────────────┴─────────┤
│2 #1 Studio Spot                         Selected   │
│3 #1 Studio Color                        Deselected │
│4 #1 Technobeam                          Out of Cue │
│5 #2 Technobeam                          Out of Cue │
│6 #3 Technobeam                          Out of Cue │
└─────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────┬─────────┐
│            Select Instruments            │Clear    │
│       ## [THRU ##] (+ -)                 │         │
│                                          │         │
├──────────────────────────────────────────┴─────────┤
│2 #1 Studio Spot                         Selected   │
│3 #1 Studio Color                        Deselected │
│4 #1 Technobeam                          Selected   │
│5 #2 Technobeam                          Selected   │
│6 #3 Technobeam                          Out of Cue │
└─────────────────────────────────────────────────┘
```

5. To deselect a range of instruments, enter the lowest number in the range on the numeric keypad, press the **Thru** key, enter the highest number in the range, and then press the **Minus** (**-**) key on the keypad.

6. When you are done selecting and deselecting instruments, press the **Yes** key or the **Fixture** button to confirm the operation. Press **No/Esc** to cancel the operation.

Taking Moving Light Instruments out of a Scene using the Select Instruments Screen

You use this clearing technique when you are programming moving lights that have been assigned to virtual slots—that is, moving lights that have been assigned to slots that are higher than number 24 (LP-X24) or 48 (LP-X48).

1. In **Record** mode with the display set to **ML**, press the **Fixture** button.

    The LP-X displays the **Select Instruments** screen.

```
┌─────────────────────────────────────────────────────┐
│            Select Instruments        │Clear          │
│            ## [THRU ##] (+ -)                         │
│                                                       │
│ 2 #1 Studio Spot                          Selected    │
│ 3 #1 Studio Color                       Deselected    │
│ 4 #1 Technobeam                         Out of Cue    │
│ 5 #2 Technobeam                         Out of Cue    │
│ 6 #3 Technobeam                         Out of Cue    │
└─────────────────────────────────────────────────────┘
```

2. Press the **Clear** softkey.

    The LP-X displays the **Clear Instruments** screen.

```
┌─────────────────────────────────────────────────────┐
│            Clear Instruments                          │
│            ## [THRU ##] Enter                         │
│                                                       │
│ 2 #1 Studio Spot                           In Cue     │
│ 3 #1 Studio Color                          In Cue     │
│ 4 #1 Technobeam                         Out of Cue    │
│ 5 #2 Technobeam                         Out of Cue    │
│ 6 #3 Technobeam                         Out of Cue    │
└─────────────────────────────────────────────────────┘
```

3. To clear one instrument, enter its number on the numeric keypad and then press the **Enter** key on the keypad.

4. To clear a range of instruments, enter the lowest number in the range on the numeric keypad, press the **Thru** key, enter the highest number in the range, and then press the **Enter** key on the keypad.

Dowse versus *No Dowse* Mode

The LP-X provides you two different modes in which to program.

In "Dowse" mode, you only see the lights that are selected—that is, the lights that are actively selected for programming.

In "No Dowse" mode, you see all lights in the look whether they are selected or not.

Toggle between these two modes when you are recording moving lights by pressing the side wheel.

```
┌─────────┬───────┬───────┬───────┬──────────┬─────────┐
│ ColrFx  │ Beam  │ Focus │ Attrib│          │ Label   │
│            Recording new scene                        │
│                                       Dowse           │
│        No instruments selected.  Intensity:100%       │
│                                                       │
│                                                       │
│                      Delay            Fade            │
│                      0:00.0           0:00.0          │
└───────────────────────────────────────────────────────┘
```

```
┌─────────┬───────┬───────┬───────┬──────────┬─────────┐
│ ColrFx  │ Beam  │ Focus │ Attrib│          │ Label   │
│            Recording new scene                        │
│                                     No Dowse          │
│        No instruments selected.  Intensity:100%       │
│                                                       │
│                                                       │
│                      Delay            Fade            │
│                      0:00.0           0:00.0          │
└───────────────────────────────────────────────────────┘
```
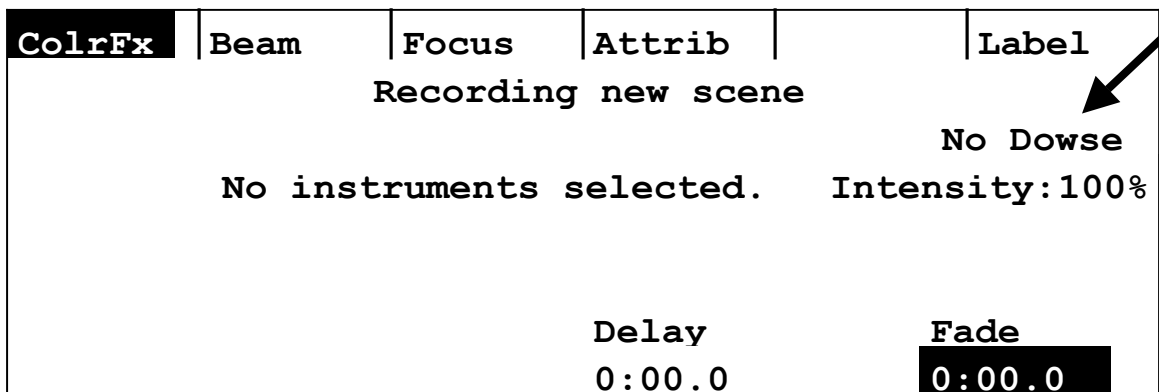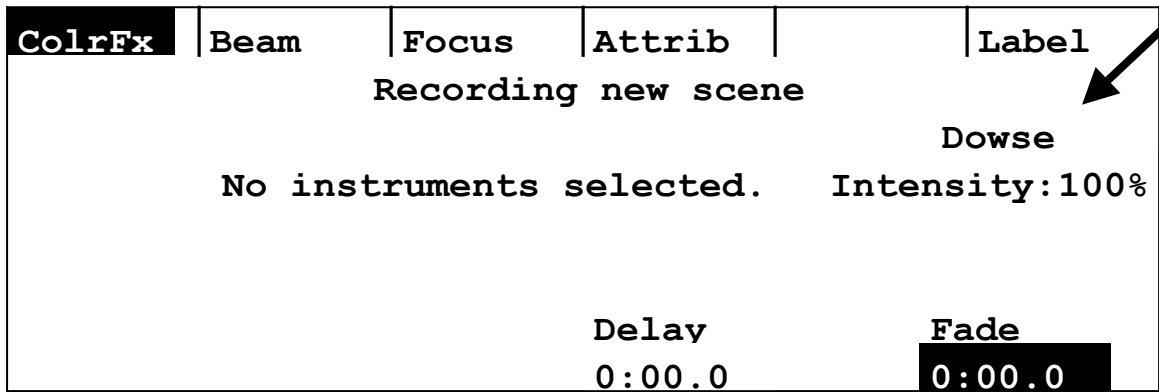
Recording Moving Light Looks

You record a look or a series of looks—a *scene list*—to a playback. On the LP-X24, there are six playbacks and twenty pages for each, so you may record up to 120 scene lists. On the LP-X48, there are twelve playbacks with twenty pages for each, so you may record up to 240 scene lists.

To Record a Look with one Moving Light

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting

Button/Fader	Setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

```
ColrFx   Beam    Focus    Attrib             Label
                 Recording new scene

                                               Dowse
           No instruments selected.    Intensity:100%




                          Delay            Fade
                          0:00.0           0:00.0
```

2. OPTIONAL: Clear the programmer by holding down the **Clear** button and pressing the **Enter** button.

   This will clear any previous settings from the programmer.

3. Select a light for programming.

   Please refer to "Selecting Moving Lights for Programming" beginning on page 87 for information about the various ways in which you may select a light for programming.

   The LP-X displays the labels for the light that you select. For example, with a Studio Color selected, you see the following screen when the *Color* labels are displayed (by pressing the **Color** softkey). Note that when you press the **Color** softkey once, the softkey label changes to **ColrFx**. This indicates that pressing the softkey again will open the **Color Effects** screen.

```
ColrFx   Beam    Focus    Attrib             Label
                 Recording new scene
No Change                                    No Dowse
Defaults                              Intensity:100%
amber
blue
congo blue                 Delay            Fade
cto                        0:00.0           0:00.0
```

You see the following screen when the *Beam* labels are displayed (by pressing the **Beam** softkey). Note that when you press the **Beam** softkey once, the softkey label

changes to **BeamFx**. This indicates that pressing the softkey again will open the **Beam Effects** screen.

```
Color      BeamFx    Focus  │Attrib   │         │Label
                Recording new scene
No Change                                    No Dowse
Defaults                            Intensity:100%
belly
fade
off-center c                Delay        Fade
open                        0:00.0       0:00.0
```

You see the following screen when the *Focus* labels are displayed (by pressing the **Focus** softkey. Note that when you press the **Focus** softkey once, the softkey label changes to **FocsFx**. This indicates that pressing the softkey again will open the **Focus Effects** screen.

```
Color     │Beam     FocsFx  Attrib   │         │Label
                Recording new scene
No Change                                    No Dowse
Defaults                            Intensity:100%



                        Delay        Fade
                        0:00.0       0:00.0
```

4. If you haven't already done so, create a focus label or labels for the look or point the instrument by attribute programming.

   Please see "To Create a Focus Label" beginning on page 127 or "Chapter Seven: Working with Moving Light Attributes" beginning on page 137 for complete details.

5. Select the desired color, beam and focus labels.

   Press the **Color** softkey. Use the left wheel or the **Plus** (**+**) and **Minus** (**-**) keys in the numeric keypad to make your selection.

```
ColrFx   |Beam    |Focus   |Attrib   |          |Label
                Recording new scene
dark magenta                              No Dowse
green                             Intensity:100%
indigo
orange
pink                      Delay        Fade
red                       0:00.0       0:00.0
```

Press the **Beam** softkey. Use the left wheel or the **Plus** (**+**) and **Minus** (**-**) keys in the numeric keypad to make your selection.

```
Color    |BeamFx   Focus   |Attrib   |          |Label
                Recording new scene
No Change                                 No Dowse
Defaults                          Intensity:100%
belly
fade
off-center c              Delay        Fade
open                      0:00.0       0:00.0
```

Press the **Focus** softkey. Use the left wheel or the **Plus** (**+**) and **Minus** (**-**) keys in the numeric keypad to make your selection.

```
Color    |Beam    |FocsFx   Attrib   |          |Label
                Recording new scene
No Change                                 No Dowse
Defaults                          Intensity:100%
Focus 001
Focus 002
Focus 003                 Delay        Fade
Focus 004                 0:00.0       0:00.0
```

6. Set the desired intensity by turning the side wheel.

7. Select the desired page and then press the **Select** button for the desired playback.

The LP-X displays the page, playback and step number information for the look just recorded.

```
Color     │Beam      FocsFx   Attrib │Save      │Label
             Record: PG 1 PB 1 Step: 1
No Change
                                              No Dowse
Defaults
                                        Intensity: 75%
Focus 001
Focus 002
Focus 003                   Delay           Fade
Focus_004                   0:00.0          0:00.0
```

8. To make changes to the look that you just recorded, repeat steps 4 and 5 and then press the **Save** softkey.

    The LP-X confirms that it saved the new information to the look.

```
                    Scene Saved


              Pg 1 Pb 1 Step: 1 saved.



```

9. To record the next look, repeat steps 4 and 5 and then press the **Playback Select** for the same page and playback.

    The LP-X displays that it saved the information to the new look.

```
┌────────┬──────────┬──────────┬────────┬──────────┬──────────┐
│Color   │Beam      │ FocsFx   │Attrib  │Save      │Label     │
│             Record: PG 1 PB 1 Step: 2                        │
│No Change                                                     │
│                                              No Dowse        │
│Defaults                                                      │
│                                          Intensity: 50%      │
│Focus 001                                                     │
│ Focus 002                                                    │
│Focus 003                          Delay           Fade       │
│Focus_004                          0:00.0          0:00.0     │
```

To Record a Look with More than One Moving Light

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

```
┌────────┬──────────┬──────────┬────────┬──────────┬──────────┐
│ ColrFx │Beam      │Focus     │Attrib  │          │Label     │
│             Recording new scene                              │
│                                                   Dowse      │
│                                                              │
│          No instruments selected.     Intensity:100%         │
│                                                              │
│                                                              │
│                                   Delay           Fade       │
│                                   0:00.0          0:00.0     │
```

2. Select lights for programming.

    Please refer to "Selecting Moving Lights for Programming" beginning on page 87 for information about the various ways in which you may select a light for programming.

The **Moving Light Programmer** displays an intersection of labels that are common to the instruments that you select. For example, two lights may both have labels for red, orange, yellow, pink, white and blue. The first light may also have labels for magenta, aqua, mauve and gold. The second light may also have labels for bluegreen and purple.
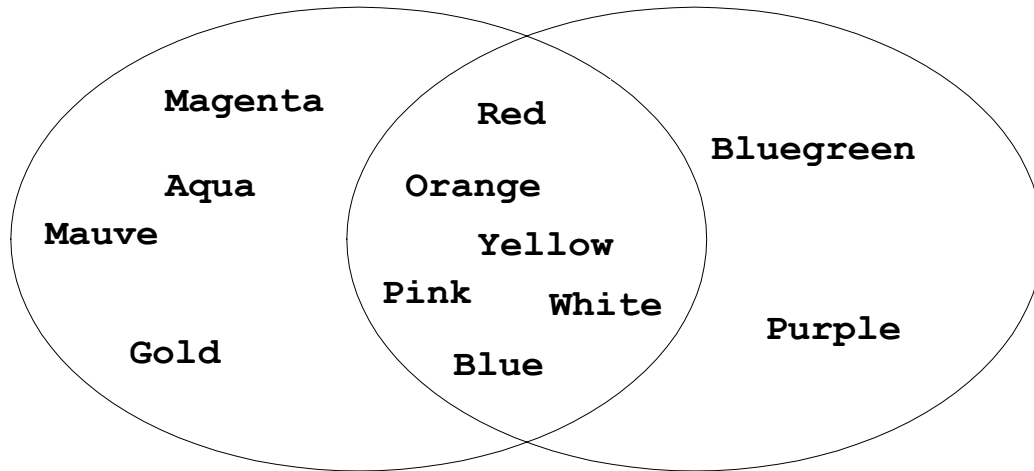
The only labels that you would see if you were to select both instruments would be the ones that the instruments have in common.

3. If you haven't already done so, create a focus label or labels for the look.

   Please see "To Create a Focus Label" beginning on page 127 for complete details.

4. Select the desired color, beam and focus labels *and* set the intensity for each light.

   The following is a common scenario for selecting the labels that you want or for setting the intensity.

   You have ten moving lights in the look. You want the five lights on the right side of the stage to be pink. You want the five lights on the left side of the stage to be blue.

You select the five lights on the right side of the stage. The label *Pink* appears in the display, indicating that all five lights have that color in common. You select that label. You deselect the lights.

You select the five lights on the left side of the stage. The label *Blue* does not appear in the display, indicating that all five lights do not have that color in common. Your light group consists of two Technobeams and three Studio Spots. You deselect the Technobeams. The label blue now appears. You select that label for the three Studio Spots. You deselect the Studio Spots and select the Technobeams. The labels *Dark Blue* and *Light Blue* appear in the display. You select *Dark Blue*.

You repeat this pattern of selecting and deselecting lights over and over as needed to accommodate (1) the labels that the lights have in common and (2) the differences in the labels that you want to assign to each light.

5. Select the desired page and then press the **Select** button for the desired playback.

    The LP-X displays the page, playback and step number information for the look just recorded.

6. To make changes to the look that you just recorded, repeat step 4 and then press the **Save** softkey.

    The LP-X confirms that it saved the new information to the look.

7. To record the next look, repeat step 4 and then press the **Select** for the same page and playback.

    The LP-X displays that it saved the information to the new look.

Playing Back Moving Light Looks

The procedure for playing back a moving light look is identical to the procedure for playing back a conventional look.

To Play Back Moving Light Looks

1. Put the LP-X into the following modes for playback:

Button/Fader	Setting
Modes	**Run** and **Playback**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down

2. Raise the playback to the desired level (typically 100%).

    The LP-X displays the first look that you recorded to the playback.

    In **Playback** mode, you see which playbacks are active and what step number each is on.

```
                 |          |          |          |           12:00

1 Inactive
2 Inactive                                                      ▼
3 Inactive
4 Inactive
5 Inactive
6 PG 1 Step: 1 of 2
```

3. To advance to the next look, press the **Select** button for the playback.

4. To move backward to the previous step, hold down the **Except** button and press the **Select** button for the playback.

   If the scene list is already at Step 1, pressing **Except + Select** moves to the last step of the scene list if the playback is set to loop.

5. Lower the playback intensity to zero when you are done.

Modifying Moving Light Looks

You use two different techniques to modify moving light looks. The first technique assumes that you want to see the changes as you are making them. This is called a "live" edit. The second technique assumes that you do not want to see the changes as you are making them. For example, during a show, you may need to make a change to an upcoming look without disturbing the current look. This is called a "blind" edit.

To Modify a Moving Light Look When You are Not Running a Show—Live Edit

This operation will work on any playback except one that is in *page hold* mode. For example, if you are running a scene list on Page 1, Playback 1, you will not be able to edit a scene list on Page 2, Playback 1. This is because Playback 1 is in *page hold* mode and will not switch to Page 2 until the Playback 1 level is brought to zero.

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Edit** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting

Button/Fader	Setting
Programmer Fader	Up

The LP-X displays the following message:

Edit Mode

Please select a scene to edit using the
playback & stack select buttons.

---

2. Press the **Select** button for the playback repeatedly until you reach the look you want to edit.

   The LP-X displays information for that look of the playback. The LP-X outputs the look to the **Programmer Fader**.

ColrFx	Beam	Focus	Attrib	Save	

           Edit: PG 1 PB 1 Step: 3

No Change   Dowse
Defaults   Intensity:100%
amber
blue
congo blue   Delay   Fade
cto   0:00.0   0:00.0

The LP-X "remembers" certain information about the state in which you left the look, for example, which instruments were selected and which instruments were deselected.

3. Select the desired instrument or instruments and modify the look.

   For example, select an instrument, press the **Focus** softkey and the select the desired Focus label.

   For example, select several instruments, press the **Color** softkey and select the desired Color label.

For example, select all instruments and change the **Intensity**.

4. Press the **Save** softkey.

5. Repeat steps 2 through 4 for each look you want to modify.

6. When you are done, bring the **Programmer Fader** to zero.

7. Return to **Run** mode.

To Modify a Conventional Light Look When You *are* Running a Show—Blind Edit

This operation will work on any playback except one that is in *page hold* mode. For example, if you are running a scene list on Page 1, Playback 1, you will not be able to edit a scene list on Page 2, Playback 1. This is because Playback 1 is in *page hold* mode and will not switch to Page 2 until the Playback 1 level is brought to zero.

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Edit** and **Scene**
Display	**ML**
Filter	**ML or BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down

```
              Edit Mode


   Please select a scene to edit using the
        playback & stack select buttons.
```

2. Press the **Select** button for the playback repeatedly until you reach the look you want to edit.

   The LP-X displays information for that look of the playback.

```
┌─────────────────────────────────────────────────────────────┐
│ ColrFx │Beam    │Focus   │Attrib │Save    │        │
│           Edit: PG 1 PB 1 Step: 3                   │
│ No Change                                    Dowse  │
│ Defaults                              Intensity:100%│
│ amber                                               │
│ blue                                                │
│ congo blue              Delay          Fade         │
│ cto                     0:00.0         0:00.0       │
└─────────────────────────────────────────────────────────────┘
```

The LP-X "remembers" certain information about the state in which you left the look, for example, which instruments were selected and which instruments were deselected.

3. Select the desired instrument or instruments and modify the look.

4. Press the **Save** softkey.

5. Repeat steps 2 through 4 for each look you want to modify.

6. When you are done, return to **Run** mode.

Overriding Moving Light Looks at Run Time

NOTE: In **Video Mode**, this has been replaced with **Live Override Mode** which operates somewhat differently. Please refer to information on **Live Override Mode** beginning on page 37 for details.

There may be times when you want to make a change to a moving light look but you don't want to save it. For example, an unexpected guest may step onto an unlit portion of the stage to take a bow. You need to bring up a light, but there is no reason to save the change. This is called "overriding" a look.

Unlike when you override a conventional look—which is done in Run mode—this is done in Record mode. It is an advanced skill.

To Override a Look

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Run**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)

Button/Fader	Setting
Manual Fader	Any setting
Programmer Fader	Down

Leave the playbacks in their current positions.

2. Switch into **Record** mode.

    The **Programmer** will be in its most recent state: instrument selection, **Dowse/No Dowse** mode setting, etc.

3. Clear every instrument out of the **Programmer**.

    To do this, hold down the **Clear** button and press the **Enter** button to clear the **Programmer**.

    This step is recommended because it will ensure that no instruments are inadvertently left on with undesired settings.

4. Select and program the light or lights you want to override.

    It is easiest to introduce a new light into a look. Simply set the desired Color, Beam, Focus and Intensity values.

    It is more complicated to change the values of a light that is already part of a look.

    - Let us say, for example, that you only want to move a light into a different position without making any change to its color, beam or intensity. You would set the **Color** property to **No Change** and the **Beam** property to **No Change**. You would match the **Intensity** value. And finally, you would select the desired **Focus** label.

    - Let us say that you want to leave the focus and beam unchanged but make the color of a light white and increase its intensity. You would set the **Beam** property to **No Change** and the **Focus** property to **No Change**. You would bring the **Intensity** value to 100%. And finally, you would select the **Color** label *White*.

    Do not press the **Save** softkey at any time during this operation.

5. When you are ready, bring up the **Programmer Fader** to the desired level.

    The settings for the selected lights override the looks on the playbacks.

6. When you are done, lower the **Programmer Fader** to zero.

7. Return to **Run** mode.

Chapter Five:
Advanced Programming and Editing Techniques

In this chapter we describe the following advanced techniques:

- clearing a playback

- copying a look

- copying a playback

- automating a show

- unlooping and relooping a scene list

- moving and deleting looks in a scene list

- programming virtual channels

Clearing a Playback

Use this technique to clear one playback. For the procedure to clear all playbacks, please see "To Erase Playbacks" beginning on page 68.

Clearing a Playback while in Record Mode

1. Put the board into **Record** mode.

2. Hold down the **Clear** button.

3. Press the **Select** button for the playback that you want to clear.

    The LP-X asks you to confirm clearing the information from the playback.

```
                    Delete Scenelist?

        Are you sure you want to delete all

        scenes assigned to page 1 playback 1?


                       Yes / No
```
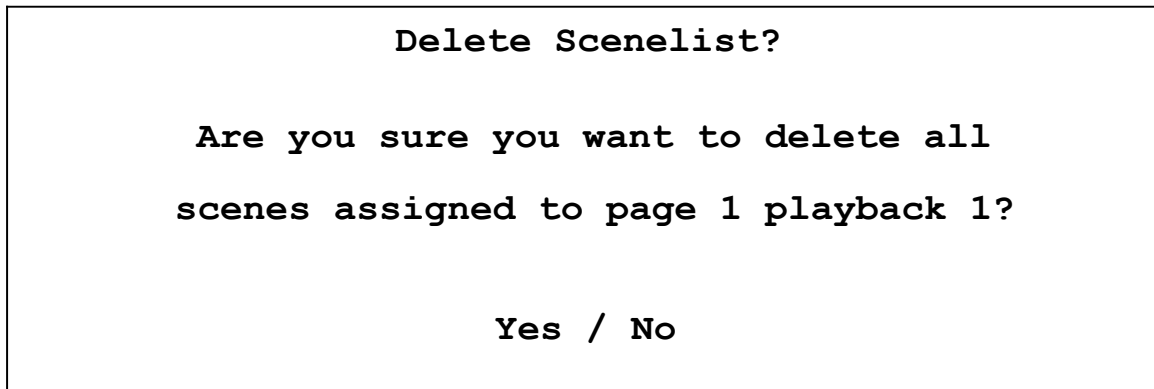
4. Press the **Yes** key to clear the playback. Press the **No/Esc** key to cancel the operation.

Clearing a Playback while in Edit Mode

1. Put the board into **Edit/Playback** mode.

```
Edit      Chase     Global  |         |Copy      Erase
                    Edit Playback
PG 01 PB 01 (12)
PG 01 PB 02 (6)                                     ▼
PG 03 PB 06 (28)



```

2. Use the side wheel to select the playback you want to clear.

3. Press the **Erase** softkey.

   The LP-X asks you to confirm clearing the playback.

```
            Delete Scenelist?


    WARNING: Are you sure you want to delete

              this scene list?



                  Yes / No
```
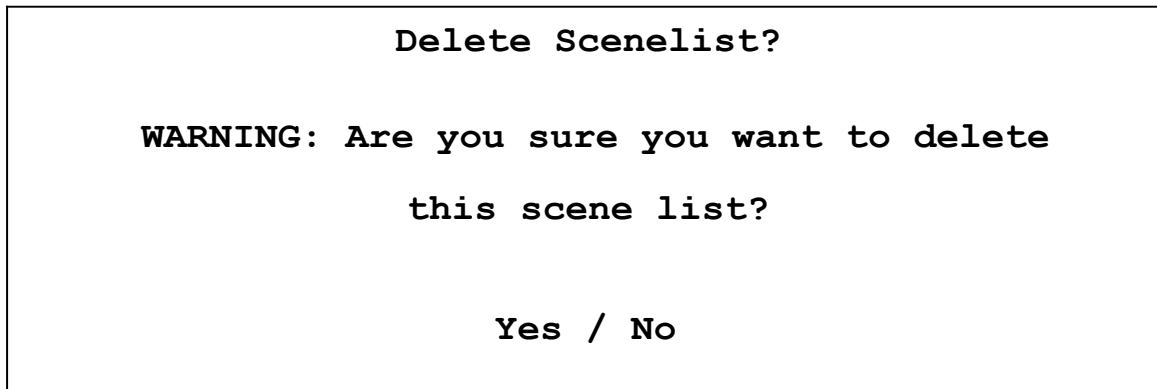
4. Press the **Yes** key to clear the playback. Press the **No/Esc** key to cancel the operation.

Copying a Look

There may be instances in which you would like to use a look that you previously created as the basis for creating a new look—but the look may be on a different playback or may be earlier in the scene list on which you are currently working.

This technique will load the look into the Programmer so that you can "copy" it to a new location.

To Copy a Look

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Edit** and **Scene**
Display	Any setting
Filter	**ML**, **Dim** or **Both** (depending upon how much you want to copy)
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the following message:

```
                          Edit Mode


           Please select a scene to edit using the
                playback & stack select buttons.
```

2. Press the **Select** button for the playback repeatedly until you reach the look you want to copy.

   The LP-X displays information for that look of the playback. The LP-X outputs the look to the **Programmer Fader**.

3. Switch to **Record** mode.

4. Copy the look to a new location by pressing the **Select** button for the desired page and playback.

   The LP-X "copies" the look to the next available step on the playback.

   The amount of material that is copied depends upon your Filter setting. With **Dim** selected, only conventional light information is copied. With **ML** selected, only moving light information is copied. With **Both** selected, all information for the look is copied.

Copying a Playback

Use this procedure to copy all scenes from one Page/Playback to another.

To Copy a Playback

1. Put the board into **Edit/Playback** mode.

```
Edit      Chase    Global   |        |Copy     Erase
                     Edit Playback
PG 01 PB 01 (12)
PG 01 PB 02 (6)                                      ▼
PG 03 PB 06 (28)


```
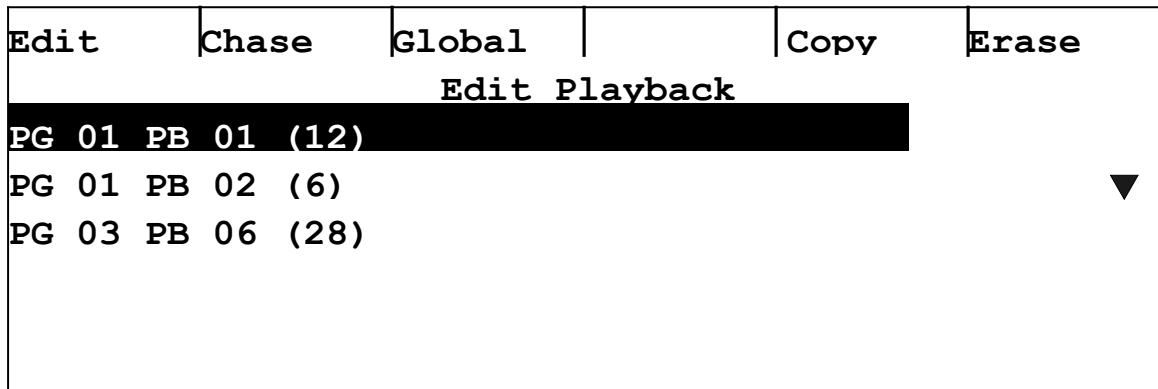
2. Use the side wheel to select the playback you want to copy.

3. Press the **Copy** softkey.

   The LP-X displays the **Copy Playback** screen.

```
Copy     |        |        |        |        |
                     Copy Playback


       Select the destination playback and
       confirm with Yes or the Copy softkey.


         Page                 Playback
          1                      1
```
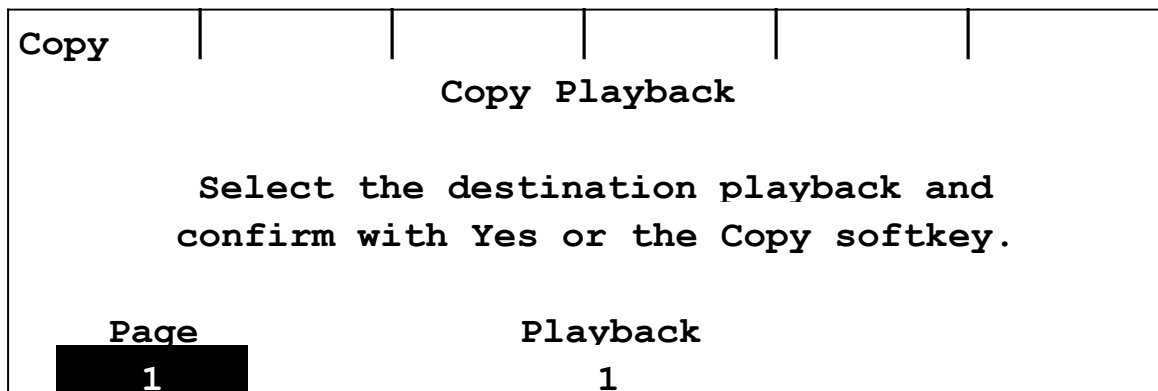
4. Select the page and playback to which you will copy the selected playback.

5. Press the **Yes** key or the **Copy** softkey to complete the operation. Press the **No/Esc** key to cancel the operation.

   If you have selected a page/playback that already has information recorded on it, the LP-X displays the following message:

```
┌─────────────────────────────────────────────────────┐
│                                                       │
│              Overwrite existing.                      │
│                                                       │
│        There is an existing scene list on the         │
│                                                       │
│        destination playback. Do you want to           │
│                                                       │
│                    overwrite?                         │
│                                                       │
│                    Yes / No                           │
│                                                       │
└─────────────────────────────────────────────────────┘
```

Press the **Yes** key to overwrite the information. Press the **No/Esc** key to cancel the operation.

Automating a Show

After you have recorded a series of looks to a playback, you run the show by pressing the playback's **Select** button at the appropriate times to move from one look to the next.

In many cases, it may be desirable to automate the show. For example, you may design the lighting for a product display. The lighting consists of ten different looks and the series of looks repeats every two minutes. This involves setting timings for each look.

Automation Terminology

Timing values consist of three elements: Hold Time, Fade Time and Start Delay.

- **Hold Time** is the total time of the look—that is, the total time until the subsequent look will begin. For scene lists that you intend to advance manually, the Hold Time is set to Infinite. For scene lists that you intend to run automatically, the Hold Time is set for each look and must be less than Infinite.

- **Start Delay** is the duration from the start of a look until a property of the light responds. For example, you might want to change the beam at the beginning of the look and delay the color change by three seconds. You would set a three-second Start Delay on the Color property.

- **Fade Time** is the duration during which the intensity of the light will change from the current level to the new level. The Fade Time starts at the end of the start delay.

To illustrate Hold Time and Fade Time, consider the following illustration:

1 second fade   No fade   No fade   Two-second fade

Two-second Hold Time   One-second Hold   One-second Hold   Two-second Hold Time
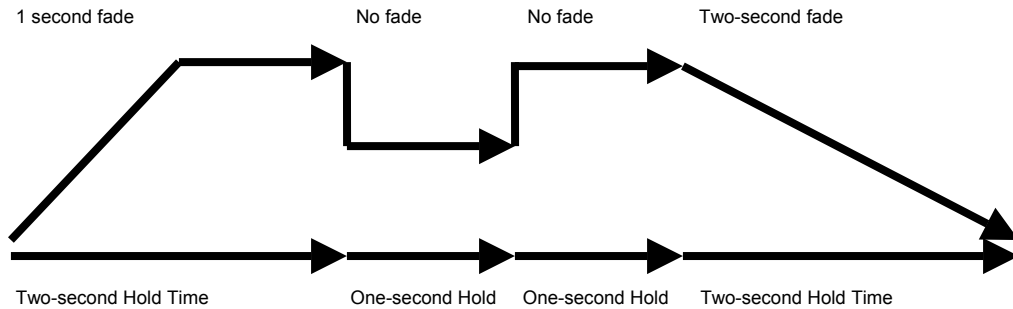
This scene list consists of four looks.

- The first look has a hold time of two seconds. The fade time is set to 1 second, so the look fades from the starting level of zero to the ending level of 100% during the first one second and then holds at 100% for the remainder of the look.

- The second look has a hold time of one second. The fade time is set to zero, so the look jumps from 100% to 50% and holds at 50% for the remainder of the look.

- The third look has a hold time of one second. The fade time is set to zero, so the look jumps from 50% to 100% and holds at 100% for the remainder of the look.

- The fourth look has a hold time of two seconds. The fade time is set to 2 seconds, so the look fades from the starting level of 100% to the ending level of zero during the entire two seconds allocated for the look.

To illustrate Start Delay and Fade times, consider the following illustration:

Property 1: no **Start Delay**, no **Fade**

Property 2: Two-second **Start Delay**, no **Fade**

Property 3: Two-second **Start Delay**, one-second **Fade**

Property 4: Two-second **Start Delay**, two-second **Fade**

Initiate Look   Initiate Next Look
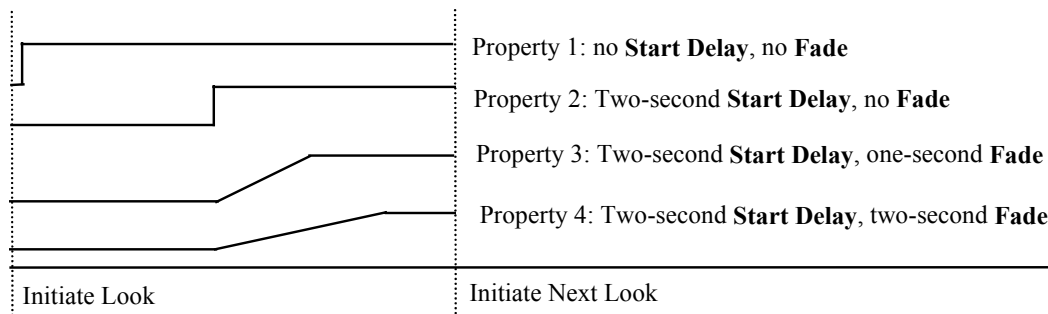
Property 1 has zero Start Delay and zero Fade Time. If Property 1 were Beam, the shape of the beam would change immediately from its previous setting to the new setting upon initiating the look.

Property 2 has a two-second Start Delay and zero Fade Time. If Property 2 were Color, the look would be initiated and then two seconds later the color would change from its previous setting to the new setting.

Property 3 has a two-second Start Delay and a one-second Fade Time. If Property 3 were Intensity, the look would be initiated and then two seconds later, the intensity would begin to change from its previous setting to the new setting. The transition (fade) to the new intensity would take one second.

Property 4 has a two-second Start Delay and a two-second Fade Time. If Property 4 were Focus, the look would be initiated and then two seconds later, the focus would begin to change from its previous position to the new position. The transition (fade) to the new position would take two seconds.

Thus, we would see:

- An instant change in the shape of the beam.

- Two seconds later, an instant change in the color.

- Beginning with the color change, a gradual change in intensity.

- Beginning with the color change, an even more gradual change in position.

For moving lights, start delays may be very logically applied to any property—color, beam, focus or intensity. Fades may be very logically applied to focus and intensity, with occasional instances in which a beam or color fade makes sense.

It is important to note that automation is set at the scene level—it does not apply to individual instruments. You cannot set a focus fade time of 10 seconds for one group of lights and 15 seconds for another group of lights. The last setting that you save will apply to all lights.

Automated versus Manual Initiation of Scenes

By default, the Hold Time for a scene is set to **Infinite**. An infinite Hold Time setting means that Start Delays and Fade Times will be executed and then the look will hold infinitely long—in other words, until you initiate the next look. This is *manual initiation* of cues.

If you set Hold Times for looks that have values other than **Infinite**—such as five seconds or two minutes—you are creating a scene list that is fully automated.

Hold Time settings cannot be set independently as described above for Start Delay and Fade Time. One Hold Time governs all properties of the look.

If the Start Delay plus the Fade Time for a property is greater than the Hold Time for the look, the LP-X honors the Hold Time and initiates the next look. For example, if you set the Start Delay for the Focus property to 2 seconds and the Fade Time to 3 seconds but the Hold Time were only 4 seconds, the last second of the fade would be ignored and the next look would be initiated.

You may override an automated Hold Time by pressing the playback's **Select** button or **Except + Select**. Pressing the **Select** button initiates the next step and then the automation for that step, if any, takes over. Pressing **Except + Select** stops the automation, fades back to the beginning of the step and holds until you press **Select** or **Except + Select**.

To Set Automation Timing Values

Default timing values are set on the **Default Scene Timings** screen. Default values are applied to new scenes when the Programmer is cleared. For more information, please see "To Modify Hold Time, Delay or Fade Defaults" beginning on page 198.

1. Record a series of looks to a playback.

Do this following the procedures given in "To Record Conventional Light Looks" beginning on page 73 and "*Dowse* versus *No Dowse* Mode

The LP-X provides you two different modes in which to program.

In "Dowse" mode, you only see the lights that are selected—that is, the lights that are actively selected for programming.

In "No Dowse" mode, you see all lights in the look whether they are selected or not.

Toggle between these two modes when you are recording moving lights by pressing the side wheel.

```
┌─────────────────────────────────────────────────────────┐
│ ColrFx │Beam    │Focus   │Attrib  │         │Label       │
│              Recording new scene                         │
│                                      Dowse               │
│        No instruments selected.   Intensity:100%         │
│                                                          │
│                                                          │
│                          Delay           Fade            │
│                          0:00.0          0:00.0          │
└─────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────┐
│ ColrFx │Beam    │Focus   │Attrib  │         │Label       │
│              Recording new scene                         │
│                                     No Dowse             │
│        No instruments selected.   Intensity:100%         │
│                                                          │
│                                                          │
│                          Delay           Fade            │
│                          0:00.0          0:00.0          │
└─────────────────────────────────────────────────────────┘
```

Recording Moving Light Looks" beginning on page 90.

2. Put the board into **Edit/Playback** mode.

```
Edit        Chase       Global    |         Copy        Erase
                          Edit Playback
PG 01 PB 01 (4)
PG 01 PB 02 (6)                                                  ▼
PG 03 PB 06 (28)
```

3. Using the side wheel, select a playback to automate.

4. Press the **Edit** softkey.

```
Time        |         Move▼    Loop    | Erase    |
                     Edit Scenelist
1
2                                                              ▼
3
4
                          Hold
                          INF
```

5. Using the side wheel, select a look to automate.

6. Press the **Time** softkey.

```
Inten       Color     Beam      Focus     |          |
                     Edit Scene Timing                Hold
                                                      INF
                          Delay                       Fade
Intensity                0:00.0                       0:00.0
Color                    0:00.0                       0:00.0
Beam                     0:00.0                       0:00.0
Focus                    0:00.0                       0:00.0
```

The **Edit Scene Timing** screen is designed for both conventional and moving lights. Some of the features—for color, beam and focus—apply to moving lights and can be ignored if you're working with conventional lights only.

7. If desired, use the side wheel to set the Hold Time for the look.

    Or, press the side wheel, enter the Hold Time on the numeric keypad and press **Enter**.

    By default, the Hold Time is set to **Infinite**. If you change the Hold Time and then want to return it to Infinite, turn the wheel so that the time goes to zero. The display shows *INF* for "Infinite".

8. Use the left wheel to select a property.

9. Use the center wheel to set the Start Delay for the property or use the right wheel to set the fade time for the property.

    Or, press the right wheel, enter the fade time on the numeric keypad and press **Enter**.

Inten	Color	Beam	Focus		
		Edit Scene Timing			Hold
					0:10.0
		Delay			Fade
Intensity		0:00.0			0:05.0
Color		0:00.0			0:00.0
Beam		0:00.0			0:00.0
Focus		0:00.0			0:00.0

10. Repeat steps 9 and 10 for each property as desired.

11. When you are done, press the **Yes** key.

12. Repeat steps 5 through 12 for each look in the scene list.

14. Play back the scene list to ensure that the automation is set correctly.

Automation Shortcuts

Some aspects of automation may be set from different LP-X screens.

*   You may set the Hold Time for a look from the **Edit Scenelist** screen by turning the center wheel or by pressing the center wheel, entering the Hold Time on the numeric keypad and pressing the **Enter** key.

```
┌──────────────────────────────────────────────────────────────┐
│ Time          │      Move▼  │Loop     │ Erase   │            │
│                    Edit Scenelist                             │
│ █1████████████████████████████████████████████               │
│ 2                                                    ▼        │
│ 3                                                             │
│ 4                                                             │
│                        Hold                                  │
│                        ██INF██                               │
└──────────────────────────────────────────────────────────────┘
```
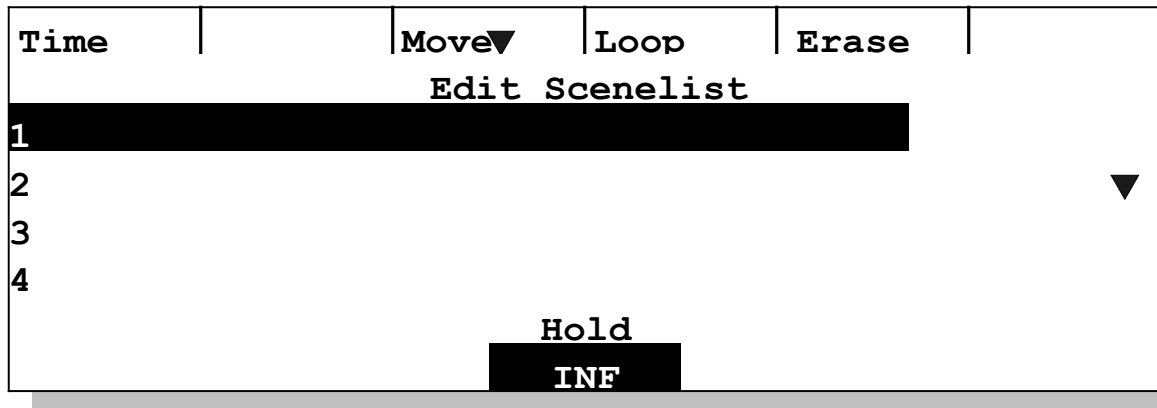
- You may set the Fade Time for a look from the **Recording** screen. Follow the procedure given in "To Record Conventional Light Looks" beginning on page 73. At step 2—before saving the look—use the right wheel to set the Fade Time for the look.

```
┌──────────────────────────────────────────────────────────────┐
│     │         │         │         │         │         │      │
│                   Recording new scene                        │
│ 01  02  03  04  05  06  07  08  09  10  11  12               │
│ 50  FF                                               ▼        │
│ 13  14  15  16  17  18  19  20  21  22  23  24               │
│                                                     Fade     │
│       Select             Level             0:00             │
└──────────────────────────────────────────────────────────────┘
```
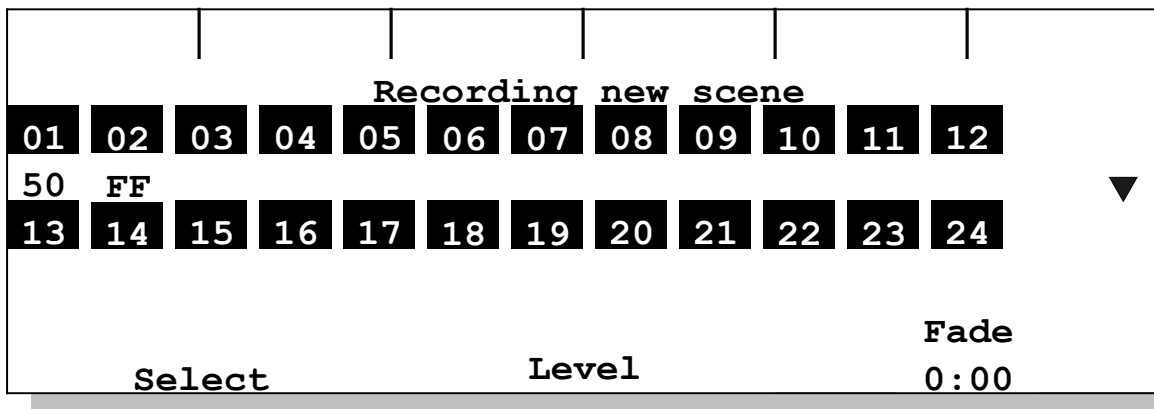
- You may set the Start Delay or Fade Time for the Color, Beam and Focus properties from the **Moving Light Recording** screen. Follow the procedure given in "To Record a Look with one Moving Light" beginning on page 91 or "To Record a Look with More than One Moving Light" beginning 96. At step 4—while selecting labels for each property —use the center wheel to set the Start Delay for the selected property or the right wheel to set the Fade Time for the selected property. You set the Fade Time for the Intensity property by setting the **Display** to **DIM**, setting the **Fade** and then setting the **Display** back to **ML**.

Unlooping and Relooping a Scene List

By default, scene lists return to their first look upon completion of their last step so that you can cycle through the scene list over and over again. This is called "looping". It applies whether a scene list is automated or not. You can unloop and reloop scene lists as required for your show.

To Unloop and Reloop a Scene List

1. Record a series of looks to a playback.

    Do this following the procedure given in "To Record Conventional Light Looks" beginning on page 73.

2. Put the board into **Edit/Playback** mode.

3. Using the side wheel, select a playback to unloop.

4. Press the **Edit** softkey.

```
Time              Move▼    Unloop   Erase
                  Edit Scenelist
1
2                                              ▼
3
4
                      Hold
                      INF
```
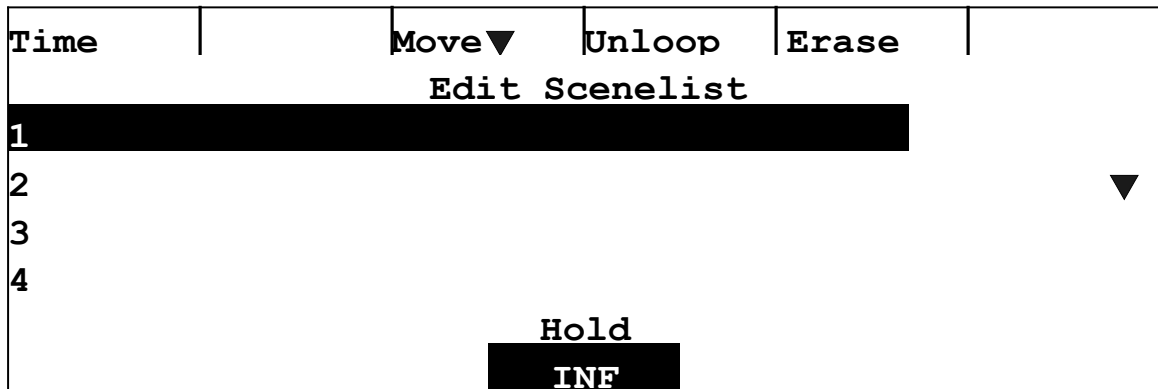
5. Press the **Unloop** softkey.

```
Time              Move▼    Loop     Erase
                  Edit Scenelist
1
2                                              ▼
3
4
                      Hold
                      INF
```
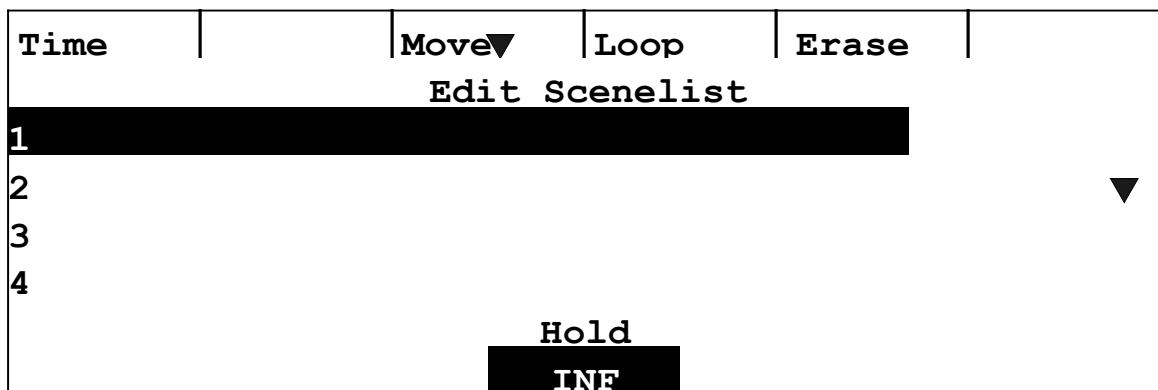
6. To reloop the scene list, press the **Loop** softkey.

7. When you are done, press the **Yes** key.

Moving and Deleting Looks in a Scene List

To Move a Look in a Scene List

Sometimes some aspect of a scene list must be changed. For example, you may need to add a new look between what are currently steps 1 and 2. In some instances, it's easiest to re-record the entire scene list. In other instances, it's easiest to record the new look at the end of the scene list and then move it into the correct place.

1. Put the board into **Edit/Playback** mode.

2. Using the side wheel, select a scene list.

3. Press the **Edit** softkey.

4. Using the side wheel, select a look to move.

```
Time        Move▲     Move▼     Unloop    Erase
                      Edit Scenelist
1
2                                                              ▲
3                                                              ▼
4

                              Hold
                              INF
```

Note that the **Move Up** softkey is not available when the first look is selected and the **Move Down** softkey is not available when the last look is selected.

5. Press the **Move Up** or **Move Down** softkey to move the selected look into the desired position.

```
Time        Move▲     Move▼     Unloop    Erase
                      Edit Scenelist
3
1                                                              ▲
2                                                              ▼
4

                              Hold
                              INF
```
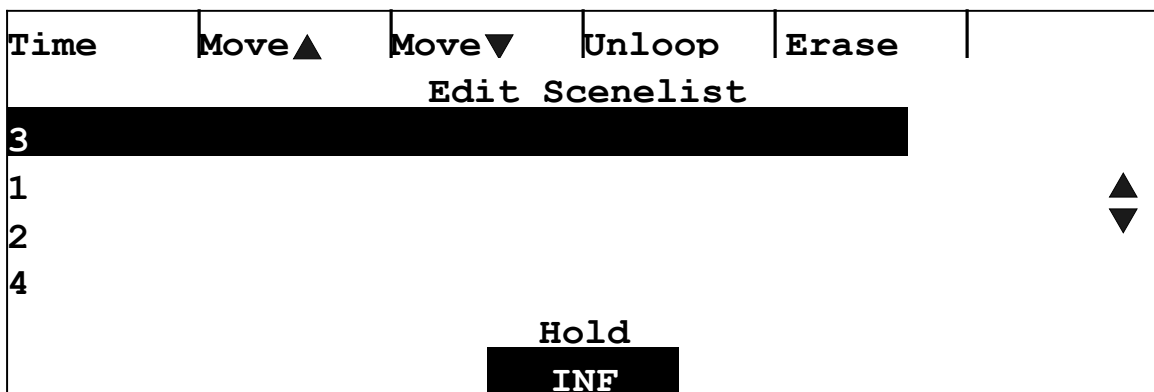
6. Repeat steps 4 and 5 until all looks are moved into the desired positions.

7. When you are done, press the **Yes** key.

   The LP-X renames the looks to reflect their new order.

To Delete a Look from a Scene List

1. Put the board into **Edit/Playback** mode.

2. Using the side wheel, select a scene list.

3. Press the **Edit** softkey.

4. Using the side wheel, select a look to delete.

5. Press the **Erase** softkey.

```
                    Delete Scene?


     WARNING: Are you sure you want to delete

                     this scene?



                      Yes / No
```
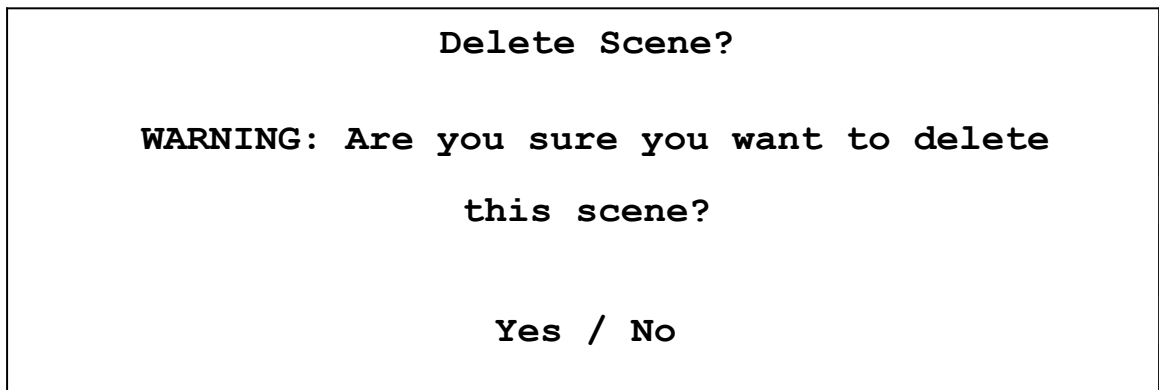
6. Press the **Yes** key to delete the look. Press the **No/Esc** key to cancel the operation.

Programming Virtual Channels

The LP-X24 has twenty-four manual faders—twelve in Bank 1 and twelve in Bank 2.

The LP-X48 has forty-eight manual faders—twenty-four in Bank 1 and twenty-four in Bank2.

In certain cases it will be desirable to have extra control channels. The LP-X24 has seventy-two "virtual" channels—that is, channels that exist in the board's software but do not have corresponding faders. The LP-X48 has 144 "virtual" channels.

You can see and program these channels only in the display section of the LP-X.

To Program Virtual Channels

1. Start by ensuring that all buttons and faders are in the proper positions.

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**DIM**
Filter	**DIM** or **BOTH**

Button/Fader	Setting
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Up (typically full on)
Programmer Fader	Up (typically full on)

2. Using the side wheel, display channels with numbers higher than 24 (LP-X24) or 48 (LP-X48).

```
                        Recording new scene
   25  26  27  28  29  30  31  32  33  34  35  36
                                                        ▼
   37  38  39  40  41  42  43  44  45  46  47  48

                                                      Fade
       Select                   Level                 0:00
```
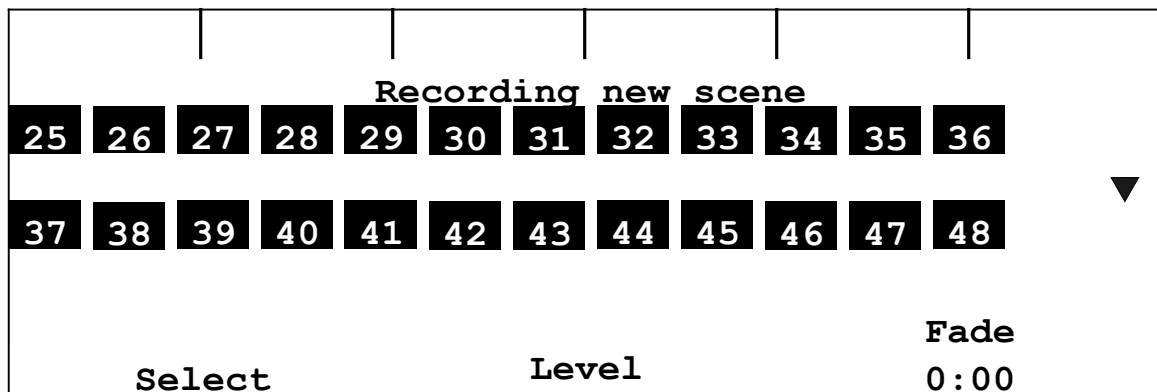
3. Set levels for the virtual channels.

   You may use the left wheel to select a channel and then use the center wheel to set a level for it. You may also use the **Channel** button on the board. Please see "Conventional Channel Input" beginning on page 19 for complete details.

   These techniques will also work for setting levels for channels that have hardware faders, too.

```
                        Recording new scene
   25  26  27  28  29  30  31  32  33  34  35  36
   FF
                                                        ▼
   37  38  39  40  41  42  43  44  45  46  47  48

                                                      Fade
       Select                   Level                 0:00
```
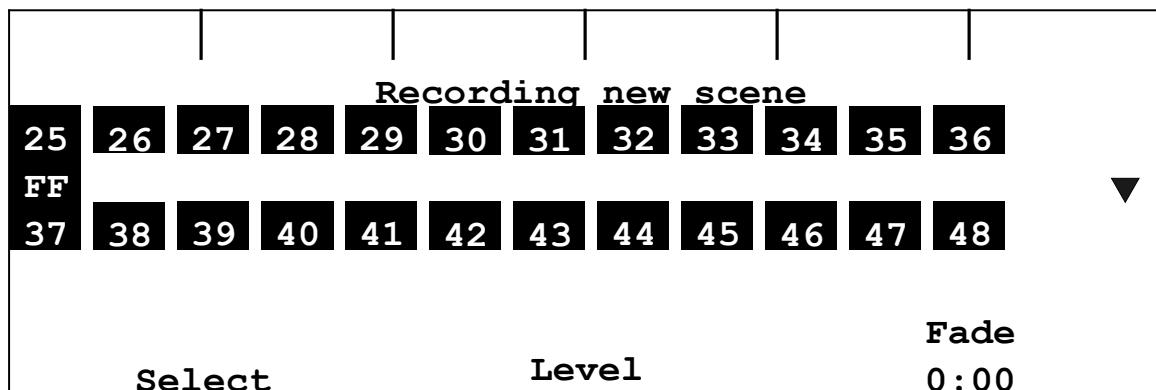
4. Save your settings.

   Press the **Select** button for a playback to record a new look. Or press the **Save** softkey to update the current look.

Chapter Six:
Creating Moving Light Labels

The LP-X Moving Light Controller includes a library of labels (palettes) for many common Moving Light fixtures.

You can easily add new labels for use with label programming.

You can also edit labels—factory presets or those you have created.

Creating Labels

In many cases, each property of a Moving Light is controlled by only one attribute. For example, color is controlled by an attribute called *Color Wheel 1* and beam is controlled by an attribute called *Gobo*.

Some of the more sophisticated fixtures use multiple attributes to control a single property.

For example, some fixtures employ color mixing, which allows three basic colors to be mixed to produce a wide spectrum of color. Similarly, the more complex fixtures—such as the Cyberlight and the Martin Pal1200—contain many beam attributes. Among the beam attributes are:

- Gobo

- Iris

- Shutter (including PAL shapes)

- Zoom

As a result, several attributes may be present when you are creating a new label for a property of a fixture.

To Create a Color or Beam Label

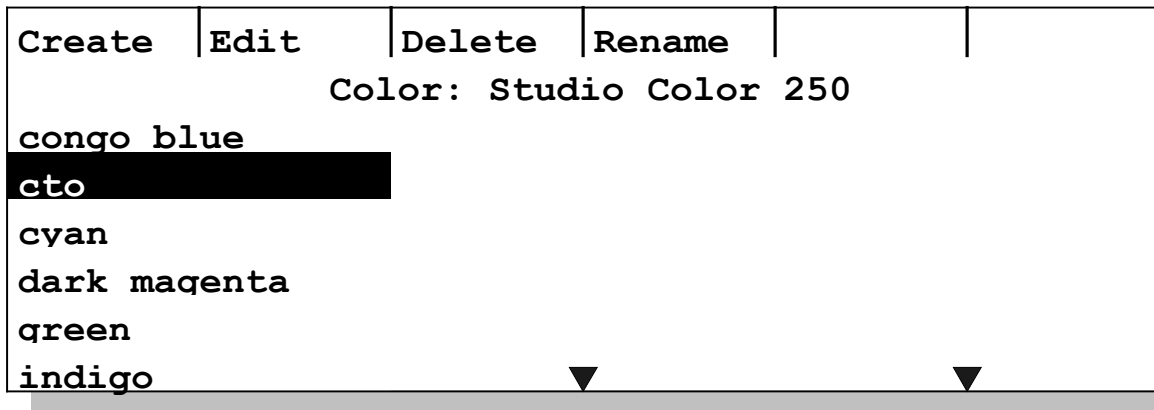1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)

Button/Fader	Setting
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. Press the **Color** or **Beam** softkey.

3. Press the **Label** softkey.

```
Create  Edit     Delete  Rename
               Color: Studio Color 250
congo blue
cto
cyan
dark magenta
green
indigo                    ▼            ▼
```

4. If you haven't already done so, select one or more instruments of the same fixture type.

   The LP-X can only create a label for one fixture type at a time—like the Studio Color 250 as shown above. When you create a label, it will be available for all instruments of this type.

   Some lighting designers prefer to see what the label will look like in only one light; others prefer to see what the label will look like in a group of lights. Because of this the LP-X permits you to select more than one instrument of the fixture type, if desired.

   Please refer to "Selecting Moving Lights for Programming" beginning on page 87 for information about the various ways in which you may select a light.

5. Press the **Create** softkey.

   The screen that is displayed will vary depending upon the number of attributes the light has for the property. In the case of the Studio Color 250, there are four attributes for the *Color* property: *Color 1 function*, *Color mix Cyan*, *Color mix Magenta* and *Color mix Yellow*.

```
SaveAs    |        |        |        |        | NoDws
              New Color: Studio Color 250

                                                    ▶


  Color 1 functio                        Color mix Mage
                    Color mix Cyan
        0                        0                0
```

You use the side wheel to scroll between the screens of attributes.

```
SaveAs    |        |        |        |        | NoDws
              New Color: Studio Color 250

                                                    ◀


  Color mix Cyan                        Color mix Yell
                    Color mix Magen
        0                        0                0
```
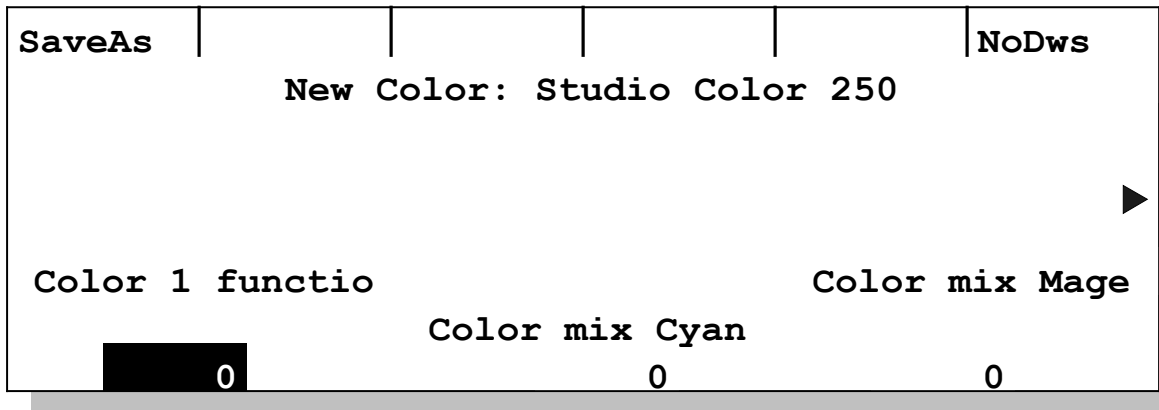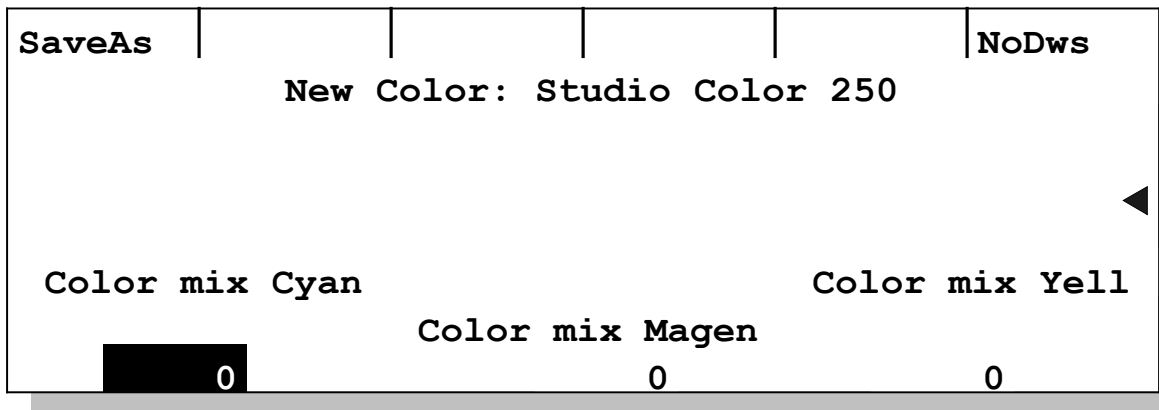
6. Use the left, center and right wheels to set the desired values.

   You may turn the wheels to the desired values. You may also press a wheel, enter the desired value on the numeric keypad and then press the **Enter** key.

   Values typically range from 0 to 255.

   To select **No Change**, enter a value outside the device's range—256 or greater. See "No Change" beginning on page 85 for complete details about this option.

7. When you are done, press the **SaveAs** softkey.

```
                         Label Name


            Please enter a name for the new label.



Label Name:
Color 001
                          Yes / No
```

8. If desired, use the numeric keypad to enter a name for the label.

9. Press the **Yes** key to confirm the operation. Press **No/Esc** to cancel the operation.

   The LP-X saves the label and returns to the *Label Creation* screen.

```
SaveAs  |Save        |          |          |          |NoDws
              MY COLOR : Studio Color 250


                                                            ◀


  Color mix Cyan                         Color mix Yell
                    Color mix Magen
          75                  100              250
```

10. If desired, update the label and press the **Save** softkey to save your changes.

11. If desired, update the label and press the **SaveAs** softkey to create a new label.

12. When you are done, press the **No/Esc** button.

    The LP-X displays the label or labels that you created.

```
┌─────────────────────────────────────────────────────────────┐
│ Create  │Edit    │Delete  │Rename  │        │        │        │
│              Color: Studio Color 250                          │
│ cyan                                                          │
│ dark magenta                                                  │
│ green                                                         │
│ indigo                                                        │
│ MY COLOR                                                      │
│ orange                         ▼                  ▼           │
└─────────────────────────────────────────────────────────────┘
```
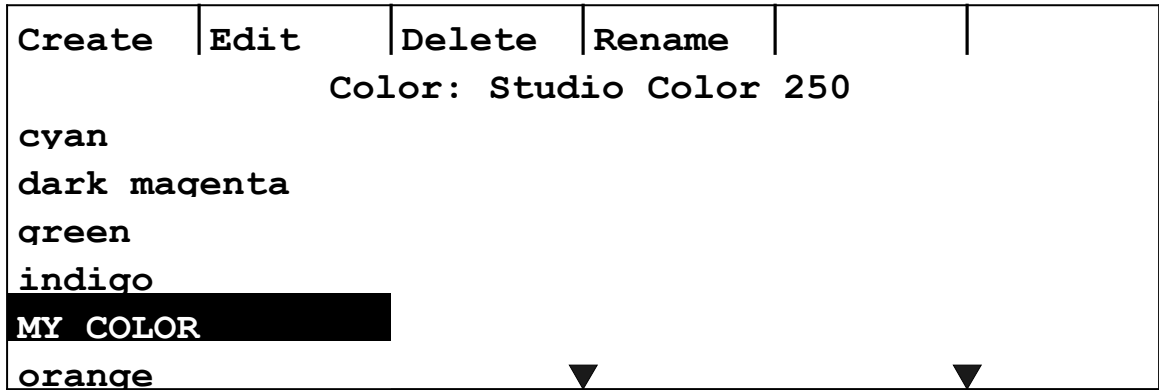
To Create a Focus Label

Unlike the *Beam* and *Color* properties, the LP-X instrument library does not include *Focus* labels. As a result, creating focus labels for the instruments in your show will be one of your first actions.

Focus label programming works with instruments of mixed fixture types, unlike *Color* and *Beam* label programming.

Before creating a new *Focus* label, you will want to set the instruments to a clearly visible pattern and a high intensity value in the programming screen. You can always select the default labels for *Color* (usually displays white) and *Beam* (usually displays open).

Remember that you can select **Invert Pan** and **Invert Tilt** when creating or modifying DMX assignments. Enabling or disabling these options may make it easier to create focus labels. For more information, please see "To Add a Moving Light Instrument into the System" beginning on page 45.

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. Press the **Focus** softkey.

```
┌─────────────────────────────────────────────────────────────┐
│ Color    │ Beam     │  FocsFx   │ Attrib   │         │ Label │
│              Recording new scene                              │
│ No Change                                                     │
│ Defaults                                       No Dowse       │
│                                           Intensity:100%      │
│                                                               │
│                                                               │
│                            Delay          Fade                │
│                            0:00.0         0:00.0              │
└─────────────────────────────────────────────────────────────┘
```

3. Press the **Label** softkey.

    You may see one of several different screens.

    No instruments selected:

```
┌─────────────────────────────────────────────────────────────┐
│        │         │          │         │          │           │
│                 Focus: No Instruments                         │
│                                                               │
│ Please select some instruments to work                       │
│ with.                                                         │
│                                                               │
│                                                               │
│           ▼                   ▼                               │
└─────────────────────────────────────────────────────────────┘
```
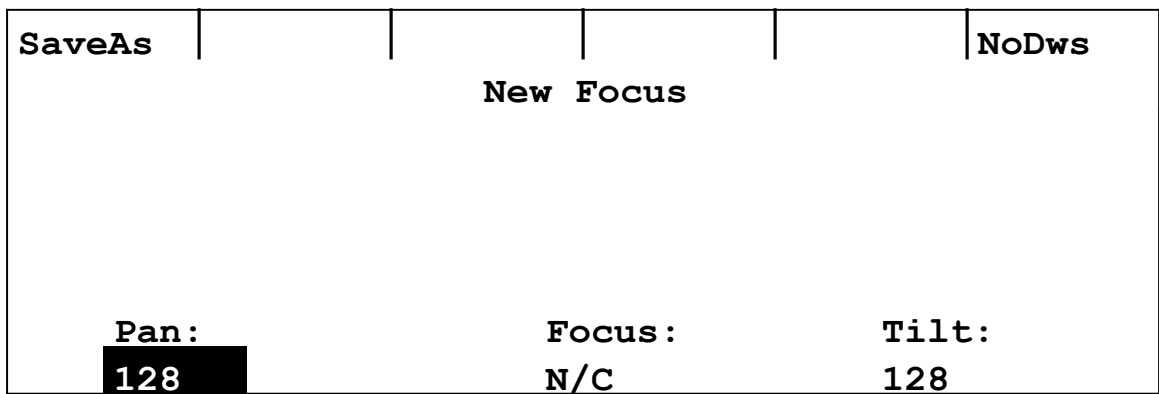
    One or more of the same fixture type selected:

```
┌─────────────────────────────────────────────────────────────┐
│ Create │         │          │         │          │           │
│                  Focus: Technobeam                            │
│                                                               │
│ No labels available. Use Create to make                       │
│ a new label of this type.                                     │
│                                                               │
│                                                               │
│           ▼                   ▼                               │
└─────────────────────────────────────────────────────────────┘
```

    A mixture of fixture types selected:

```
Create  |         |         |         |         |
                Focus: Mixed Fixtures


No labels available. Use Create to make
a new label of this type.



             ▼                   ▼
```
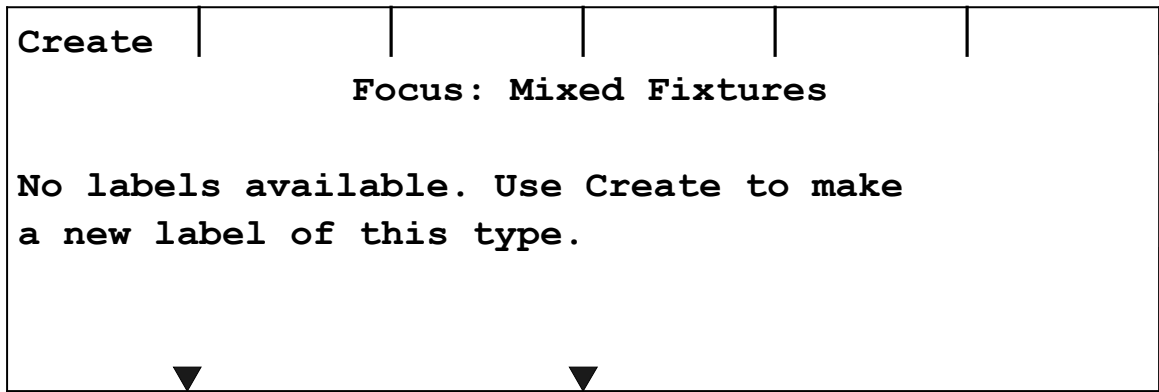
4. If you haven't already done so, select the light or lights for which you want to create a *Focus* label.

    Please refer to "Selecting Moving Lights for Programming" beginning on page 87 for information about the various ways in which you may select a light.

5. Press the **Create** softkey.

```
SaveAs  |         |         |         |   |NoDws
                  New Focus




       Pan:              Focus:        Tilt:
       128               N/C           128
```

6. Use the left wheel to set the *Pan* value, the center wheel to set the *Focus* (edge) value and the right wheel to set the *Tilt* value.

    You may turn the wheels to the desired values. You may also press a wheel, enter the desired value on the numeric keypad and then press the **Enter** key.

    To set the value to **No Change** (**N/C**), enter the value **256**. Or, hold down the **Clear** key and press the wheel for the attribute. **No Change** cannot be selected using the wheel.

    Note that some instruments do not have a *Focus (*edge*)* attribute, so changing the *Focus* value will have no effect on the look of the light.

7. When you are done, press the *SaveAs* softkey.

```
                      Label Name

          Please enter a name for the new label.



Label Name:
Focus 001
                         Yes / No
```
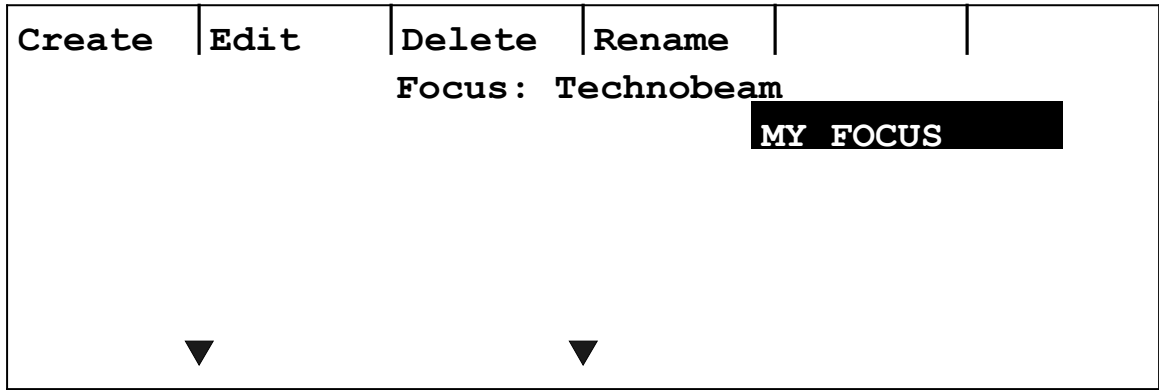
8. If desired, use the numeric keypad to enter a name for the *Focus* label.

9. Press the **Yes** key to confirm the operation. Press **No/Esc** to cancel the operation.

    The LP-X saves the label and returns to the *Label Creation* screen.

```
SaveAs  |Save        |          |          |          |NoDws
                      MY  FOCUS




      Pan:              Focus:            Tilt:
      220               N/C               115
```

10. If desired, update the label and press the **Save** softkey to save your changes.

11. If desired, update the label and press the **SaveAs** softkey to create a new label.

12. When you are done, press the **No/Esc** button.

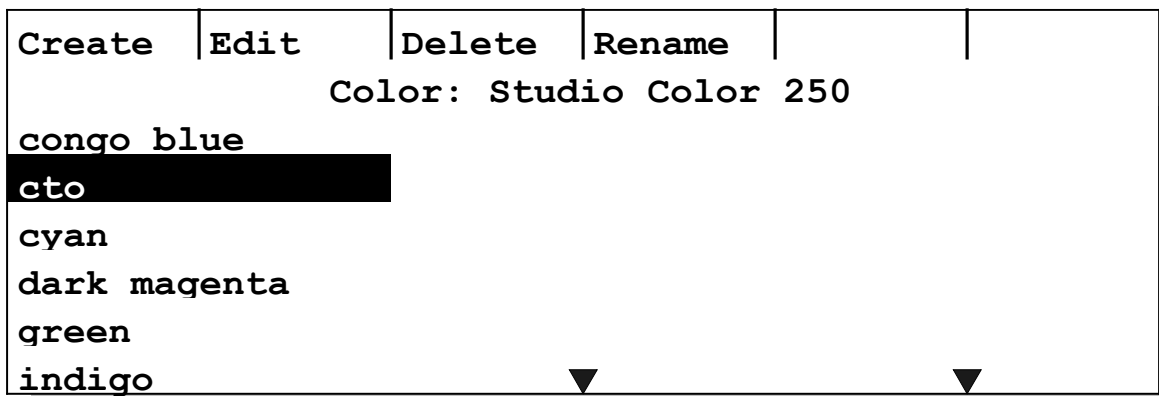   The LP-X displays the label or labels that you created.

```
┌─────────────────────────────────────────────────────────┐
│ Create  │ Edit    │ Delete  │ Rename  │        │        │
│                Focus: Technobeam                          │
│                               ▐MY  FOCUS▌                 │
│                                                           │
│                                                           │
│                                                           │
│          ▼                      ▼                         │
└─────────────────────────────────────────────────────────┘
```

To Copy a Label

Sometimes it is easier to copy a label and then make minor changes to it than to create one from scratch.

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. Press the **Color**, **Beam** or **Focus** softkey.

3. Press the **Label** softkey.

```
┌─────────────────────────────────────────────────────────┐
│ Create  │ Edit    │ Delete  │ Rename  │        │        │
│             Color: Studio Color 250                       │
│ congo blue                                                │
│ ▐cto          ▌                                           │
│ cyan                                                      │
│ dark magenta                                              │
│ green                                                     │
│ indigo                        ▼                  ▼        │
└─────────────────────────────────────────────────────────┘
```

4. If you haven't already done so, select the fixture(s) for the label that you want to copy.

    Reminder: The LP-X will permit you to copy a label for mixed fixture types only when working with focus labels.

5. Press the **Edit** softkey.

    The screen that is displayed will vary depending upon the number of attributes the light has for the property. In the case of the Studio Color 250, there are four attributes for the *Color* property: *Color 1 function*, *Color mix Cyan*, *Color mix Magenta* and *Color mix Yellow*.

```
SaveAs   Save                                   NoDws
                cto: Studio Color 250

                                                  ◀


    Color mix Cyan                 Color mix Yell
                    Color mix Magen
          0                         0            40
```

You use the side wheel to scroll between the screens of attributes.

6. Press the **SaveAs** softkey.

    By saving the label as a new label, you copy all of the attribute information from the old label to the new label.

```
                    Label Name


        Please enter a name for the new label.



Label Name:
Color 001
                    Yes / No
```

7. Enter a name for the new label.

8. Press the **Yes** key to confirm the operation. Press **No/Esc** to cancel the operation.

```
┌─────────────────────────────────────────────────────────────┐
│ SaveAs  │Save     │         │         │         │  NoDws    │
│              MY NEW LABEL: Studio Color 250                  │
│                                                             │
│                                                    ◄        │
│                                                             │
│  Color mix Cyan                          Color mix Yell     │
│                   Color mix Magen                           │
│ ████████    0                       0                40     │
└─────────────────────────────────────────────────────────────┘
```
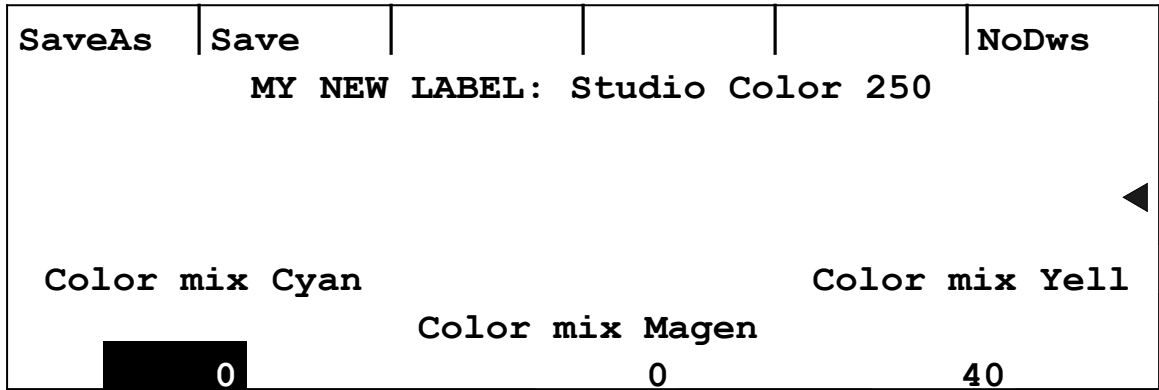
9. Use the left, center and right wheels to set the desired values.

    You may turn the wheels to the desired values. You may also press a wheel, enter the desired value on the numeric keypad and then press the **Enter** key.

    Values typically range from 0 to 255.

    To select **No Change**, enter a value outside the device's range—256 or greater. See "No Change" beginning on page 85 for complete details about this option.

10. When you are done, press the **Save** softkey.

11. Press **No/Esc** twice to return to the **ML Programmer**.

Editing Labels

After you have created labels, you can easily make changes to their attribute values, rename or delete them. You can also make changes to factory preset labels, if desired. An important point is that all the looks that use the labels that you edit are automatically updated to the new values.

To Modify a Label

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

    The LP-X displays the **Moving Light Programmer**.

2. Press the **Color**, **Beam** or **Focus** softkey.

3. Press the **Label** softkey.

4. Select the fixture or—in the case of *Focus* labels fixtures—for which you want to edit a label.

5. Select the label that you want to edit.

6. Press the **Edit** softkey.

7. Make the desired changes and then press the **Save** softkey.

   Use the procedures given in "To Create a Color or Beam Label" beginning on page 123 or "To Create a Focus Label" beginning on page 127.

To Rename a Label

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

   The LP-X displays the **Moving Light Programmer**.

2. Press the **Color**, **Beam** or **Focus** softkey.

3. Press the **Label** softkey.

4. Select the label that you want to rename.

   If you do not see the label, you may need to restrict the instrument selection. The **ML Programmer** only shows the labels that the selected instruments share in common.

5. Press the **Rename** softkey.

```
              Rename Label


       Renaming this label will affect all
              selected fixture types.


New label name:
MY LABEL
                        Yes / No
```

6. Enter a new name for the label.

7. Press **Yes** to rename the label. Press **No/Esc** to cancel the operation.

To Delete a Label

Any scenes (looks) using a deleted label will be set to **No Change**.

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. Press the **Color**, **Beam** or **Focus** softkey.

3. Press the **Label** softkey.

4. Select the label that you want to delete.

   If you do not see the label, you may need to restrict the instrument selection. The **ML Programmer** only shows the labels that the selected instruments share in common.

5. Press the **Delete** softkey.

```
              Delete Label?


   Are you sure you want to delete this
   label for all selected fixture types?



              Yes / No
```

6. Press **Yes** to delete the label. Press **No/Esc** to cancel the operation.

Chapter Seven:
Working with Moving Light Attributes

The LP-X comes with a library of labels for color and beam. The library includes the most common colors and gobos.

There may be times when a label would be perfect—if only it were modified in the slightest way.

The LP-X provides the functionality to make such modifications by giving you access to the attributes that underlie each label.

For example, the LP-X label library for the High End Systems Studio Spot 250 includes a beam label called *Swirl*. Everything about this label is perfect—except for the fact that you would like it to rotate during one look.

By modifying the *Effects 1* attribute of the label, you can create a rotating swirl without the added steps of creating a label from scratch.

Overriding a Label

Use the following procedures when you are recording moving light looks.

To Override a Moving Light Attribute

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. Select a light (or several lights of the same type) for programming.

Please refer to "Selecting Moving Lights for Programming" beginning on page 87 for information about the various ways in which you may select a light for programming.

3. Select the desired color, beam or focus label.

    Press the **Color** softkey. Use the left wheel or the **Plus** (**+**) and **Minus** (**-**) keys in the numeric keypad to make your selection.
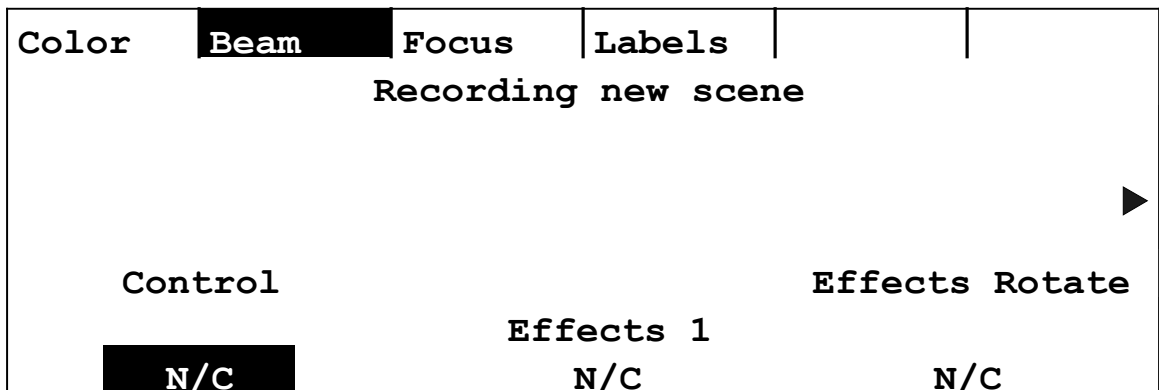
```
 ColrFx   Beam    |Focus   |Attrib   |          |Label
                  Recording new scene
 dark magenta                                     No Dowse
 green                                    Intensity:100%
 indigo
 orange
 pink                          Delay            Fade
 red                           0:00.0          0:00.0
```

Press the **Beam** softkey. Use the left wheel or the **Plus** (**+**) and **Minus** (**-**) keys in the numeric keypad to make your selection.

```
 Color     BeamFx    Focus   |Attrib   |          |Label
                  Recording new scene
 off-center c                                     No Dowse
 open                                     Intensity:100%
 perfora
 radium
 swirl                         Delay            Fade
 twism                         0:00.0          0:00.0
```

Press the **Focus** softkey. Use the left wheel or the **Plus** (**+**) and **Minus** (**-**) keys in the numeric keypad to make your selection.

```
 Color    |Beam    |FocsFx    Attrib   |          |Label
                  Recording new scene
 No Change                                        No Dowse
 Defaults                                 Intensity:100%
 Focus 001
 Focus 002
 Focus 003                     Delay            Fade
 Focus 004                     0:00.0          0:00.0
```

4. Press the **Attrib** softkey.

If the **Color** property was previously selected, you see a screen that looks something like this (depending upon the color attributes for the light).
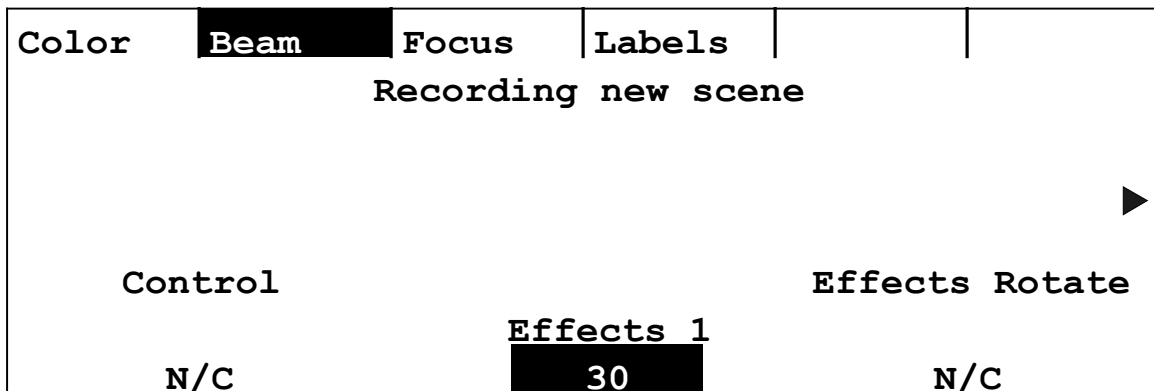
Color	Beam	Focus	Labels		

Recording new scene

Color 1 functio   Color 2 functi

Color wheel 1

N/C   N/C   N/C
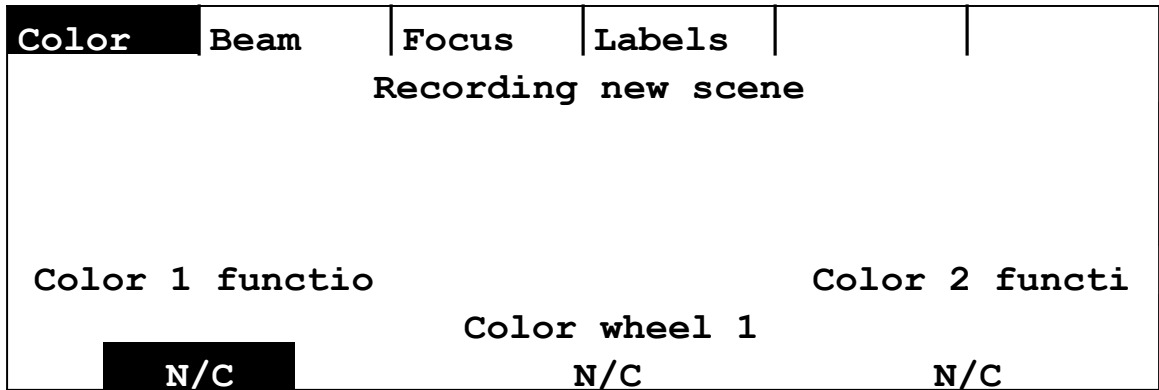
If the **Beam** property was previously selected, you see a screen that looks something like this (depending upon the beam attributes for the light).

Color	Beam	Focus	Labels		

Recording new scene

▶

Control   Effects Rotate

Effects 1

N/C   N/C   N/C

If the **Focus** property was previously selected, you see a screen that looks something like this (depending upon the focus attributes for the light).

Color	Beam	Focus	Labels		

Recording new scene

Focus   Tilt

Pan

N/C   N/C   N/C
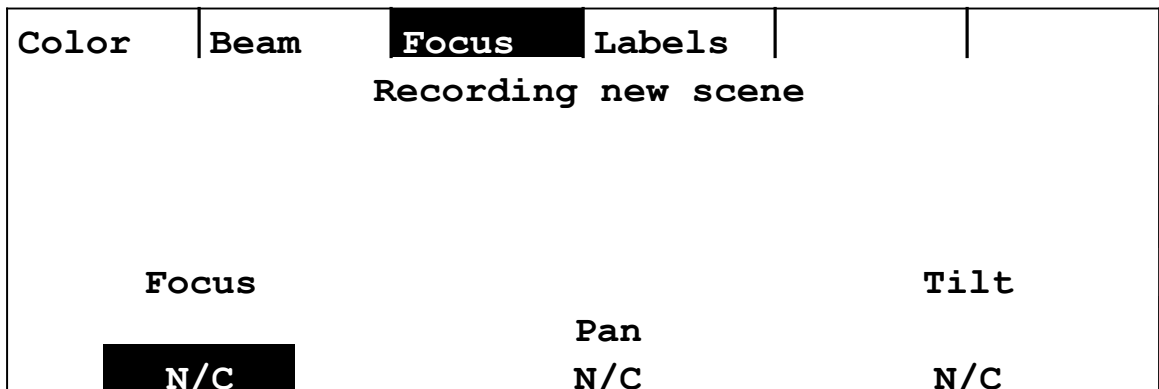
If you had multiple instrument types selected, you see the following screen.

```
          Mixed Fixture Types Error


        Can't attribute program with mixed
      fixture types! Please make sure you only
           have one fixture type selected.



                        Ok
```
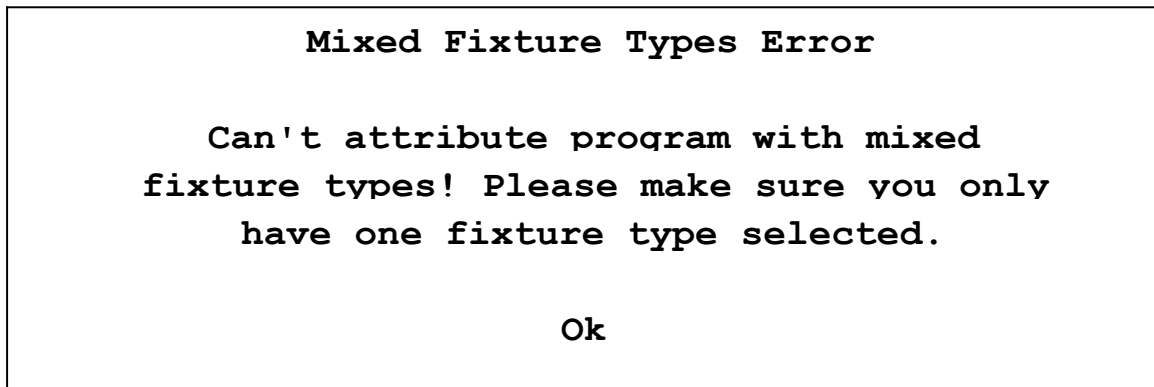
Notice that regardless of the values for the label that was previously selected, the **Attribute Programmer** displays **No Change** (**N/C**) for every attribute.

5. Use the left, center or right wheel to change the value for the attribute or attributes you want to modify.

For the Studio Spot 250, setting the Effects 1 attribute of the **Beam** property to a value of 30 rotates the beam.

```
Color   Beam       Focus  |Labels   |          |         |
               Recording new scene


                                                        ▶

    Control                              Effects Rotate
                        Effects 1
        N/C                 30                 N/C
```

Alternately ways in which to change the value are:

*   Press the encoder, enter the desired value in the numeric keypad and press the **Enter** key.

Values range from the Min to the Max specified by the manufacturer or set on the **Device Attribute** screen for user-created devices. The range is typically 0 to 255. You can reset the attribute to **No Change** by entering a value that is outside of the device's range—anything over 255. Manufacturer information about specific lights will help you learn about the values to select to achieve the desired effects.

In cases where there are more than three attributes, use the side wheel to scroll through attributes.

6. If desired, do one or more of the following:

To:	Do:
Modify attributes for a different property of the same light(s)	Press the property's softkey (**Color**, **Beam** or **Focus**) and repeat step 5 above.
Modify attributes for a different light or group of lights (same type).	Deselect the light or lights that are currently selected. Then select the light or lights (same type). Repeat step 5 above.

7. When you are done modifying attributes, press the **Labels** softkey or the **No/Esc** button.

Flashes to show that attributes are applied

```
Color    BeamFx   Focus    Attrib           Label
              Recording new scene
off-center c                            No Dowse
open                          Intensity:100%
perfora
radium
swirl                  Delay         Fade
twism                  0:00.0        0:00.0
```

To Reset Moving Light Attributes

Attribute overrides are designed to carry forward from look to look until you explicitly turn them off. You can turn them off by resetting the attribute, by clearing the programmer or by loading another look into the programmer. For example, in the previous procedure, we applied rotation to the **Beam** property for a Studio Spot 250. All subsequent looks that include the Studio Spot 250 will rotate—regardless of the color, beam, focus and intensity settings—until we explicitly reset the attribute or clear the programmer.

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. Select the light (or several lights of the same type) that you want to reset.

   Please refer to "Selecting Moving Lights for Programming" beginning on page 87 for information about the various ways in which you may select a light for programming.

3. Using the **Color**, **Beam** or **Focus** softkey, select the property for which the attributes were modified.

4. Hold down the **Clear** button and press the **Attrib** softkey.

NOTE: If you want to clear the programmer, hold down the **Clear** button and press the **Enter** button. If you want to load a different look into the programmer, switch to **Edit/Scene** mode and then press the **Select** button for the page and playback until the desired look is displayed. Return to **Record** mode.

Working with Attributes in Edit Mode

After you have recorded a look, you may override or reset attributes in **Edit** mode much the same as you would change labels.

To Edit a Moving Light Attribute

1. Put the LP-X into the following modes for moving light editing:

Button/Fader	Setting
Modes	**Edit** and **Scene**
Display	**ML**
Filter	**ML**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

2. Press the **Select** button repeatedly until the look you want to edit is displayed.

3. Select the instrument(s) that you want to edit.

4. Select the property that you want to edit—**Color**, **Beam** or **Focus**.

5. To override attributes for the property you selected, follow the procedure given in the section "To Override a Moving Light Attribute" beginning on page 137.

   You will only need to complete steps 4 through 7.

6. To reset attributes for the property you selected, hold down the **Clear** button and press the **Attrib** softkey.

Chapter Nine:
Chases

A *chase* is an endless loop of scenes that plays back at a specific rate. Chases are designed to snap to the settings of a look, hold, snap to the settings of the next look, hold, and so forth.

You may convert any scene list that has been recorded to a playback into a chase.

A total of 120 chases can be saved—one on each page and playback. Up to six chases can be run at the same time.

Creating a Chase

The process of creating a chase begins by building a scene list on a playback. Techniques for building a scene list are described in "Chapter Three: Conventional Light Programming" beginning on page 71 and in "Chapter Four: Moving Light Programming" beginning on page 83.

There is no reason to assign any automated timing to a scene list that you intend to convert into a chase. Any timings that you do assign will be disregarded once the chase feature is enabled.

To Convert a Scene List into a Chase

1. Put the LP-X into the following modes for editing:

Button/Fader	Setting
Modes	**Edit** and **Playback**
Display	N/A
Filter	N/A
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down (typically zero)

The LP-X displays the **Edit Playback** screen.

```
┌──────────────────────────────────────────────────────────┐
│ Edit      Chase     Global  │          │Copy     Erase    │
│                   Edit Playback                           │
│ PG 01 PB 01 (12)                                          │
│ PG 01 PB 02 (6)                                       ▼   │
│ PG 03 PB 06 (28)                                          │
│                                                          │
│                                                          │
└──────────────────────────────────────────────────────────┘
```
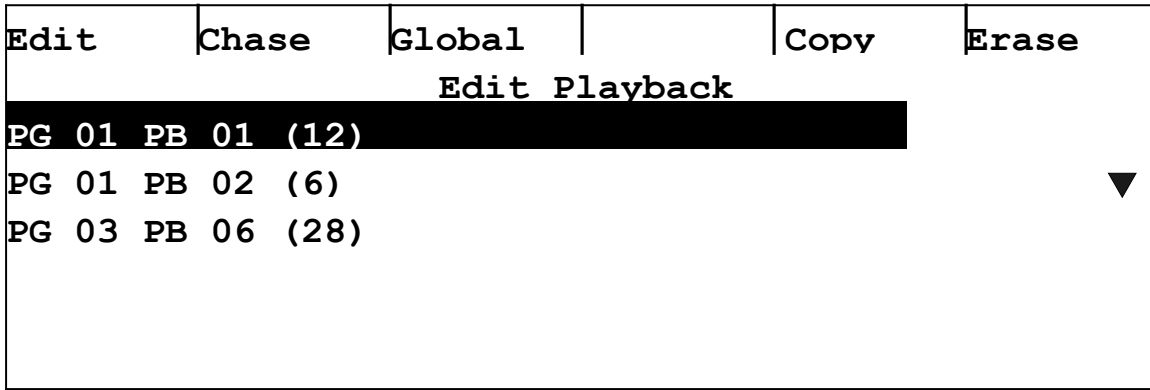
2. Using the side wheel or the **+** (**Plus**) and **–** (**Minus**) keys, select the page and playback of the scene list that you want to convert to a chase.

3. Press the **Chase** softkey.

   The **Chase** softkey text changes to **Unchse**. The line for the page and playback shows that the scene list has been converted to a chase and sets the chase rate to the setting of the **Chase Rate** fader. If the fader is all the way down, the rate will be 15 BPM (beats per minute).

   Note that if this scene list was previously chased and then unchased, the LP-X will remember the chase rate that you originally set and will restore it, regardless of the position of the **Chase Rate** fader, when you chase the scene list again.

```
┌──────────────────────────────────────────────────────────┐
│ Edit      Unchse    Global  Bkwd      │Copy     Erase     │
│                   Edit Playback                           │
│ PG 01 PB 01 (12)                                          │
│ PG 01 PB 02 (6) CHASE 15 BPM                          ▼   │
│ PG 03 PB 06 (28)                                          │
│                                                          │
│                                                          │
└──────────────────────────────────────────────────────────┘
```
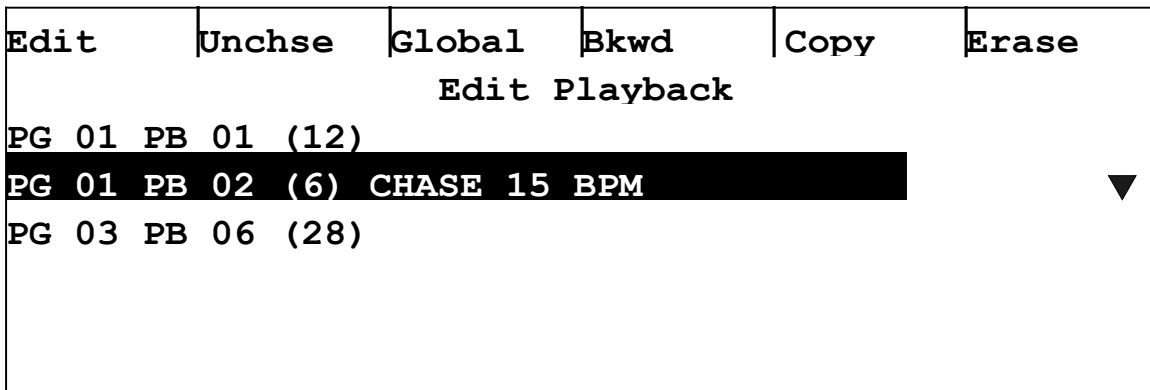
4. If desired, set the chase to run backwards by pressing the **Bkwd** softkey.

   The softkey text changes to **Fwd**.

5. Raise the fader for the page and playback to view the chase.

6. To set the rate for the chase, adjust the **Rate** fader or tap the **Tap** button.

   If you know the rate of the chase (in beats per minute), using the **Rate** fader is the easiest way to set the rate.

If you want to match the chase rate to something—like a song—it may be easier to tap the **Tap** button in time until the chase matches the rate of the source. Note that after you use the **Tap** button, adjusting the **Rate** fader will have no effect until you match and grab the rate that you have tapped in.

7. When you are done, bring the fader for the page and playback to zero and then put the LP-X in **Run** mode.

To Set the Number of Chase Loops

By default, a chase is set to loop an infinite number of times. If you want, you can specify the number of loops for the chase. This option is only available for scene lists that have been converted to chases.

1. Put the LP-X into the following modes for editing:

Button/Fader	Setting
Modes	**Edit** and **Playback**
Display	N/A
Filter	N/A
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down (typically zero)

The LP-X displays the **Edit Playback** screen.

```
Edit      Unchse   Global   Bkwd    Copy     Erase
                    Edit Playback
PG 01 PB 01 (12)
PG 01 PB 02 (6) CHASE 15 BPM                       ▼
PG 03 PB 06 (28)


```

2. Using the side wheel or the **+** (**Plus**) and **–** (**Minus**) keys, select the page and playback of the scene list that you want to convert from a chase back to a scene list.

3. Press the **Edit** softkey.

```
┌──────────────────────────────────────────────────────────────────┐
│ Time        │          Move▼      │        Erase    │             │
│                      Edit Scenelist                                │
│ ███████████████████████████████████████████████████              │
│ 2                                                            ▼     │
│ 3                                                                  │
│ 4                                                                  │
│      Chase Loops                                                   │
│          ███INF███                                                 │
└──────────────────────────────────────────────────────────────────┘
```
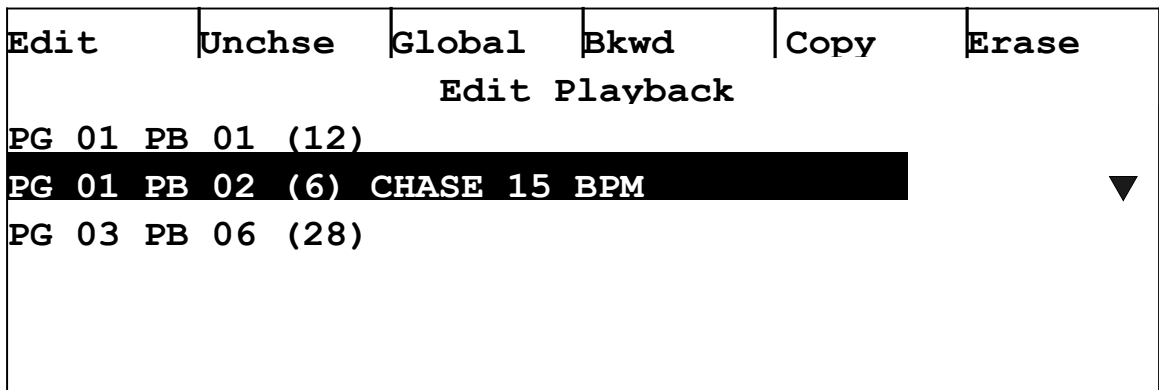
4. Use the left wheel to set the number of loops or enter the number of loops on the numeric keypad and then press the **Enter** key.

```
┌──────────────────────────────────────────────────────────────────┐
│ Time        │          Move▼      │        Erase    │             │
│                      Edit Scenelist                                │
│ ███████████████████████████████████████████████████              │
│ 2                                                            ▼     │
│ 3                                                                  │
│ 4                                                                  │
│      Chase Loops                                                   │
│          ████5████                                                 │
└──────────────────────────────────────────────────────────────────┘
```
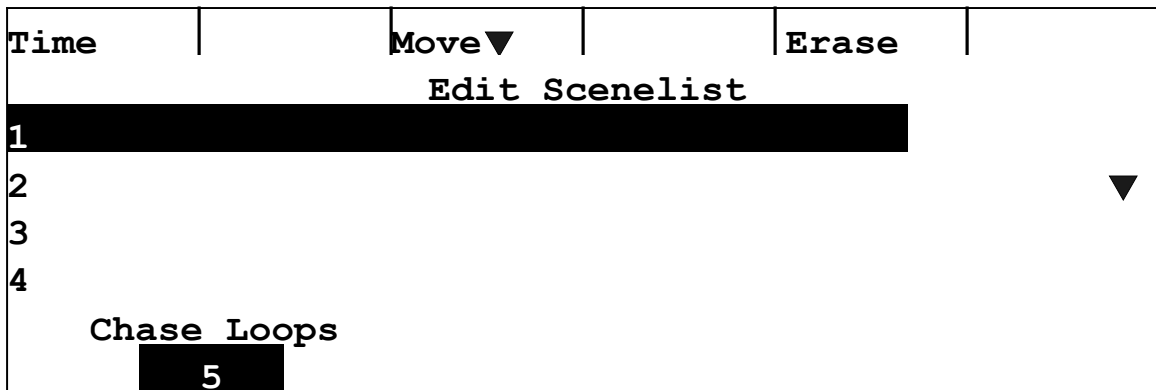
To Convert a Chase back into a Scene List

1. Put the LP-X into the following modes for editing:

Button/Fader	Setting
Modes	**Edit** and **Playback**
Display	N/A
Filter	N/A
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down (typically zero)

The LP-X displays the **Edit Playback** screen.

```
Edit      Unchse  Global  Bkwd   |Copy    Erase
                    Edit Playback
PG 01 PB 01 (12)
PG 01 PB 02 (6) CHASE 15 BPM                    ▼
PG 03 PB 06 (28)
```

2. Using the side wheel or the **+** (**Plus**) and **–** (**Minus**) keys, select the page and playback of the scene list that you want to convert from a chase back to a scene list.

3. Press the **Unchse** softkey.

   The **Unchse** softkey text changes to **Chase** and the line for the page and playback doesn't say *Chase* any more.

```
Edit      Chase   Global  |       |Copy    Erase
                    Edit Playback
PG 01 PB 01 (12)
PG 01 PB 02 (6)                                 ▼
PG 03 PB 06 (28)
```

5. Return to **Run** mode.

Working with Chases at Run Time

During run time, you may decide to chase or unchase a scene list on a playback. This is easily done without switching into **Edit** mode.

To Chase or Unchase a Scene List at Run Time

1. Put the LP-X into the following modes for playback:

Button/Fader	Setting
Modes	**Run** and **Playback**
Display	N/A

Button/Fader	Setting
Filter	N/A
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down (typically zero)

The LP-X displays its run time screen.

```
|           |           |           |           |      12:00

1 Inactive
2 Inactive                                              ▼
3 Inactive
4 Inactive
5 Inactive
6 PG 1 Step: 1 of 2
```

2. If the scene list isn't already active, raise its playback.

3. Using the side wheel or the **Plus** (**+**) and **Minus** (**-**) buttons, select the playback.

    The LP-X adds a **Chase/Unchse** softkey.

```
Chase      |           |           |           |      12:00

1 PG 1 Step: 1 of 7
2 Inactive                                              ▼
3 Inactive
4 Inactive
5 Inactive
6 PG 1 Step: 1 of 2
```

4. Press the **Chase** softkey to convert the scene list on the selected playback to a chase.

```
Unchse   Bkwd                                   12:00

1 PG 1 Step: 1 of 7 CHASE 32 BPM
2 Inactive                                        ▼
3 Inactive
4 Inactive
5 Inactive
6 PG 1 Step: 1 of 2
```

5. Use the **Tap** button or the **Rate** fader to adjust the chase rate.

6. Press the **Bkwd/Fwd** softkey to set the direction of the chase.

7. Press the **Unchse** softkey to convert a chase back into a regular scene list.

To Pause a Chase at Run Time

You may wish to pause a chase at run time or step it backward.

1. With the chase running, hold the **Except** key and press the playback's **Select** key.

   This steps the chase back one step and pauses there.

2. Step back again by pressing **Except + Select**.

   Pressing **Except + Select** when the chase is at Step 1 will execute the last step of the chase.

3. Restart the chase by pressing **Select**.

Note that if a chase is running backward, pressing **Except + Select** will move the chase forward one step.

Dark Move Chases

A *dark move* chase is a special type of chase in which all movements of the lights, beam changes and color changes are done with the intensity at zero.

To Create a Scene List for a *Dark Move* Chase

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting

Button/Fader	Setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. For step one of the chase, record the look in the typical way *except* just before you save for the final time, set the **Intensity** to zero.

3. For step two of the chase, make no changes except to raise the **Intensity** to the desired level, e.g. 100%.

4. For step three of the chase, record new **Color**, **Beam** and **Focus** settings. Just before you save for the final time, set the **Intensity** to zero.

5. For step four of the chase, make no changes except to raise the **Intensity** to the desired level, e.g. 100%.

6. Continue in this fashion, alternating between steps with zero intensity and the desired intensity.

7. Convert the scene list to a chase and set the desired chase rate.

Note that dark move chases work best at slower rates which permit the light to complete its beam, color and focus position changes during each dark step. This rate will vary amongst the different types of lights.

Chapter Ten: Stacks

The *Stack* feature of the LP-X provides look-to-look cross fades triggered by the operator in a sequential order.

The LP-X stores only one stack on board.

Recording Looks to the Stack

You use the same techniques to record looks to a stack as you do to record to a playback.

To Record Looks to the Stack

1. Put the LP-X into the following modes for recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML** or **Dim**
Filter	**ML**, **Dim** or **Both**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

2. Create the look for the first step of the stack.

   Use the techniques given in "Chapter Three: Conventional Light Programming" beginning on page 71 and in "Chapter Four: Moving Light Programming" beginning on page 83.

   If you want to record only moving lights to the stack, ensure that the filter is set to **ML**. If you want to record only conventional lights to the stack, ensure that the filter is set to **Dim**. If you want to record a combination of moving and conventional lights, ensure that the filter is set to **Both**.

   You may set **Start Delay** and **Fade In** for **Color**, **Beam** and **Focus** during recording if desired. Or, you may wait until the entire stack is recorded and then apply automation in **Edit/Stack** mode.

3. Press the stack's **Select** button to record the look to the stack.

```
           Choose Stack Step Number


     Select the step number for this new
      scene. Use Yes or the stack select to
                accept the value.


Save Step
          1.0
```
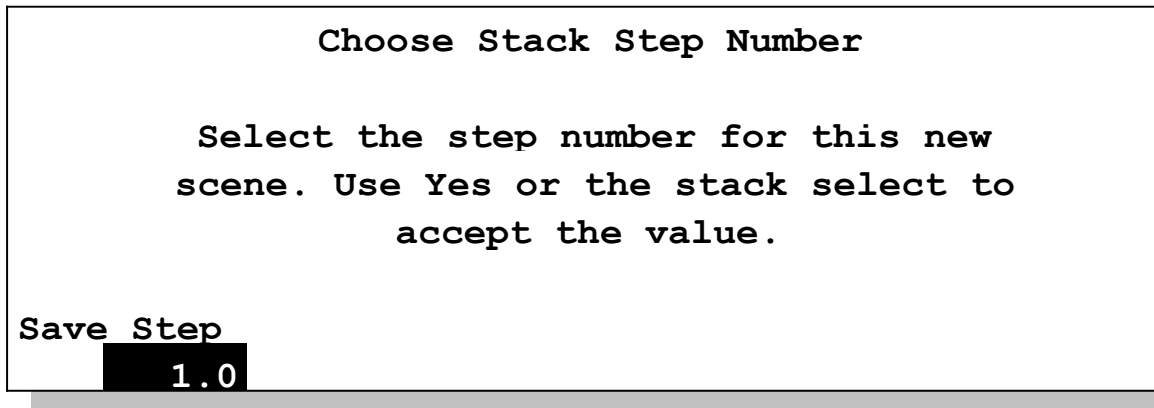
4. Enter a new step number or accept the default and then press **Yes** or the stack's **Select** button to record the step.

   The LP-X suggests default steps 1.0, 2.0, 3.0, etc. Valid numbers range from 1.0 to 99.9.

   You may use the left wheel to select a stack step number. Or you may enter a stack step number on the numeric keypad and then press the **Enter** key.

   When you are done, press the **Yes** button or the stack's **Select** button.

5. If you want to make changes to the step and then re-save it—without creating a new step—make the changes and then press the **Save** softkey on the **ML Programmer** or **Conventional Programmer** screen.

   You may want to select one group of moving lights, save their settings, de-select that group, select a different group, save their settings, etc. The first group's settings will be recorded by pressing the stack's **Select** button. Subsequent group's settings will be recorded by pressing the **Save** softkey.

6. When you are ready to record a new look, press the stack's **Select** button, enter a step number or accept the default and then press **Yes** or the stack's **Select** button.

7. Repeat steps 6 and 7 until you have recorded all the looks that you need.

Playing Back the Stack

Running a show from the stack differs significantly from using regular playbacks because the stack is designed for *dipless cross fades*.

Dipless Cross Fades

A cross fade is the action of changing smoothly from one scene to another. The intent is a smooth transition from one look to another over a fixed time. The term "dipless" describes a method of handling intensity that does not disturb the level of lights with identical settings in the current and upcoming scenes.

In the illustration below, four lights—shown on the left—are set at different intensities: 100%, 50%, 25% and 75%. Over a ten-second period, each will be changing in a different way.

Fades from 100% to 0% over 10

Fades from 50% to 100% over 10

Fades from 25% to 50% over 10 seconds.

Stays at 75% over 10 seconds.
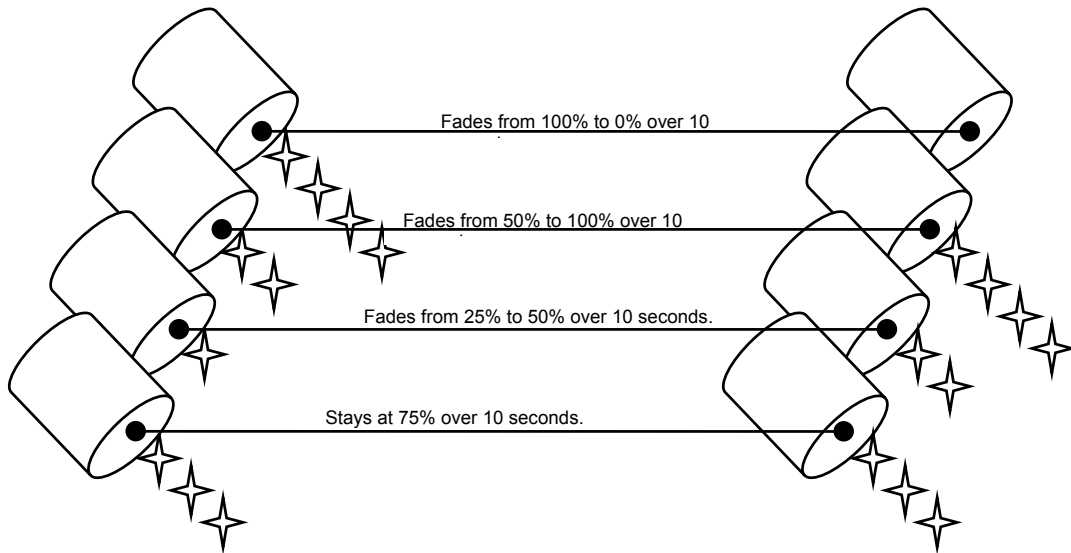
- The first light will fade from 100% to 0%.

- The second light will fade from 50% to 100%.

- The third light will fade from 25% to 50%.

- The fourth light's level will not change.

Dipless cross fade ensures that all fades occur gradually over the full duration of the fade and that there are no "dips" or level changes in lights that do not change intensity.

Go, Back and Hold Buttons

The LP-X provides two different mechanisms for running a stack. You may use the **Go**, **Hold** and **Back buttons** or the stack's **Cross Fader**.

- Press **Go** to start the fade from the *outbound step* to the *inbound step*.

- Press **Back** during a fade to stop and then reverse the fade. After a fade is complete, pressing **Back** will fade from the *outbound step* to the previous step. This back operation fades from step to step in the order in which the steps were executed for up to twenty steps. After that, the back operation fades from step to step in numerical sequence.

- Press **Hold** to freeze the fade at its current status. This will be maintained until the **Go** or **Back** button is pressed.

You may switch from using the stack's **Cross Fader** to using the buttons by pressing any button.

The Stack's Cross Fader

To move from the *outbound step* to the *inbound step*, instead of pressing **Go**, move the stack's **Cross Fader** from one end of its travel to the other.

The fader's position does not represent intensity.

- At the 0% position, the outbound step is fully on.

- As you raise the fader, the outbound step begins to fade into the inbound step.

- At the midway point, the fade from the outbound step to the inbound step is 50% complete.

- At the 100% position, the inbound step is fully on.

Now the inbound step becomes the new outbound step. As you lower the fader, the outbound step begins to fade into the new inbound step. When you reach the 0% position, the fade from the outbound step to the inbound step is complete.

The LED above the fader will be fully on when the fader is completely at one end of its travel and ready to begin a new fade. When you begin a fade, the brightness of the LED drops to zero and then increases. At the end of the fade the LED is again at full brightness.

If you begin a cross fade and then reverse it, the intensity changes will reverse. The color, beam and focus position changes will not be affected. There is no "back" function.

If you want to switch from using the buttons to using the stack's **Cross Fader**, press the **Hold** button. Move the **Cross Fader** from its current position to the extreme end of the fader's travel⎯that is, to 0% or 100%. Then move the **Cross Fader** to match the current fade percentage, that is, if the half of the fade had executed before you pressed the **Hold** button, you would move the **Cross Fader** to the 50% position.

Fading versus Snapping

We use the word *fading* to indicate that a smooth transition between two settings and over a specified time period is occurring. We use the word *snapping* to indicate that the transition between settings is occurring as rapidly as possible.

The stack is designed so that some properties of lights fade and others, snap.

- Intensity fades whenever you move forward or backward from step to step.

- By default, **Color**, **Beam** and **Focus** snap whenever you move forward from step to step.

- You can program **Color**, **Beam** and **Focus** fades and the stack will execute them if you press the **Go** button or move the stack's **Cross Fader**.

- When you press the **Back** button, **Color**, **Beam** and **Focus** fade to their previous settings and then hold.

To Play Back the Stack

1. Put the LP-X into the following modes for playback:

Button/Fader	Setting
Modes	**Run** and **Stack**
Display	N/A

Button/Fader	Setting
Filter	N/A
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down (typically zero)
Stack Fader	At either 0% or 100%

2. Turn on the stack by pressing the stack's **On** button.

```
Change

            Stack Status: ACTIVE Manual


    Out:       0.0   Fade:     100%
     In:       0.0   Fade:       0%
   Next:       1.0
```

Out shows the number of the outbound step and the percentage it has faded down.

In shows the number of the inbound step and the percentage it has faded up.

Next shows the number of the next step.

3. To play back the first step using the stack's **Cross Fader**, move the fader from one end of the fader's travel to the other.

```
Change

            Stack Status: ACTIVE Manual


    Out:       0.0   Fade:      58%
     In:       1.0   Fade:      42%
   Next:       2.0
```

4. To play back the first step using the buttons, press the **Go** button.

```
Change     |          |          |          |          |
                Stack Status: ACTIVE Auto


    Out:      0.0  Fade:      0%      0:00.0  Hold
     In:      1.0  Fade:    100%      0:00.0  Inf
    Next:     2.0  Fade:     Inf
```

Notice that the **Stack Status** changes from **Manual** to **Auto** and that the screen displays additional information. This information will be explained in detail in "Automating a Stack" beginning on page 161.

5. Continue to play back the stack by moving the stack's **Cross Fader** from one end of its travel to the other or by pressing the **Go** button.

    If you are executing the stack using the buttons, press the **Back** button to move to the previous step. Press the **Hold** button to stop and hold the transition; press **Go** or **Back** to continue.

6. You may switch from **Manual** to **Auto** by pressing the **Go** button at any time.

    You may switch from **Auto** to **Manual** by pressing the **Hold** button and then moving the stack's **Cross Fader** from its current position to the extreme opposite end of the fader's travel—that is, to 0% or 100%. If the fader is in the middle of its travel, you may need to move it to 0% and then 100% or vice versa in order to make the fader operational.

Note: Pressing the **Go** button while a step is executing has no effect. You must wait for the step to finish executing before the stack will respond to another **Go** button press.

Editing Stacks

In this section, we describe the main techniques used to change the contents of a stack's steps.

To Change Moving Light or Conventional Looks in a Stack

This operation can be done live or blind.

1. Put the LP-X into the following modes for editing:

Button/Fader	Setting
Modes	**Edit** and **Scene**
Display	**ML** or **Dim**
Filter	**ML**, **Dim** or **Both**

Button/Fader	Setting
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Down for a blind edit, Up for a live edit
Programmer Fader	Down for a blind edit, Up for a live edit

The LP-X displays the **Edit Mode** screen.

```
                        Edit Mode


        Please select a scene to edit using the
              playback & stack select buttons.




```
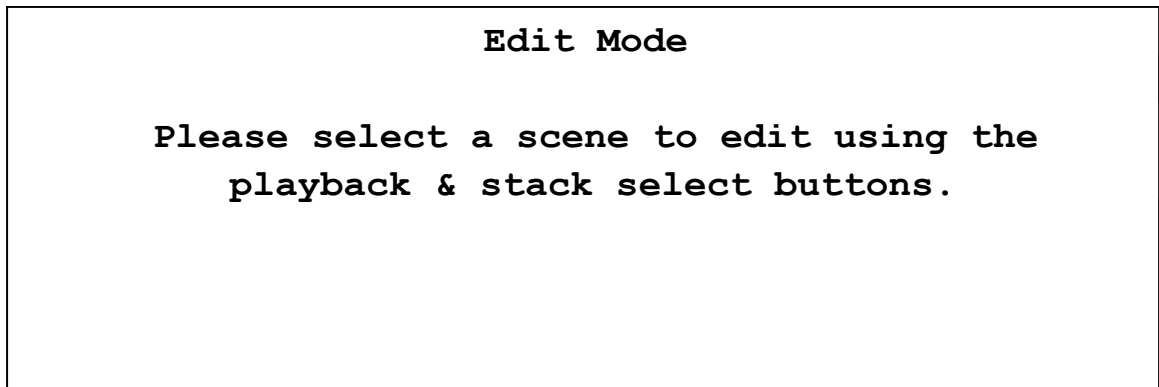
2. Press the stack's **Select** button repeatedly to take you to the stack step you want to edit.

   Press the **Minus** key (**-**) plus the stack's **Select** button to move backwards through the stack steps.

3. Edit the look of the step.

   The techniques for editing the look of a stack step are the same as those for editing a playback step. Please see "Modifying Conventional Light Looks" beginning on page 77 and "Modifying Moving Light Looks" beginning on page 100 for complete details.

4. Press the **Save** softkey to save the changes.

5. Repeat steps 2 through 4 until you have made all the desired changes.

6. Return to **Run** mode.

To Insert a Step into a Stack

Use this procedure to insert a blank step into a specific location in the stack or to copy a stack step and insert in a specific location in the stack.

1. Put the LP-X into the following modes for editing:

Button/Fader	Setting
Modes	**Edit** and **Stack**
Display	**ML** or **Dim**
Filter	**ML**, **Dim** or **Both**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down (typically zero)

The LP-X displays the **Edit Stack** screen.

```
Edit     Scene   Insert  Delete
                  Edit Stack
1.0      Link: 2.0
2.0      Link: 3.0                        ▼
3.0      Link: 0.0


     Hold              In Fade          Out Fade
      Inf               0:02.0           0:02.0
```

2. If you want to insert a copy of a stack step, use the side wheel or the **Plus** (**+**) and **Minus** (**-**) keys to select the step to copy.

   If you want to insert a blank stack step, you may skip this step.

3. Press the **Insert** softkey.

   The LP-X displays the **Insert Stack Step** screen.

```
Copy     Blank
                  Insert Stack Step


          Insert a copy of step 1.0



     Insert As
         1.1
```

4. If desired, specify that you want to insert a blank step by pressing the **Blank** softkey.

```
Copy        Blank
                        Insert Stack Step


                    Insert a blank step



      Insert As
            1.1
```
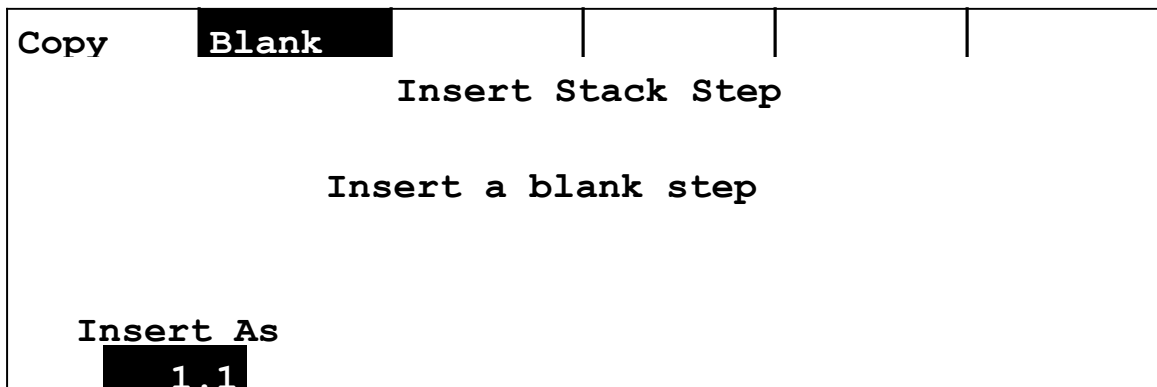
5. To specify the number for the new step, use the left wheel or enter the step number on the numeric keypad and press the **Enter** key.

6. When you are ready, press the **Yes** button.

    The LP-X inserts the copied or blank step in the specified position and returns to the **Edit Stack** screen.

NOTE: There is another method for inserting a stack step. Create the scene in **Record** mode and press the stack select. In the stack step dialog, pick the step number where you want to insert the look. You can use the same method to copy a step; just load it using **Edit** first.

To Delete a Step from a Stack

1. Put the LP-X into the following modes for editing:

Button/Fader	Setting
Modes	**Edit** and **Stack**
Display	**ML** or **Dim**
Filter	**ML**, **Dim** or **Both**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Down (typically zero)

The LP-X displays the **Edit Stack** screen.

```
┌──────────┬─────────┬─────────┬─────────┬────────┬─────────┐
│ Edit     │ Scene   │ Insert  │ Delete  │        │         │
│          └─────────┴─────────┴─────────┴────────┴─────────┤
│                      Edit Stack                           │
├───────────────────────────────────────────────────────┐  │
│ 1.0        Link: 2.0                                   │  │
│ 2.0        Link: 3.0                                      │
│ 3.0        Link: 0.0                                    ▼ │
│                                                           │
│      Hold              In Fade            Out Fade        │
│       Inf          ┌───────────┐                         │
│                    │  0:02.0   │            0:02.0        │
└────────────────────┴───────────┴─────────────────────────┘
```

2. Use the side wheel or the **Plus** (**+**) and **Minus** (**-**) keys to select the step to delete.

3. Press the **Delete** softkey.

    The LP-X displays the **Delete Step** screen.

```
┌───────────────────────────────────────────────────────────┐
│                                                            │
│                      Delete Step                           │
│                                                            │
│                                                            │
│         Are you sure you want to delete this               │
│                      stack step?                           │
│                                                            │
│                                                            │
│                                                            │
│                      Yes / No                              │
│                                                            │
│                                                            │
└───────────────────────────────────────────────────────────┘
```

4. Press the **Yes** button to confirm the operation. Press the **No/Esc** button to cancel the operation.

To Clear the Stack

1. Put the LP-X into the following modes for recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML** or **Dim**
Filter	**ML**, **Dim** or **Both**
Bump	Any setting
Master Fader	Any setting
Manual Fader	Any setting
Programmer Fader	Any setting

2. Hold down the **Clear** key and press the stack's **Select** button.

    The LP-X displays the **Delete Stack** screen.

```
            Delete Stack?


   Are you sure you want to delete all
                stack data?



                Yes / No
```
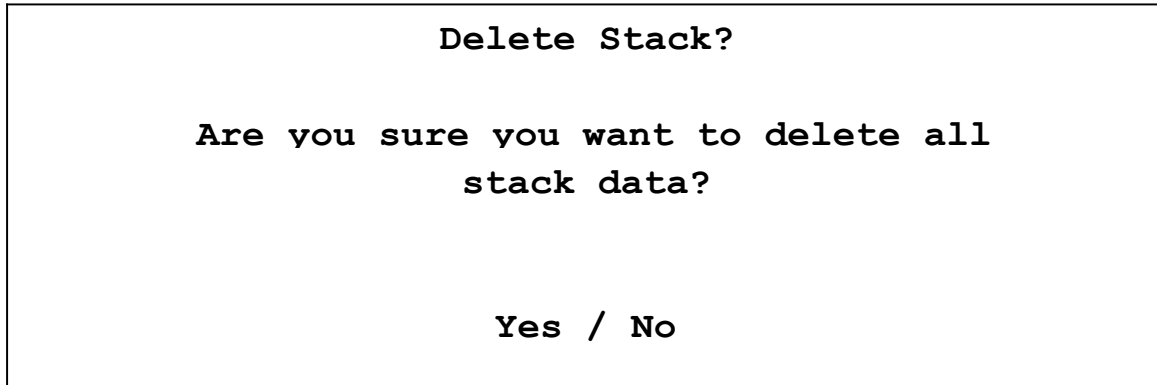
3. Press the **Yes** key to confirm deleting the stack. Press **No/Esc** to cancel the operation.

You may also clear the stack by following the procedure given in "To Erase the Stack" beginning on page 66.

Automating a Stack

The LP-X provides the user the ability to set up full or partial automation of the stack.

In a partially automated stack, fade times are set for each step so that there is no need to use the **Cross Fader** to control how quickly steps fade in and out. You simply press the **Go** button to initiate each step at the desired time.

To automate a stack fully, you do the additional work of setting hold times for each stack step so that there is no need to use either the **Go** button or the **Cross Fader** once you start the stack.

Automation Timing Definitions

*   **Out Fade**—time for the outbound look to fade out.
*   **In Fade**—time for the inbound look to fade in.
*   **Hold Time**—total time before the execution of the next step.

The following illustration shows an *Out Fade* of three seconds, an *In Fade* of six seconds and a *Hold Time* of ten seconds.
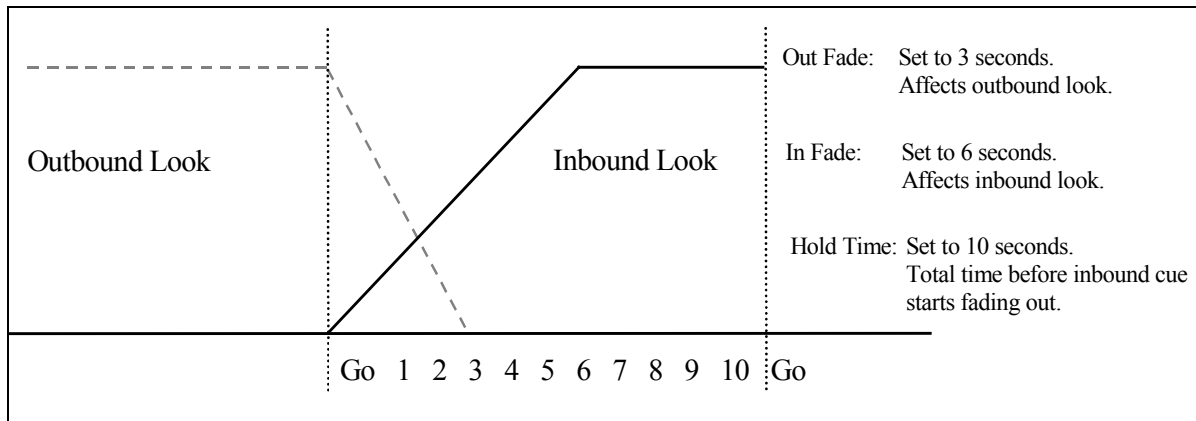
By default, the *In Fade* and *Out Fade* times are set to two seconds. You may change these defaults in **Setup** mode by pressing the **Defalt** softkey and editing the settings. Please see "To Modify Stack In Fade and Stack Out Fade" beginning on page 198 for complete details.

By default, the *Hold Time* is set to infinite. This default setting cannot be changed.

To Automate the Stack

1. Put the LP-X in **Edit** and **Stack** mode.

   The LP-X displays the **Edit Stack** screen.

2. Use the side wheel or the **Plus** (**+**) and **Minus** (**-**) keys to select a step to automate.

3. If you want to fully automate the step, so that neither the **Go** button nor the **Cross Fader** need be used, set a *Hold Time* for the step.

   You may turn the left wheel to do this. You may also press the left wheel, enter the *Hold Time* on the numeric keypad and then press the **Enter** key.

4. Set an *In Fade* for the step.

   You may turn the center wheel to do this. You may also press the center wheel, enter the *In Fade* on the numeric keypad and then press the **Enter** key.

Note that the *Out Fade* time automatically changes to match the *In Fade* time that you just set.

5. If you want to make the *Out Fade* time different from the *In Fade* time, set it now.

   You may turn the right wheel to do this. You may also press the right wheel, enter the *Out Fade* on the numeric keypad and then press the **Enter** key.

6. Repeat steps 2 through 5 for each step, as needed.

NOTE: If the *In Fade* time for a step exceeds its *Hold Time*, the LP-X will not fade the step in fully. Similarly, if the *Out Fade* time for a step exceeds the *Hold Time* of the next step, the LP-X will not fade the step out fully. If you expected to fade a light to zero under these circumstances, it will gradually fade to zero over the course of the subsequent steps.

To Automate Moving Light Properties

You may further automate the stack by setting *Delay* and *Fade* times for the properties of the moving lights in each step: Color, Beam and Focus. Intensity timings are ignored and the stack's in fades and out fades are used instead.

1. Put the LP-X in **Edit** and **Stack** mode.

   The LP-X displays the **Edit Stack** screen.

```
Edit    │Scene   │Insert  │Delete  │        │        │
                      Edit Stack
1.0        Link: 2.0
2.0        Link: 3.0                              ▼
3.0        Link: 0.0

     Hold            In Fade            Out Fade
      Inf            0:02.0              0:02.0
```

2. Use the side wheel or the **Plus** (**+**) and **Minus** (**-**) keys to select a step to automate.

3. Press the **Edit** softkey.

   The LP-X displays the **Edit Stack Step: X** screen (where **X** represents the number of the stack step that you selected in step 2).

4. Press the **Timing** softkey.

   The LP-X displays the **Edit Scene Timing** screen.

```
Inten     Color     Beam      Focus
                    Edit Scene Timing              Hold
                                                  0:10.0
                              Delay                 Fade
Intensity                    0:00.0               0:00.0
Color                        0:00.0               0:00.0
Beam                         0:00.0               0:00.0
Focus                        0:00.0               0:00.0
```

5.   Using the left wheel or the softkeys, select a property.

     Note that settings for Intensity will be saved but will not affect the stack.

6.   Using the center wheel, adjust the delay for the selected property.

     This setting will determine how much time will pass from the start of the stack step until the property's value changes. For example, you might want the moving lights to move into their new position and *then* change color. To accomplish this, you would change the delay for Color to 5 seconds and leave the delay for the Focus set to zero.

     You may also set the delay by pressing the center wheel, entering the desired value on the numeric keypad and then pressing the **Enter** key.

7.   Using the right wheel, adjust the Fade for the selected property.

     This setting will determine how much time will pass from the time the property begins to change until it is done. For example, you might want the moving lights to move into their new position gradually rather than snapping to it. To accomplish this, you would change the Fade for Focus.

     You may also set the fade by pressing the right wheel, entering the desired value on the numeric keypad and then pressing the **Enter** key.

8.   When you are done, press the **Yes** button.

Advanced Techniques

To Change Step Links

You may have a reason to change the order in which steps will be executed. For example, you may be skipping over a portion of a performance during the day's rehearsals. The LP-X provides an easy way to change step linkage.

1.   Put the LP-X in **Edit** and **Stack** mode.

     The LP-X displays the **Edit Stack** screen.

2.   Use the side wheel or the **Plus** (**+**) and **Minus** (**-**) keys to select a step to re-link.

3. Press the **Edit** softkey.

    The LP-X displays the **Edit Stack Step X** screen (where **X** represents the number of the stack step that you selected in step 2).

```
Timing  │        │        │        │        │
                Edit Stack Step 1.0


        Use this screen to change the settings
              of a single stack step.
                        Slave              Slave
        Link To         Page              Playback
          2.0             0                  0
```

4. Use the left wheel to change the step that will follow after the selected step.

    You may also press the left wheel, enter a step number on the numeric keypad and press **Enter**.

5. When you are done, press the **Yes** button.

Changing Steps at Run Time

When using the LP-X stack, steps execute in sequential order; starting with the lowest step number that was created. This is always true unless the user has changed step links as described above.

At run time, the user can execute out of the normal order by changing the step selected as Next. The user can also set the In Fade and Out Fade times to ensure a smooth transition between the current and new steps.

The changes you make at run time will not be saved.

1. With the stack playing back from **Run** and **Stack** mode, press the **Change** softkey.

```
Change   Apply  │        │        │        │
                Stack Status: ACTIVE Auto


    Out:      5.0  Fade:      79%  0:03.9     Hold
     In:      6.0  Fade:      51%  0:00.9   0:08.9
   Next:      7.0  Fade:    0:02.0
   Next Step          In Fade          Out Fade
     2.0              0:02.0             0:02.0
```

The LP-X adds additional information to the screen but continues to execute the steps of the stack.

2. Using the left wheel, specify which step will come next.

   You may also press the left wheel, enter the step on the numeric keypad and press the **Enter** key.

3. Using the center wheel, specify how rapidly the new next step will fade in.

   You may also press the center wheel, enter the In Fade time on the numeric keypad and press the **Enter** key.

3. Using the right wheel, specify how rapidly the active step will fade out.

   You may also press the right wheel, enter the Out Fade time on the numeric keypad and press the **Enter** key.

4. When you are ready, press the **Apply** softkey.

   The LP-X fades out from the active step at the specified rate and the new "next" step fades in at the specified rate.

5. Press the **Change** softkey again to hide the additional run time functions.

Changing Steps at Run Time—Short Cut

Use this procedure to quickly change the next step.

1. With the stack playing back from **Run** and **Stack** mode, press the **Cue** button.

2. Using the **Numeric Keypad**, enter the number of the step that you want to play back next.

3. Press the **Enter** key to confirm the operation. Press the **Clear** key to cancel the operation.

Linking to a Playback

The LP-X provides the ability to link a look or a chase on a playback to a specific step in the stack. When the stack step executes, the LP-X automatically starts the chase or displays the look for the duration of the stack step.

1. Put the LP-X in **Edit** and **Stack** mode.

   The LP-X displays the **Edit Stack** screen.

2. Use the side wheel or the **Plus** (**+**) and **Minus** (**-**) keys to select a step to link to a playback.

3. Press the **Edit** softkey.

   The LP-X displays the **Edit Stack Step X** screen (where **X** represents the number of the stack step that you selected in step 2).

```
┌─────────┬──────────┬──────────┬──────────┬──────────┬──────────┐
│Timing   │          │          │          │          │          │
│              Edit Stack Step 1.0                               │
│                                                                │
│         Use this screen to change the settings                 │
│                of a single stack step.                         │
│                         Slave                 Slave            │
│       Link To           Page                 Playback          │
│        2.0               0                     0               │
└────────────────────────────────────────────────────────────────┘
```

4. Use the center wheel to specify the page of the linked playback.

    You may also press the center wheel, enter the page number on the numeric keypad and press the **Enter** key.

5. Use the right wheel to specify the number of the linked playback.

    You may also press the right wheel, enter the playback number on the numeric keypad and press the **Enter** key.

6. Press the **Yes** button.

```
┌─────────┬─────────┬─────────┬─────────┬─────────┬──────────┐
│Edit     │Scene    │Insert   │Delete   │         │          │
│                      Edit Stack                            │
│1.0        Link: 2.0 Slave Pg: 1 Pb: 1                      │
│2.0        Link: 3.0                              ▼         │
│3.0        Link: 0.0                                        │
│                                                            │
│     Hold               In Fade              Out Fade       │
│      Inf               0:02.0               0:02.0         │
└────────────────────────────────────────────────────────────┘
```

Chapter Eleven:
Moving Light Effects

The LP-X includes the following moving light effects:

- **Label Chase**—a sequence of labels that repeats. The user selects the labels and arranges them in the desired order. Label chases apply to color labels and beam labels.

- **Wheel Order Chase**—also a sequence of labels that repeats. The difference between this and a label chase is that wheel order chases include all labels and are arranged in wheel order. The user cannot add, remove or reorder the labels. Wheel order chases apply to color labels only.

- **Iris Flick**—a special effect in which the iris moves from the closed position to the open position or vice versa. Some consoles refer to this effect as "fireworks".

- **Circle**—Lights move in a smooth circular or oval pattern.

- **Triangle**—Lights moved in a three-sided pattern.

- **Rectangle**—Lights moved in a four-sided pattern.

- **Polygon**—Lights moved in a many-sided pattern, ranging from three sides to one hundred sides.

- **Sweep/Fan**—Lights move in a line between two points. In a sweep, the lights move from start point to end point at the same time. In a fan, the lights move from start point to end point in a staggered fashion, starting one after another.

- **Ballyhoo**—Lights move in a random pattern within a specified area.

Creating Label Effects

Label Chase Parameters

The following parameters apply to both wheel-order and non-wheel-order label chases.

Parameter	Explanation
Fade	Specify how long it will take to fade from label to label. A fade time of 0:00.0 indicates that you want to snap from label to label. The range of fade times is from 0:00.0 to 9:59.9. The fade should be less than or equal to the rate.
Rate	Specify how long to hold on each label. The range of rates is from 0:00.1 to 9:59.9. The rate should be greater than or equal to the fade.

Parameter	Explanation
Start Delay	Specify how long to delay before starting the effect. The range of delays is from 0:00.0 to 9:59.9.
Loops	The number of times to execute the full chase. The default is INF (Infinite), meaning that the chase will execute as long as the look is active. The range of loops is from 1 to 999 or INF.

To Create a Wheel-Order Chase

Only color labels have a wheel-order chase effect.

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. Select the lights that you want to include in the effect.

    See "Selecting Moving Lights for Programming" beginning on page 87 for complete details about selecting lights.

3. Press the **Color** softkey twice.

    The **Color Effects** screen appears.
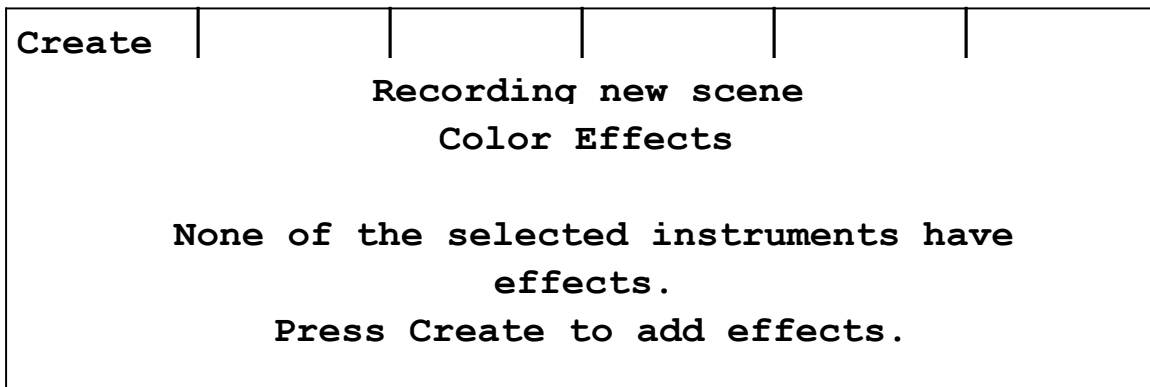
```
Create │         │         │         │         │         │

                Recording new scene
                   Color Effects


        None of the selected instruments have
                      effects.
             Press Create to add effects.

```

4. Press the **Create** softkey.

The **Choose an effect** screen appears.

```
Create  |      |      |      |      |
                Choose an effect

Label Chase
Wheel Order                              ▼



```
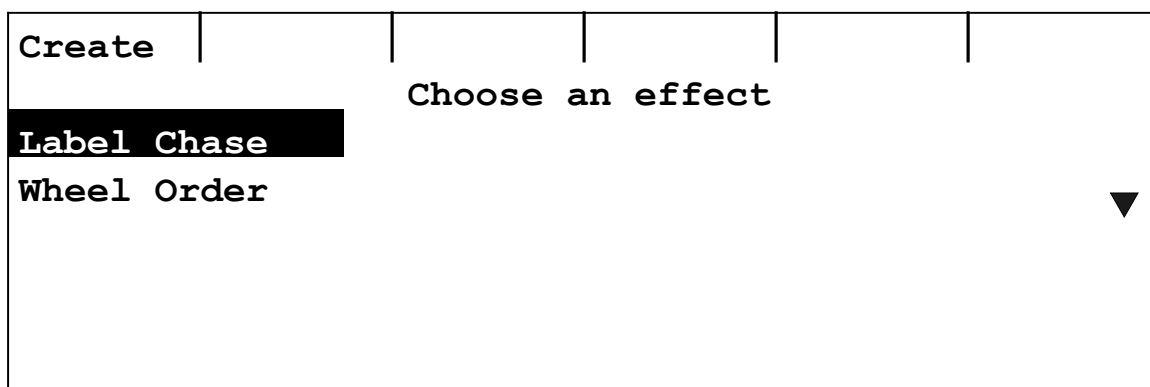
5. Using the left wheel, the side wheel or the **Plus (+)** and **Minus (-)** keys, select **Wheel Order**.

6. Press the **Create** softkey.

    The **Color Effect: Wheel Order** screen appears and all selected lights begin executing the effect.
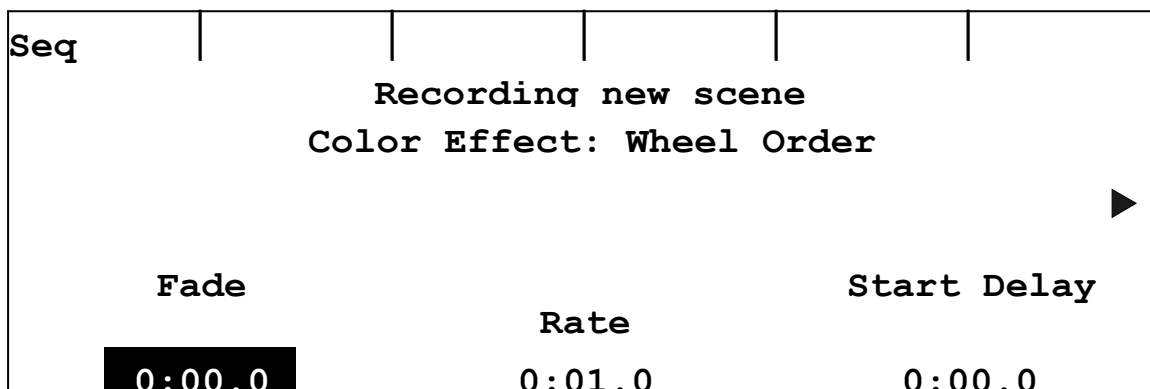
```
Seq  |      |      |      |      |
              Recording new scene
          Color Effect: Wheel Order
                                          ▶

      Fade                      Start Delay
                    Rate
     0:00.0         0:01.0         0:00.0
```

7. Adjust the **Fade**, **Rate**, **Start Delay** and **Loops** parameters as desired.

    Use the side wheel to display the **Loops** parameter.

8. When you are ready, record the effect to a playback by pressing its **Playback Select** button.

```
┌─────────────────────────────────────────────────────────┐
│Seq         │          │          │    │Save      │      │
│          Record: PG  1 PB  1 Step: 1                     │
│          Color Effect: Wheel Order                       │
│                                                    ◀     │
│                                                          │
│      Rate                               Loops            │
│                   Start Delay                            │
│      0:05.0             0:02.0            ███2███         │
└─────────────────────────────────────────────────────────┘
```
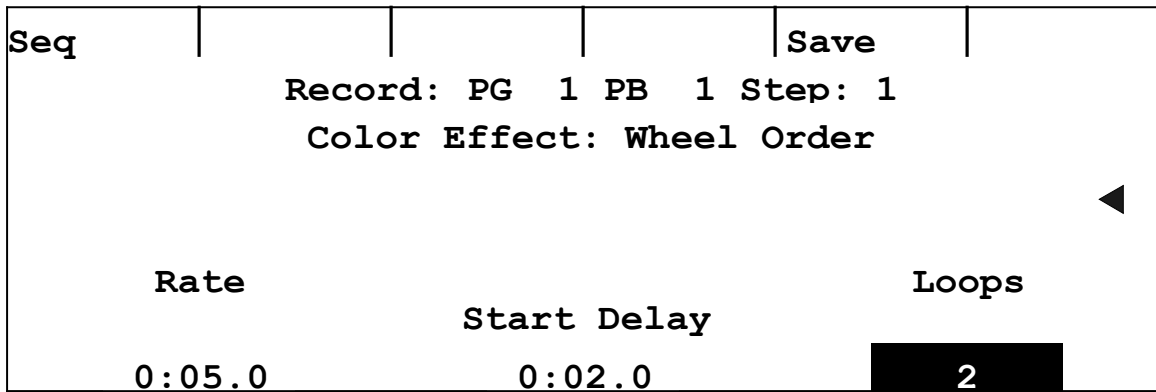
9. Make additional changes to the effect and then save them by pressing the **Save** softkey.

   For instance, you might want to refine the effect for a specific light without changing the parameters for the others. Deselect all lights except the one, make the parameter changes and then press the **Save** softkey.

   To take a light out of an effect completely, hold down the **Clear** key and then press the light's **ML Select** button.

10. When you are done, press the **No/Esc** button twice to return to the **ML Programmer** screen.

   The **ColrFx** softkey display flashes to indicate that there is an effect applied to at least one of the selected lights.

To Create a Label Chase (Non-Wheel-Order)

Color labels and beam labels have a label chase effect (non-wheel-order).

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

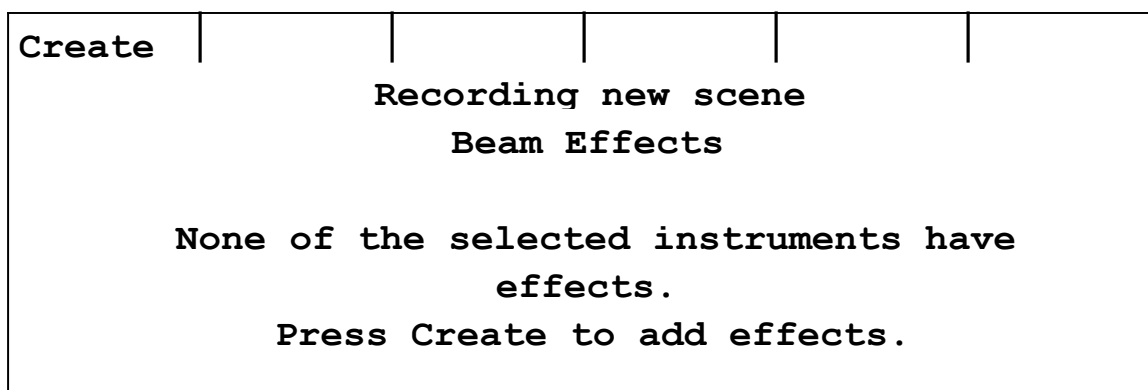   The LP-X displays the **Moving Light Programmer**.

2. Select the lights that you want to include in the effect.

   See "Selecting Moving Lights for Programming" beginning on page 87 for complete details about selecting lights.

Note that if you add a light into the effect later in this procedure, it may change the labels and sort order that you have already set up.

3. To create a color label chase, press the **Color** softkey twice. To create a beam label chase, press the **Beam** softkey twice.

The **Color Effects** or **Beam Effects** screen appears.
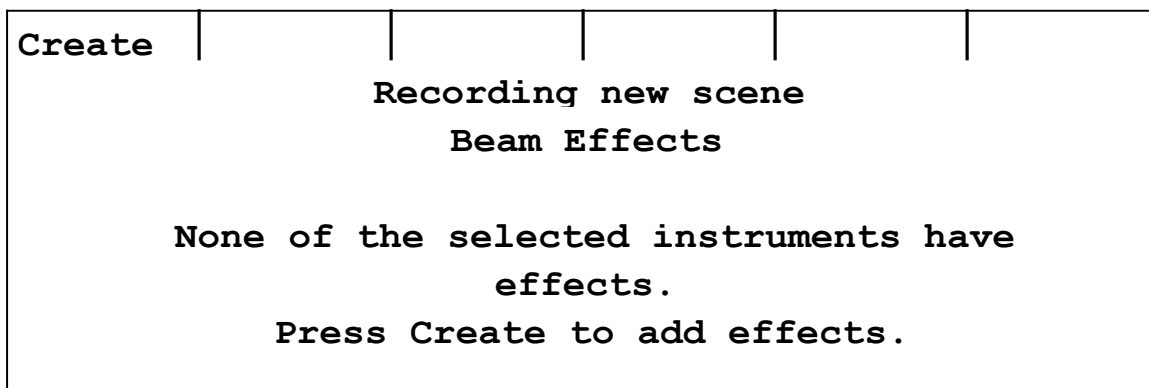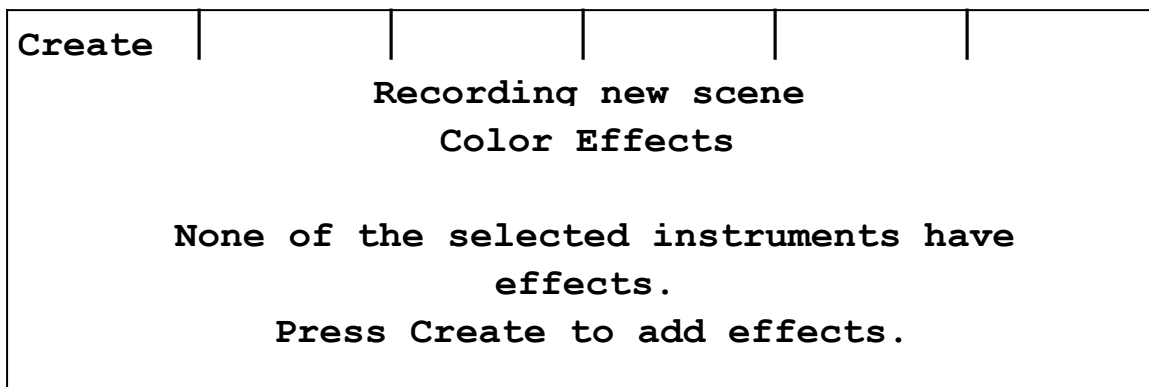
```
Create  |        |        |        |        |

              Recording new scene
                 Color Effects


      None of the selected instruments have
                    effects.
          Press Create to add effects.
```

```
Create  |        |        |        |        |

              Recording new scene
                  Beam Effects


      None of the selected instruments have
                    effects.
          Press Create to add effects.
```

4. Press the **Create** softkey.

The **Choose an effect** screen appears.

```
┌─────────────────────────────────────────────────────────┐
│ Create    │         │         │         │         │      │
│                  Choose an effect                         │
│                                                           │
│ Label Chase                                               │
│ Wheel Order                                        ▼      │
│                                                           │
│                                                           │
│                                                           │
└─────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────┐
│ Create    │         │         │         │         │      │
│                  Choose an effect                         │
│                                                           │
│ Iris Flick                                                │
│ Label Chase                                        ▼      │
│                                                           │
│                                                           │
│                                                           │
└─────────────────────────────────────────────────────────┘
```
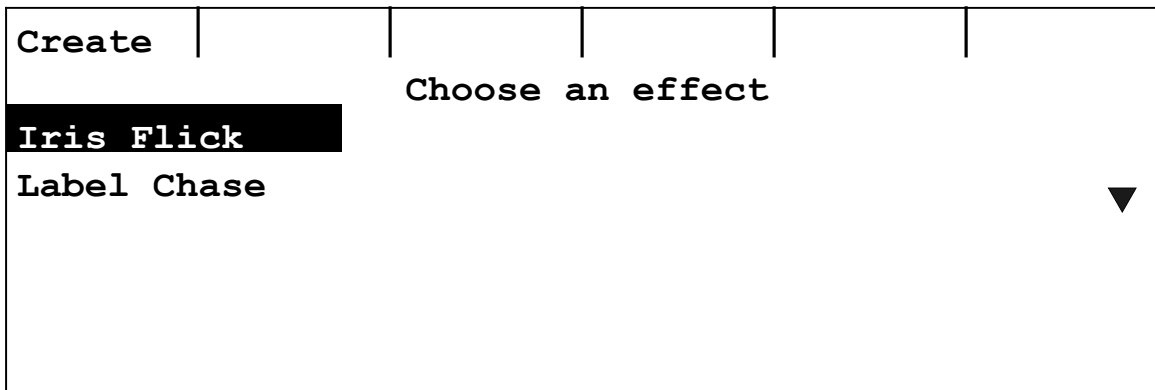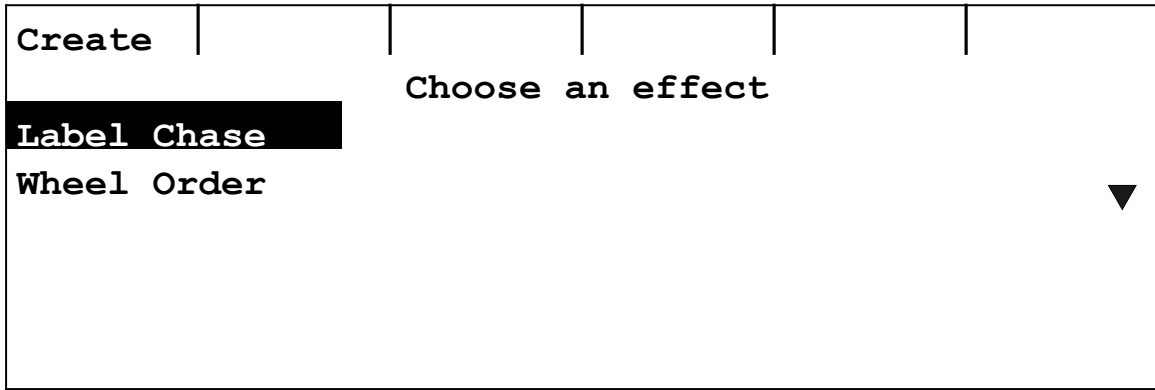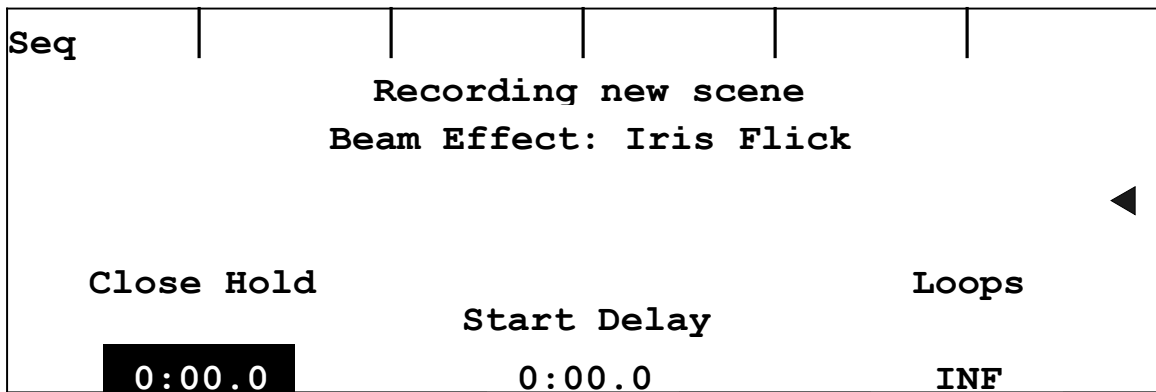
5. Using the left wheel, the side wheel or the **Plus (+)** and **Minus (-)** keys, select **Label Chase**.

6. Press the **Create** softkey.

   The **Color Effect: Label Chase** or **Beam Effect: Label Chase** screen appears and all selected lights begin executing the effect.

```
┌─────────────────────────────────────────────────────────┐
│ Seq       │ Remove  │         │Move▼    │         │ Param │
│                  Recording new scene                      │
│                Beam Effect: Label Chase                   │
│ cubes                                                     │
│ gatlin gun                                                │
│ groovy                                                    │
│ jack                                                      │
│ lenticular                                                │
└─────────────────────────────────────────────────────────┘
```
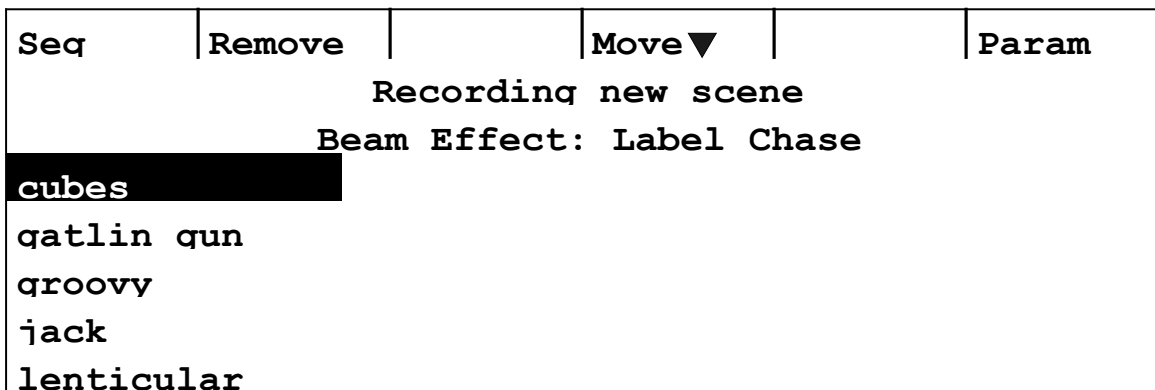
```
Seq      Remove              Move▼              Param

                 Recording new scene
               Color Effect: Label Chase
aqua
blue
blue green
broadway pin
cherry rose
```

The LP-X determines which labels the lights have in common. It displays those labels in alphabetical order in the column on the left.

7. If desired, change the set of labels that are included in the effect.

    Remove a label from the effect by selecting the label using the **Plus (+)** and **Minus (-)** keys or the left wheel and then pressing the **Remove** softkey.

```
Seq      Remove              Move▼   Add      Param

                 Recording new scene
               Color Effect: Label Chase
blue             aqua
blue green
broadway pin
cherry rose
congo blue
```

The LP-X moves the label into a column in the middle of the screen.

After removing a label from the effect, you may add it back in. Select the label using the middle wheel and then press the **Add** softkey.

9. Change the position of a label in the effect by selecting it using the **Plus (+)** and **Minus (-)** keys or the left wheel and then pressing the **Move ↓** or **Move ↑** softkey.

    The **Move ↑** softkey is not visible when the first label in the list is selected.

    The **Move ↓** softkey is not visible when the last label in the list is selected.

    You may also move the wheel to select a label, then hold down and turn the wheel to move the label up or down.

10. Adjust the **Fade**, **Rate**, **Start Delay** and **Loops** parameters as desired.

    Press the **Param** softkey to display the parameters.

```
┌──────────────────────────────────────────────────────────────┐
│Seq         │          │          │          │     Label       │
│             Recording new scene                                │
│           Color Effect: Label Chase                            │
│                                                         ▶      │
│                                                                │
│       Fade                             Start Delay             │
│                         Rate                                   │
│      0:00.0              0:01.0              0:00.0            │
└──────────────────────────────────────────────────────────────┘
```
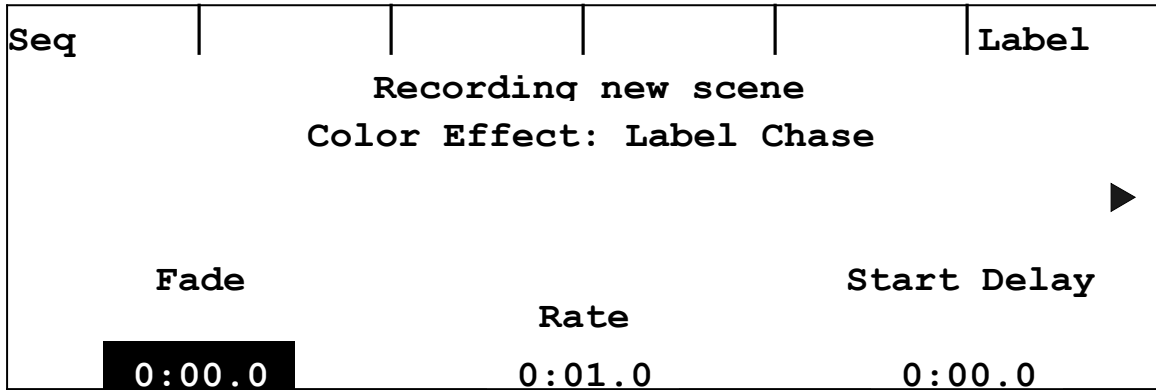
Use the side wheel to display the **Loops** parameter.

Return to the main screen by pressing the **Label** softkey.

11. When you are ready, record the effect to a playback by pressing its **Playback Select** button.

```
┌──────────────────────────────────────────────────────────────┐
│Seq         │Remove  │Move▲   │Move▼   │Add      │Param        │
│          Record: PG  1 PB  1 Step: 1                          │
│           Color Effect: Label Chase                           │
│broadway pin       orange                                      │
│cherry rose        pink                                        │
│congo blue         primary gree                                │
│                   red                                         │
│                   red rose                                    │
└──────────────────────────────────────────────────────────────┘
```
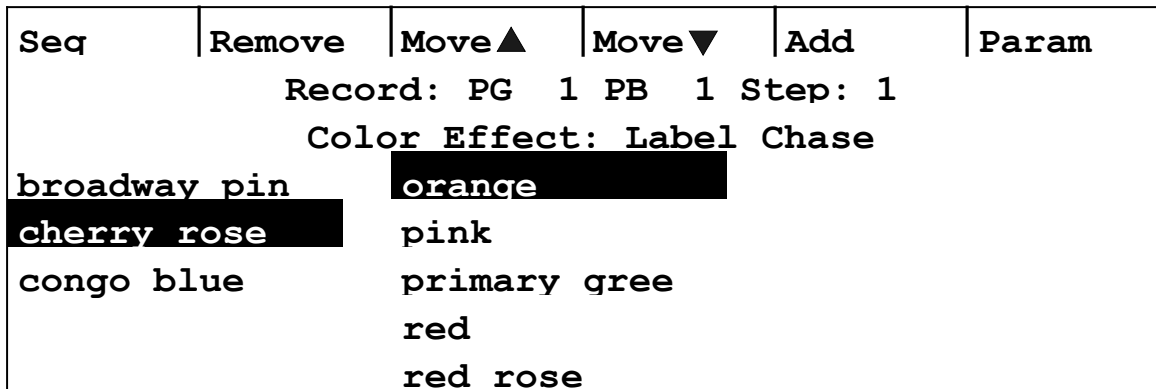
12. Make additional changes to the effect and then save them by pressing the **Save** softkey.

The **Save** softkey is only available when you are in **Parameter** view.

```
Seq                          |    Save  |Label
         Record: PG  1 PB  1 Step: 1
         Color Effect: Label Chase

                                              ▶

     Fade                         Start Delay
                    Rate
    0:00.0              0:01.0         0:00.0
```

For instance, you might want to refine the effect for a specific light without changing the parameters or label list for the others. Deselect all lights except the one, make the changes and then press the **Save** softkey.

To take a light out of an effect completely, hold down the **Clear** key and then press the light's **ML Select** button.

13. When you are done, press the **No/Esc** button twice to return to the **ML Programmer** screen.

The **ColrFx** or **BeamFx** softkey display flashes to indicate that there is an effect applied to at least one of the selected lights.

NOTE: Sometimes when you remove a light from a label effect, the remaining lights have more labels in common. For example, lights A, B, and C may have only had red, white and blue in common. You remove light C from the effect. Both lights A and B have a label for the color purple. The LP-X displays this label in the removed label list.

```
Seq       |Remove  |Add      |Move▼  |Add     |Param
              Recording new scene
            Color Effect: Label Chase
blue                  purple
red
white
```

Creating Iris Flick Effects

Iris Flick Parameters

The iris flick effect starts by snapping or fading to the open position. It then snaps or fades back to the closed position. A typical use of the iris flick would be to create "fireworks", an effect in which the iris snaps open and then fades closed.

Parameter	Explanation
Open Fade	Specify how long it will take for the iris to fade from the closed position to the open position. An open fade time of 0:00.0 indicates that you want the iris to snap open. The range of open fade times is from 0:00.0 to 9:59.9. The default value is 1.
Close Fade	Specify how long it will take for the iris to fade from the open position back to the closed position. A close fade time of 0:00.0 indicates that you want the iris to snap closed. The range of close fade times is from 0:00.0 to 9:59.9. The default value is 1.
Open Hold	Specify how long to hold the iris in the open position after it completes its open fade. The range of open hold times is 0:00.0 to 9:59.9. The default value is 0.
Close Hold	Specify how long to hold the iris in the closed position after it completes its close fade. The range of close hold times is 0:00.0 to 9:59.9. The default value is 0.
Start Delay	Specify how long to delay before starting the effect. The range of delays is from 0:00.0 to 9:59.9.
Loops	The number of times to execute the iris flick. The default is INF (Infinite), meaning that the effect will execute as long as the look is active. The range of loops is from 1 to 999 or INF.

To Create an Iris Flick

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

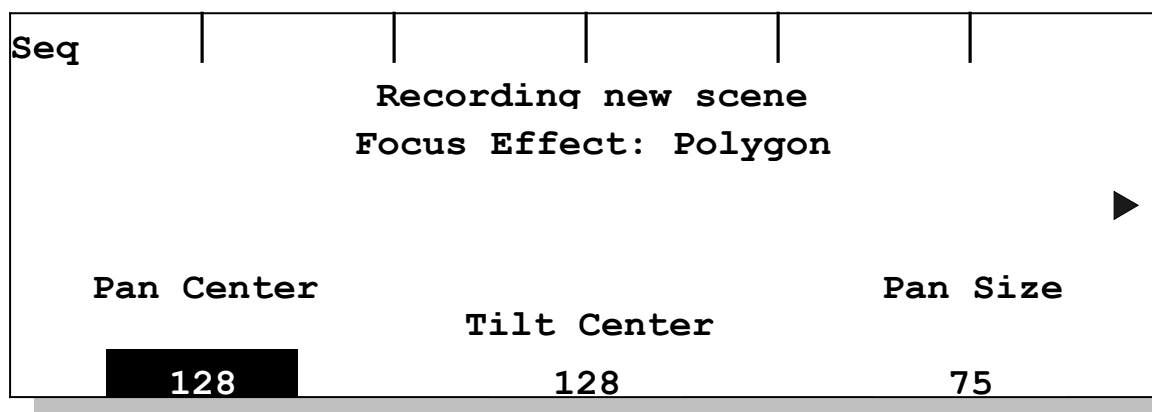The LP-X displays the **Moving Light Programmer**.

2. Select the lights that you want to include in the effect.

    See "Selecting Moving Lights for Programming" beginning on page 87 for complete details about selecting lights.

    Although you may include any light in an iris flick effect, only lights from the library that have an iris attribute will be able to execute it. User-created devices will not be able to execute the iris flick.

3. Press the **Beam** softkey twice.

    The **Beam Effects** screen appears.

```
Create   |        |        |        |        |
                Recording new scene
                   Beam Effects

        None of the selected instruments have
                        effects.
             Press Create to add effects.
```

4. Press the **Create** softkey.

    The **Choose an effect** screen appears.

```
Create   |        |        |        |        |
                      Choose an effect
Iris Flick
Label Chase                                          ▼
```
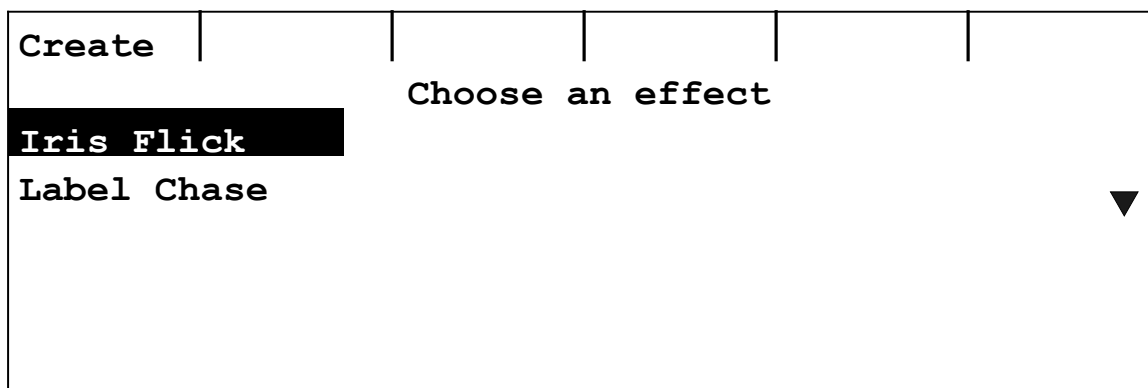
5. Using the left wheel, the side wheel or the **Plus (+)** and **Minus (-)** keys, select **Iris Flick**.

6. Press the **Create** softkey.

    The **Beam Effect: Iris Flick** screen appears and all selected lights that have an iris attribute begin executing the effect.

```
Seq
               Recording new scene
             Beam Effect: Iris Flick

                                                    ▶

      Open Fade                          Open Hold
                      Close Fade
       0:01.0              0:01.0            0:00.0
```
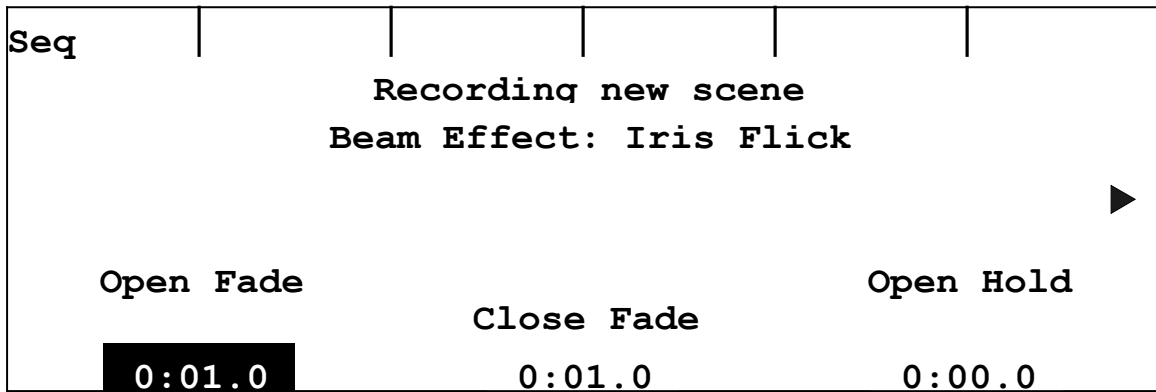
7. Adjust the **Open Fade**, **Close Fade**, **Open Hold**, **Close Hold**, **Start Delay** and **Loops** parameters as desired.

   Use the side wheel to display the **Close Hold**, **Start Delay** and **Loops** parameters.

```
Seq
                Recording new scene
              Beam Effect: Iris Flick

                                                    ◀

    Close Hold                            Loops
                    Start Delay
       0:00.0              0:00.0            INF
```

8. When you are ready, record the effect to a playback by pressing its **Playback Select** button.

```
Seq                                  Save
           Record: PG  1 PB  1 Step: 1
              Beam Effect: Iris Flick

                                                    ▶

      Open Fade                          Open Hold
                      Close Fade
       0:05.0              0:00.0           10:00:0
```

9. Make additional changes to the effect and then save them by pressing the **Save** softkey.

   For instance, you might want to refine the effect for a specific light without changing the parameters for the others. Deselect all lights except the one, make the changes and then press the **Save** softkey.

   To take a light out of an effect completely, hold down the **Clear** key and then press the light's **ML Select** button.

10. When you are done, press the **No/Esc** button twice to return to the **ML Programmer** screen.

    The **BeamFx** softkey display flashes to indicate that there is an effect applied to at least one of the selected lights.

Creating Focus Effects

Shape Parameters

Shapes include circles, triangles, rectangles and polygons.

Parameter	Explanation
Pan Center	Use this parameter in conjunction with the tilt center to specify the center point of the shape. Values range from 0 to 255. The default value is 128.
Tilt Center	Use this parameter in conjunction with the pan center to specify the center point of the shape. Values range from 0 to 255. The default value is 128.
Pan Size	Use this parameter in conjunction with the tilt size to specify the size of the shape. Values range from 1 to 255. The default size is 75.
Tilt Size	Use this parameter in conjunction with the pan size to specify the size of the shape. Values range from 1 to 255. The default size is 75.
Sides	For polygons, you may specify a number of sides ranging from 3 to 100. The higher the number, the more like a circle the shape becomes. The default is 5.
Rotation	Changes the orientation of the shape. Applies to all shapes except circles. Values range from 0 to 360 degrees. The default is 0. Example: You create a square using the rectangle or polygon effect. You want it to look like it is drawing a diamond shape. So you apply a rotation of 45 degrees. Example: You create a triangle. You want to put a point of the triangle at its top so you rotate it until that is achieved.
Start Point	Specify what point in the shape should be its starting point. The range is from 0 to 100%. The default is 0.
Direction	If a shape is executing in the wrong direction, you can reverse its travel. Values are CW (clockwise) and CCW (counterclockwise). The default is CW.

Parameter	Explanation
Cycle Time	Specify how long it will take for one complete cycle of the shape to execute. The range of cycle times is from 0:00.1 to 9:59.9. The default is 0:05.0.
Start Delay	Specify how long to delay before starting the effect. The range of delays is from 0:00.0 to 9:59.9. The default is 0.
Loops	The number of times to execute the full shape. The default is INF (Infinite), meaning that the shape will execute as long as the look is active. The range of loops is from 1 to 999 or INF.

Linear Effect Parameters

Linear effects include sweeps and fans.

Parameter	Explanation
Pan Start	Use this parameter in conjunction with the tilt start to specify the start point of the linear effect. Values range from 0 to 255. The default value is 128.
Tilt Start	Use this parameter in conjunction with the pan start to specify the start point of the linear effect. Values range from 0 to 255. The default value is 128.
Pan End	Use this parameter in conjunction with the tilt end to specify the end point of the linear effect. Values range from 0 to 255. The default value is 128.
Tilt End	Use this parameter in conjunction with the pan end to specify the end point of the linear effect. Values range from 0 to 255. The default value is 128.
Cycle Time	For linear effects, a cycle is from the start point to the end point and back to the start point. Cycle time specifies how long it will take for one full cycle to be executed. The range of cycle times is from 0:00.1 to 9:59.9. The default is 0:05.0.
Start Delay	Specify how long to delay before starting the effect. The range of delays is from 0:00.0 to 9:59.9. The default is 0.
Loops	The number of times to execute the full cycle of the effect, meaning from the start point to the end point and back to the start point. Unlike other shapes, linear effects can loop in increments of ½, meaning from the start point to the end point without returning back to the start point. The default is INF (Infinite), meaning that the effect will execute as long as the look is active. The range of loops is from .5 to 999.5 or INF.

Random Motion Effect Parameters

Random motion effects include the ballyhoo.

Parameter	Explanation
Pan Min	Used with Tilt Min, Pan Max and Tilt Max to specify the range in which the random motion will take place. Values range from 0 to 255. The default value is 0.
Tilt Min	Used with Pan Min, Pan Max and Tilt Max to specify the range in which the random motion will take place. Values range from 0 to 255. The default value is 0.
Pan Max	Used with Pan Min, Tilt Min and Tilt Max to specify the range in which the random motion will take place. Values range from 0 to 255. The default value is 255.
Tilt Max	Used with Pan Min, Tilt Min and Pan Max to specify the range in which the random motion will take place. Values range from 0 to 255. The default value is 255.
Speed	The speed at which the lights will move. Values range from 1 to 100 with one being the slowest possible speed and 100 being the fastest possible speed. The default value is 50.
Start Delay	Specify how long to delay before starting the effect. The range of delays is from 0:00.0 to 9:59.9. The default is 0.
Loops	The number of times to move across the specified range. The default is INF (Infinite), meaning that the effect will execute as long as the look is active. The range of loops is from 1 to 999 or INF. Example: a loop count of 1 means that the lights will go to one edge of the range and then move across to another edge of the range.

To Create a Focus Effect

1. Put the LP-X into the following modes for moving light recording:

Button/Fader	Setting
Modes	**Record** and **Scene**
Display	**ML**
Filter	**ML** or **BOTH**
Bump	Any setting
Master Fader	Up (typically full on)
Manual Fader	Any setting
Programmer Fader	Up

The LP-X displays the **Moving Light Programmer**.

2. Select the lights that you want to include in the effect.

   See "Selecting Moving Lights for Programming" beginning on page 87 for complete details about selecting lights.

3. Press the **Focus** softkey twice.

   The **Focus Effects** screen appears.
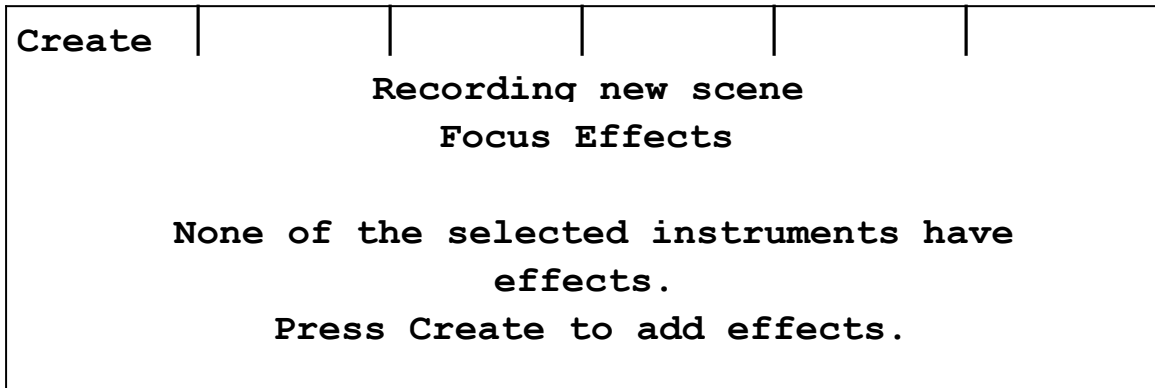
```
Create  |         |         |         |         |
                Recording new scene
                   Focus Effects


          None of the selected instruments have
                        effects.
              Press Create to add effects.

```

4. Press the **Create** softkey.

   The **Choose an effect** screen appears.

```
Create  |         |         |         |         |
                  Choose an effect

Ballyhoo
Circle                                              ▼
Polygon
Rectangle
Sweep/Fan
Triangle
```
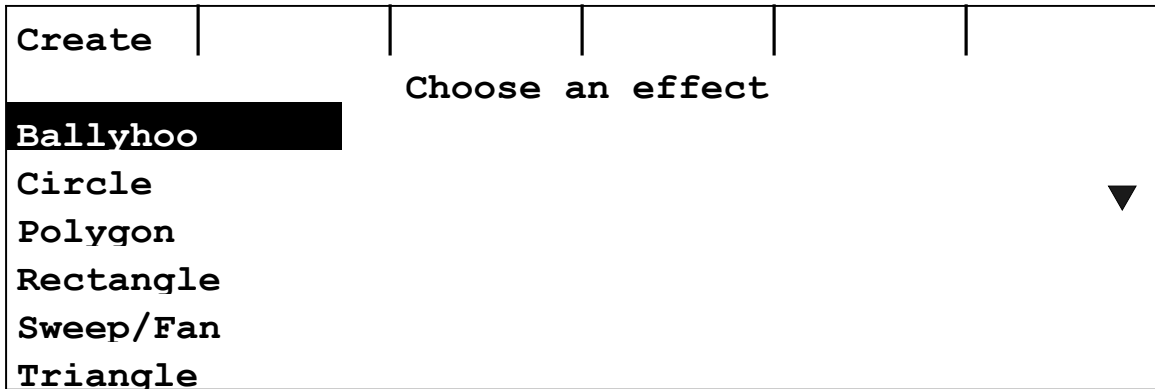
5. Using the left wheel, the side wheel or the **Plus (+)** and **Minus (-)** keys, select a focus effect.

6. Press the **Create** softkey.

   The **Focus Effect:** screen appears and all selected lights begin executing the effect. Shown below is the **Focus Effect: Polygon** screen.

```
Seq
                    Recording new scene
                 Focus Effect: Polygon

                                                      ▶

       Pan Center                          Pan Size
                          Tilt Center
          128                  128                 75
```

7. Adjust the parameters as desired.

   Use the side wheel to scroll to parameters that are not displayed.

8. When you are ready, record the effect to a playback by pressing its **Playback Select** button.

9. Make additional changes to the effect and then save them by pressing the **Save** softkey.

   For instance, you might want to refine the effect for a specific light without changing the parameters for the others. Deselect all lights except the one, make the changes and then press the **Save** softkey.

   To take a light out of an effect completely, hold down the **Clear** key and then press the light's **ML Select** button.

10. When you are done, press the **No/Esc** button twice to return to the **ML Programmer** screen.

    The **FocusFx** softkey display flashes to indicate that there is an effect applied to at least one of the selected lights.

Sequencing the Lights in an Effect

The LP-X enables you to automatically sequence the lights in an effect so that they execute the effect one after another.

For example:

- You set a color label effect with three colors: red, white and blue. You sequence the lights with an interval of 5 seconds. You also set the rate for the effect to 5 seconds. At the beginning of the look, the first light changes to red. 5 seconds later the second light changes to red as the first light changes to white. Another 5 seconds later, the third light changes to red as the first light changes to blue and the second light changes to white. All three lights continue to change colors in the order red to white to blue but they follow after one another in sequence.

- You set an iris flick effect on ten lights. The iris flick has a loop count of 1. The open fade is set to 1 second and the close fade is set to 1 second. You set the interval to

.2. The effect is that over the course of the effect, the lights fade open and fade closed in sequence with a very short delay between each light.

- You create a sweep/fan effect with five lights. You set the time interval between the lights to .5. When the effect executes, the lights sweep up and down one after another to create a wave-like effect.

Sequencing Parameters

Parameter	Explanation
Interval	The lag time between each light in the effect. The range of values is 0:00.0 to 9:59.9. The default value is 0:00.0.
	Example: in a ballyhoo with 10 lights and an interval of 2 seconds, light 1 will begin to move immediately. Light 2 will begin 2 seconds later. Light 3 will begin 4 seconds later. Light 4 will begin 6 seconds later and so on until all lights are active.
	Note that the start delay plus the intervals (interval value multipled by the number of lights) cannot exceed 9:59.9.
Start Delay	Specify how long to delay before starting the effect. The range of delays is from 0:00.0 to 9:59.9. The default is 0.
	Example: in a sweep/fan with a start delay of 10 and an interval of 1, at the beginning of the effect, all lights will go to their start points and will hold for 10 seconds. The first light will begin to sweep after 10 seconds, followed by the second light 1 second later, the third light 2 seconds later, the fourth light 3 seconds later and so on.
	This is the same start delay that is accessible from the effect parameter screens. It is displayed here for convenience, but can be set from either screen. If you set a start delay and also sequence the lights, the start delay value shown on the main parameter screen will vary depending upon which light or lights are selected. Using the example of the sweep/fan given above, light 1 will show a start delay of 10. Light 2 will show a start delay of 11. Light 3 will show a start delay of 12. When several lights are selected, the LP-X shows the start delay value for the light in the lowest slot.

To Sequence an Effect

1. After saving your initial effect parameters to a playback, press the **Seq** softkey.

   The **Effect Sequence** screen provides you with controls to set the order in which the lights will start executing the effect and to set the interval between the lights.

```
┌─────────┬─────────┬─────────┬─────────┬─────────┬─────────┬─────────┐
│ Apply   │ Move▲   │ Move▼   │         │         │         │         │
│         └─────────┴─────────┘         │         │         │         │
│                    Effect Sequence                                  │
│                Color Effect: Label Chase                            │
│ #1 Technobea                                                        │
│ #1 Studio Co                                                        │
│ #1 Studio Sp                                                        │
│                         Start Delay          Interval               │
│                           0:00.0              0:00.0                │
└─────────────────────────────────────────────────────────────────────┘
```

2. To move a light in the sequence list, use the left wheel to select the light and then press the **Move Up** or **Move Down** softkey until the light is in the desired position. You may also move the wheel to select a label, then hold down and turn the wheel to move the instrument up or down.

3. Use the middle wheel to set the start delay for the overall effect.

   This will delay the beginning of the effect for all the selected lights.

4. Use the right wheel to set the interval between the lights.

   After the start delay, if any, the lights will begin to execute the effect in the order you set in the sequence list. The lights start one after another at a rate specified by the interval you set.

5. When you are done, press the **Apply** softkey.

   Note that sequencing is not active in **Record** mode so you will not see any change after you press the **Apply** button.

6. Press the **No/Esc** button to return to the previous screen.

7. Save the sequencing by pressing the **Save** softkey or, if you haven't already done so, record the effect to a playback by pressing its **Playback Select** button.

Note: If you go back to the **Effect Sequence** screen, it will display the default settings no matter what values you saved previously. If you want to change the values for the selected lights, ensure that you reset both the start delay and the interval before pressing the **Apply** softkey. To remove sequencing altogether, press the **Apply** softkey with the interval set to zero.

Editing Effects

Use the following procedure to make changes to an effect after you have already saved it to a playback.

To Load and Edit an Effect

1. In Record mode, press the **Color**, **Beam** or **Focus** softkey twice.

The **Effects** screen appears.

```
Create  | Edit    | Delete  | Attrib  | Save    |
             Record: PG  1 PB  5 Step: 6
                    Focus Effects
Ballyhoo
Circle
```
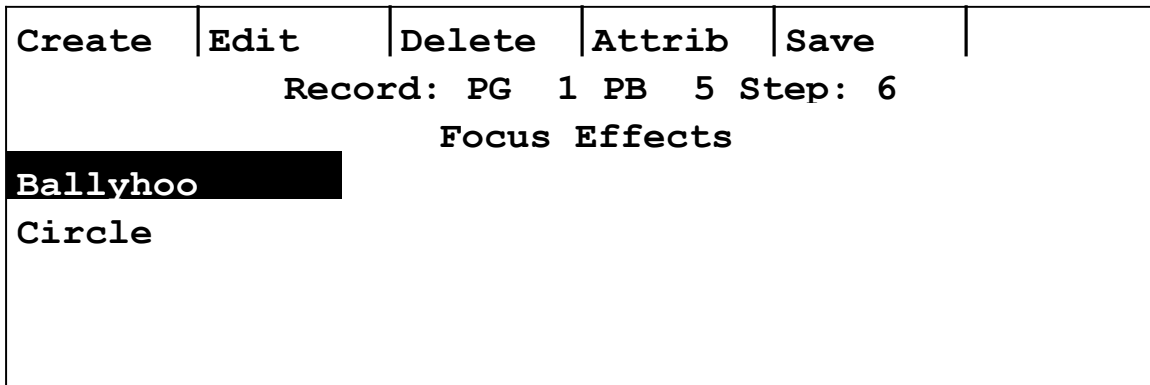
In Edit/Scene mode, press the playback **Select** button until the correct scene is loaded. Then press the **Color**, **Beam** or **Focus** softkey twice.

2. If there is more than one effect, use the left wheel to select the effect you want to edit.

3. Press the **Edit** softkey.

4. Make the desired changes to the effect.

5. Press the **Save** softkey when you are done.

To Remove a Light from an Effect

There are three different ways to remove a light from an effect. Use whichever method is most convenient, depending mainly upon where you are at in the programmer when you decide to remove a light from an effect.

From the **ML Programmer** screen:

1. Select the light or lights that you want to remove from an effect by pressing their **ML Select** buttons.

Ensure all other lights are deselected.

2. Select the property of the effect by pressing the **Color**, **Beam** or **Focus** softkey.

3. Hold down the **Clear** button and press the property's softkey again.

From the **Effects** screen:

1. Select the light or lights that you want to remove from an effect by pressing their **ML Select** buttons.

```
┌─────────────────────────────────────────────────────┐
│ Create  │Edit    │Delete  │Attrib  │Save    │        │
│            Record:  PG   1 PB   5 Step:  6            │
│                    Focus  Effects                     │
│ ▚▚▚▚▚▚▚▚▚▚▚▚▚▚▚▚▚▚                                    │
│ Ballyhoo                                              │
│ Circle                                                │
│                                                       │
│                                                       │
│                                                       │
│                                                       │
└─────────────────────────────────────────────────────┘
```
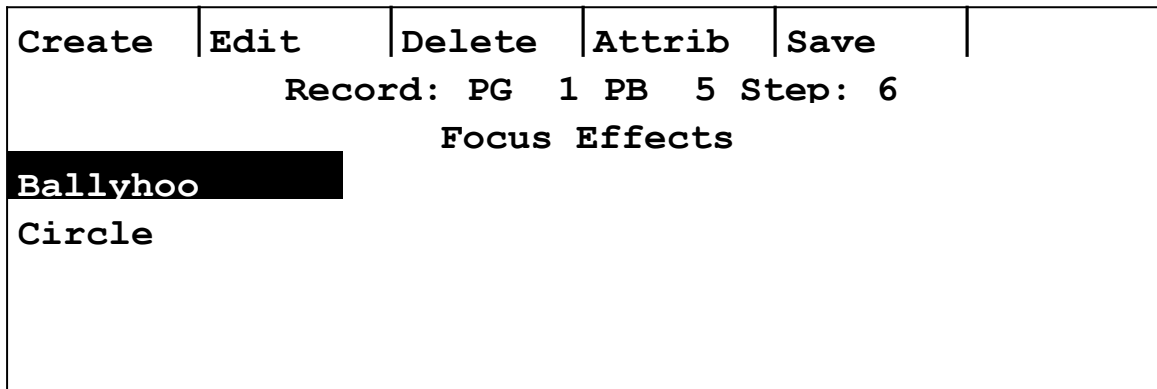
Ensure all other lights are deselected.

2. If there is more than one effect, use the left wheel to select the effect you want to delete.

3. Press the **Delete** softkey.

    The LP-X asks you to confirm deleting the effect.

4. Press the **Yes** button to proceed. Press **No/Esc** to cancel the operation.

From one of the **Effects Programming** screen:

1. Hold down the **Clear** key and press the light's **ML Select** button.

```
┌─────────────────────────────────────────────────────┐
│Seq     │        │        │        │  │Save    │Label  │
│            Record:  PG   1 PB   1 Step:  1            │
│              Color  Effect:  Label  Chase            │
│                                               ▶       │
│                                                       │
│     Fade                           Start Delay        │
│                       Rate                            │
│ ▚▚▚▚▚▚▚▚▚▚▚▚▚                                         │
│   0:00.0               0:01.0         0:00.0          │
└─────────────────────────────────────────────────────┘
```
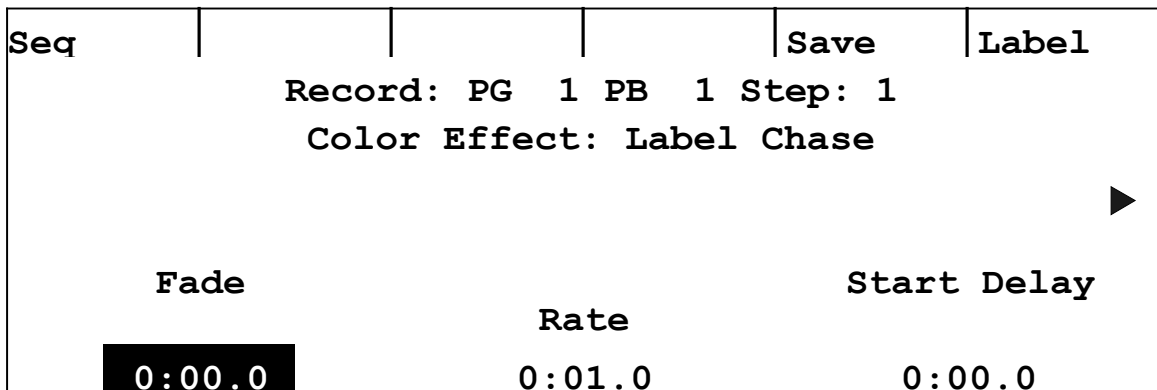
Overriding Attributes in Effects

You may override most attributes in an effect to further refine the look you are creating.

For example, if you set an iris flick you may also want to have a specific gobo displayed. The LP-X will not permit you to select a beam from the list because an effect is already applied to the light. So you use the attribute screen to override the gobo setting.

For example, if you set a focus effect, you may also want to sharpen the edge (focus). You use the attribute screen to override this, too.

NOTE: If you override any attribute that is part of an effect, the effect will stop for that attribute. For example, if you override the pan or tilt for a light that is part of a focus effect, you automatically stop the effect from running for that light until you remove the override. Similarly, if you override the color for a light that is part of a color label effect, the effect will stop running for that light.

To Override an Attribute

1. From the **ML Programmer** screen, press the **Attrib** softkey and then press the softkey for the property—**Color**, **Beam** or **Focus**.

   You may also press the **Attrib** key from the **Effects** screen.

2. Override the attributes as desired.

   Please see "Chapter Seven: Working with Moving Light Attributes" beginning on page 137 for complete details on overriding attributes.

3. Press the **Save** softkey when you are done.

4. To remove the attribute overrides, with the light selected hold down the **Clear** key and press the **Attrib** softkey.

Chapter Twelve:
Other Setup Features

The most commonly used **Setup Mode** features are described in "Chapter Two: Setup Essentials" beginning on page 43.

Locking and Unlocking the LP-X

The LP-X includes a feature that "locks" the board, which means that no recording or editing can take place. This mode is useful when you want to prevent yourself or someone else from accidentally changing your show.

To Lock or Unlock the LP-X

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

```
Show      Update  Erase   DMX     Lock    Misc
                  Setup Mode


Software Version: 1.01.10FxD          ◀ Prev
Build Date: Sep 13 2001 16:38:39
Show Version: 1.01
Lib Version: 51
CPU Version: D           50
```

2. Press the **Lock** softkey to lock the LP-X.

3. Press the **Unlock** softkey to unlock the LP-X.

```
┌─────────┬─────────┬─────────┬─────────┬─────────┬─────────┐
│ Show    │ Lib     │ Erase   │ DMX     │ Unlock  │ Misc    │
│         │         │      Setup Mode                        │
│                                                            │
│ Software Version: 1.01.10Fx D              ◀ Prev          │
│ Build Date: Sep 13 2001 16:38:39                           │
│ Show Version: 1.01                                         │
│ Lib Version: 51                                            │
│ CPU Version: D              50                             │
└────────────────────────────────────────────────────────────┘
```
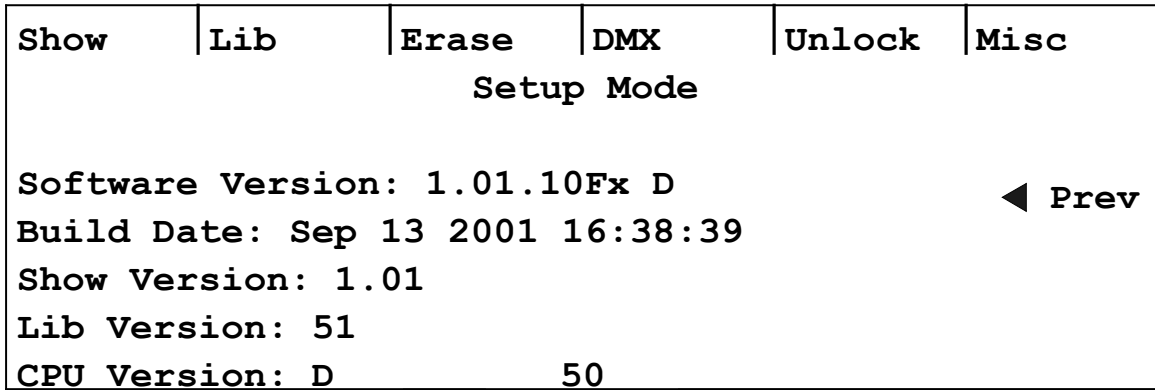
The Group Menu

One way to streamline programming is to program fixtures as a group. For example, you may have a group of lights for the drummer, a group of lights for the right side of the stage and a group of lights for the left side of the stage. Groups always consist of instruments of the same type.

After you have created a group, you can select it for programming by pressing and holding the **Group** key and then pressing the **ML Select** button to which the group is assigned. **ML Select** LEDs change to display group information when the **Group** button is held down. You may need to switch banks to reach the group.
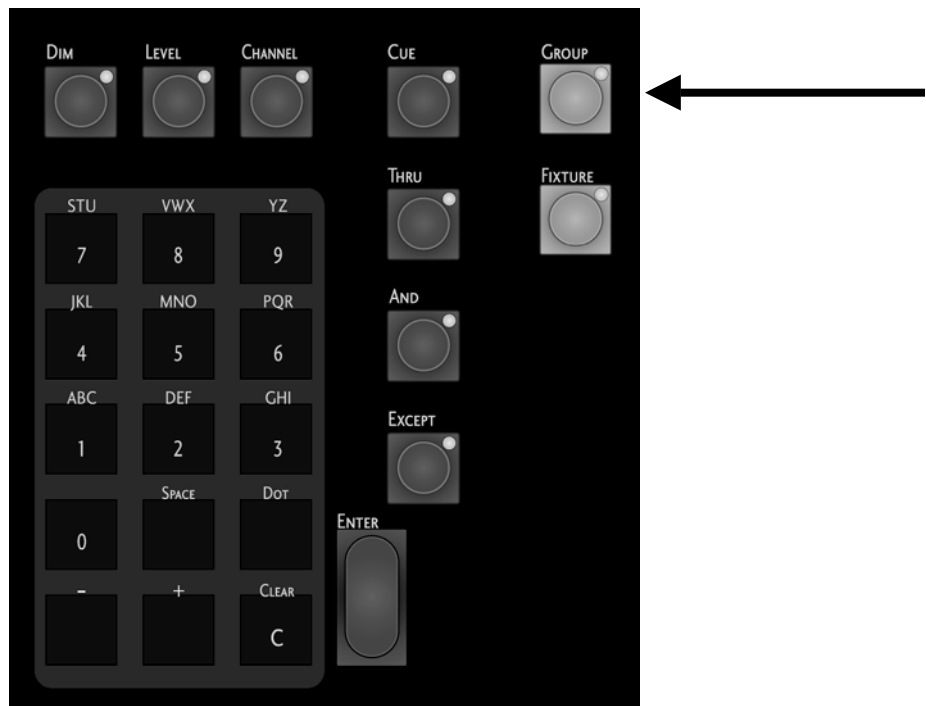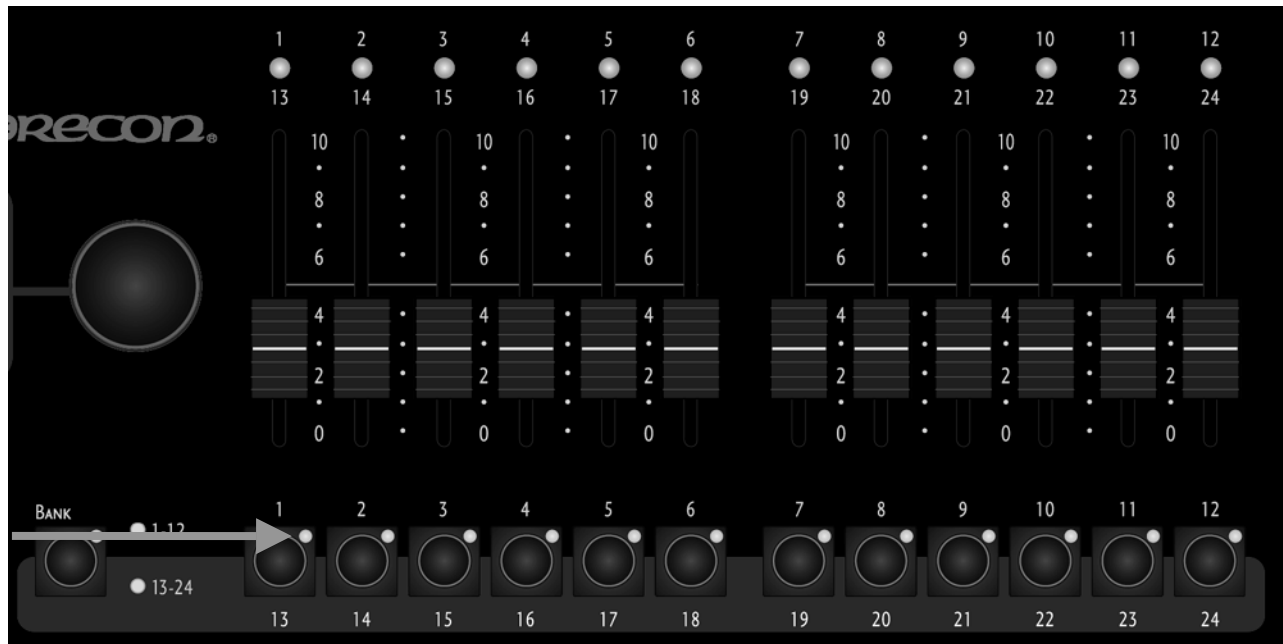
To Create a Group

1. From the **Setup Mode** screen, press the **Group** softkey.

    The **Group List** screen appears.

```
Add  │        │        │        │        │
                     Group List
1   Empty
2   Empty
3   Empty                                          ▼
4   Empty
5   Empty
6   Empty
```
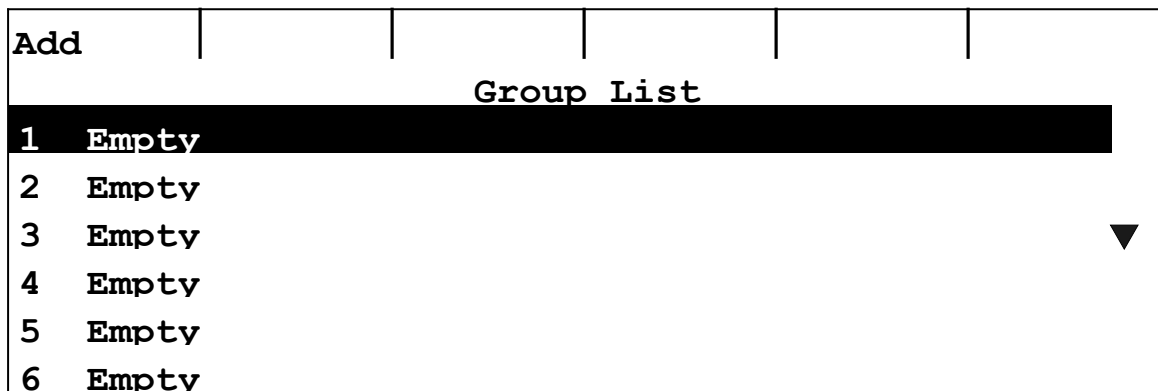
2. Using the side wheel, select a group and then press the **Add** softkey.

    You may also press the corresponding **ML Select** button to jump to a slot.

    The **Edit Group** screen appears.
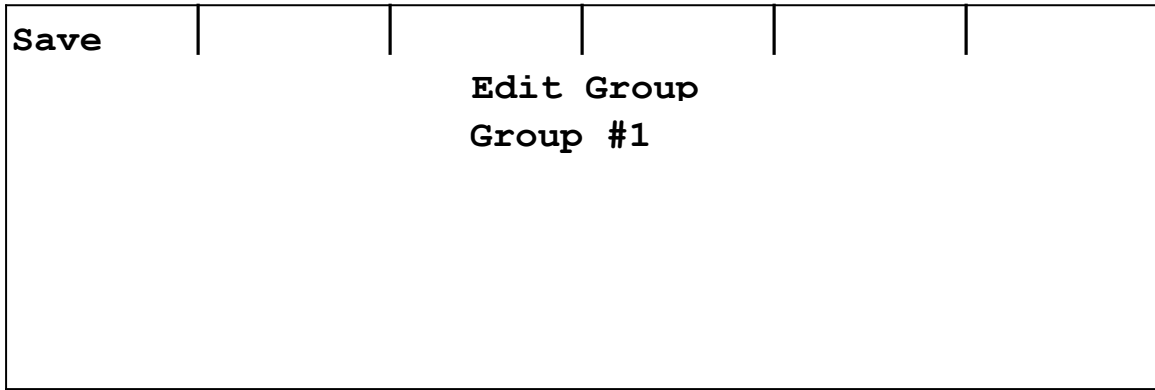
```
┌──────────────────────────────────────────────────────┐
│ Save      │        │        │        │        │       │
│                     Edit Group                        │
│                     Group #1                          │
│                                                       │
│                                                       │
│                                                       │
│                                                       │
│                                                       │
└──────────────────────────────────────────────────────┘
```

3. Using the keypad, enter a name for the group.

4. Assign lights to the group by pressing the **ML Select** button for each.

    You may also select fixtures using the **Fixture** button. Please see "Alternate Method for Selecting Fixtures" beginning on page 195 for complete details.

    Note: You may mix fixture types in a group, but you will not be able to select the group in those programming screens that are designed for a single fixture type.
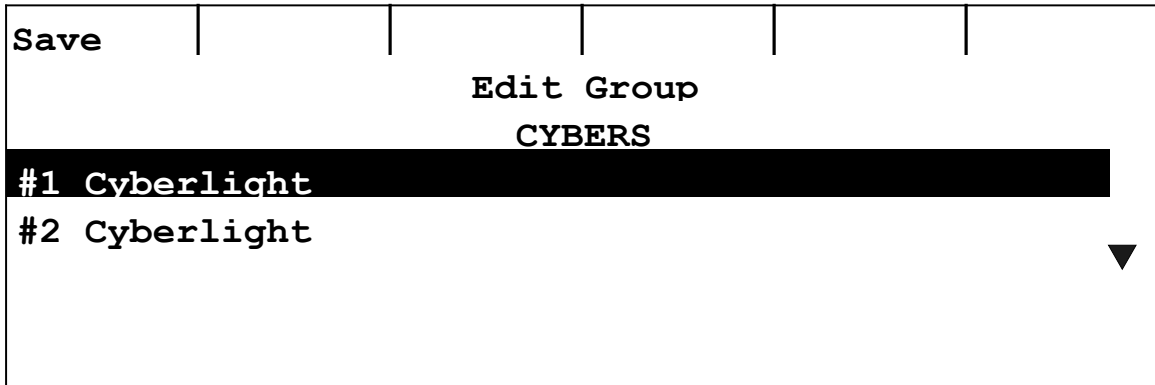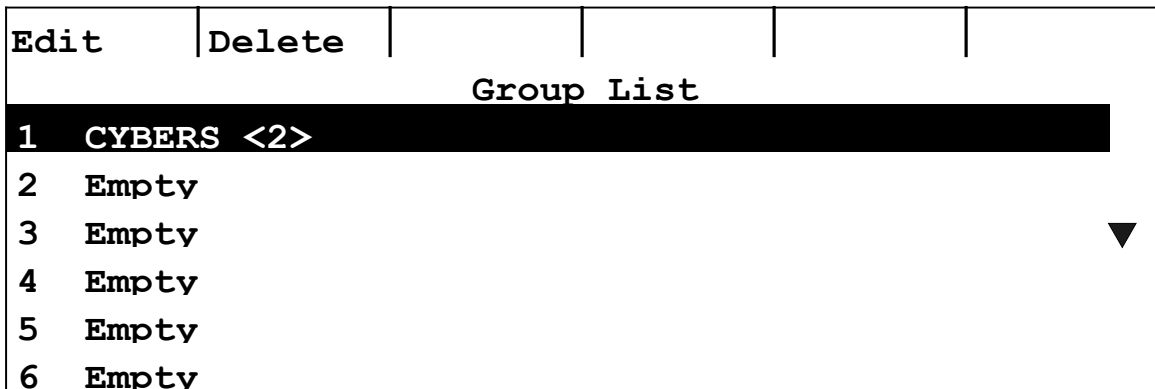
```
┌──────────────────────────────────────────────────────┐
│ Save      │        │        │        │        │       │
│                     Edit Group                        │
│                       CYBERS                          │
│ #1 Cyberlight                                         │
│ #2 Cyberlight                                         │
│                                            ▼          │
│                                                       │
│                                                       │
└──────────────────────────────────────────────────────┘
```

5. Press the **Save** softkey.

```
┌──────────────────────────────────────────────────────┐
│ Edit     │ Delete │        │        │        │        │
│                     Group List                        │
│ 1   CYBERS <2>                                        │
│ 2   Empty                                             │
│ 3   Empty                                  ▼          │
│ 4   Empty                                             │
│ 5   Empty                                             │
│ 6   Empty                                             │
└──────────────────────────────────────────────────────┘
```

The **Group List** screen appears and shows the name for the group and the number of lights assigned to it **<2>**.

Alternate Method for Selecting Fixtures

When you are creating a group, you may select and deselect fixtures by pressing the **Fixture** button. Note that this screen looks very different if it is opened from the **Programmer** screens.

1. Press the **Fixture** button.

   The LP-X displays the **Select Instruments** screen. Instruments that are already selected are highlighted.

```
              Select Instruments
              ## [THRU ##] (+ -)


 2 #1 Studio Spot
 3 #1 Studio Color
 4 #1 Technobeam
 5 #2 Technobeam
 6 #3 Technobeam
```
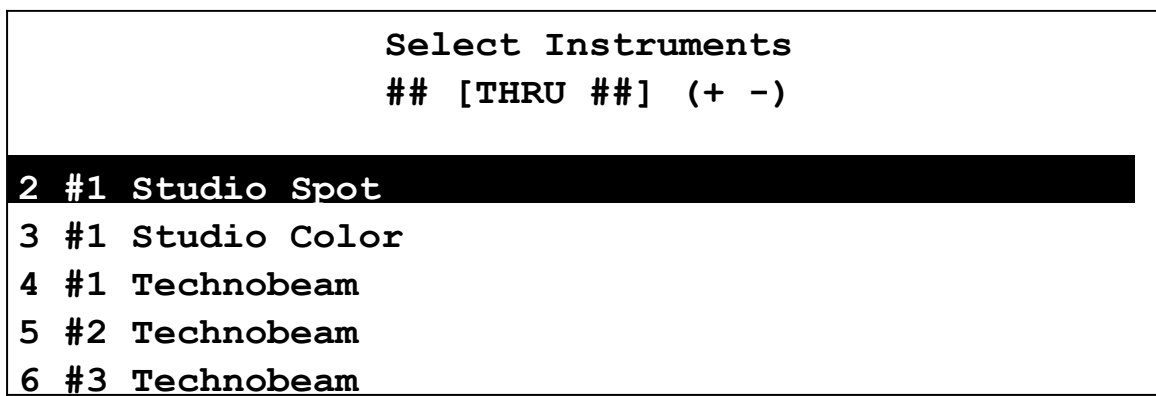
2. To select one instrument, enter its number on the numeric keypad and then press the **Plus** (**+**) key on the keypad. Press the **Yes** key to confirm the operation. Press **No/Esc** to cancel the operation.

3. To deselect one instrument, enter its number on the numeric keypad and then press the **Minus** (**-**) key on the keypad. Press the **Yes** key to confirm the operation. Press **No/Esc** to cancel the operation.

4. To select a range of instruments, enter the lowest number in the range on the numeric keypad, press the **Thru** key, enter the highest number in the range, and then press the **Plus** (**+**) key on the keypad. Press the **Yes** key to confirm the operation. Press **No/Esc** to cancel the operation.

```
          Select Instruments
          ## [THRU ##] (+ -)
               4 THRU 5
2 #1 Studio Spot
3 #1 Studio Color
4 #1 Technobeam
5 #2 Technobeam
6 #3 Technobeam
```

```
          Select Instruments
          ## [THRU ##] (+ -)

2 #1 Studio Spot
3 #1 Studio Color
4 #1 Technobeam
5 #2 Technobeam
6 #3 Technobeam
```

5. To deselect a range of instruments, enter the lowest number in the range on the numeric keypad, press the **Thru** key, enter the highest number in the range, and then press the **Minus** (**-**) key on the keypad. Press the **Yes** key to confirm the operation. Press **No/Esc** to cancel the operation.

To Edit a Group

1. From the **Setup Mode** screen, press the **Group** softkey.

   The **Group List** screen appears.

```
Edit    Delete
                  Group List
1   CYBERS <2>
2   Empty
3   Empty                                    ▼
4   Empty
5   Empty
6   Empty
```

2. Using the side wheel or **Group** button plus **ML Select** button, select a group and then press the **Edit** softkey.

   The **Edit Group** screen appears.

3. Using the keypad, change the name for the group.

4. Assign lights to the group as described in "To Create a Group" beginning on page 193 and "Alternate Method for Selecting Fixtures" beginning on page 195.

5. When you are done, press the **Save** softkey.

To Delete a Group

1. From the **Setup Mode** screen, press the **Group** softkey.

   The **Group List** screen appears.

2. Using the side wheel or **Group** button plus **ML Select** button, select a group and then press the **Delete** softkey.

```
            Delete Group?


    Are you sure you want to delete this
                  group?




                Yes / No
```
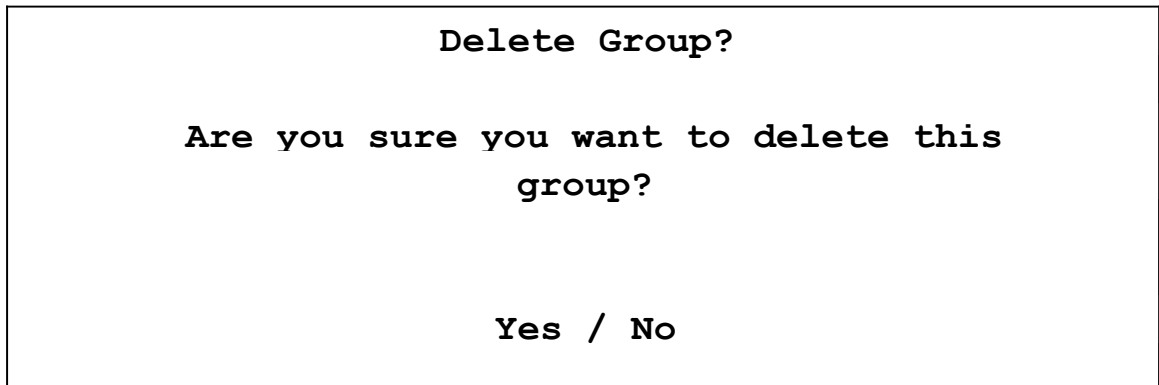
3. Press the **Yes** key to delete the group. Press the **No/Esc** key to cancel the operation.

Defaults

You modify the default timing values for the LP-X's automation from the **Defaults** menu. You also modify the default auto save interval from this screen. The default values are:

Timing	Default Value
Stack In Fade (seconds)	2.0
Stack Out Fade (seconds)	2.0
Auto Save Interval (minutes)	5
Hold Time	INF
Delay (Intensity, Color, Beam, Focus—all separately set)	0
Fade (Intensity, Color, Beam, Focus—all separately set)	0

For more information about Stack In Fade and Stack Out Fade, please see "Automating a Stack" beginning on page 161. For more information about Hold Time, Delay and Fade, please see "Automating a Show" beginning on page 110.

To Modify Stack In Fade and Stack Out Fade

1. From the **Setup Mode** screen, press the **Default** softkey.

    The **Show Defaults** screen appears.

```
Timing  |       |       |       |       |       |
                     Show Defaults


Stack In Fade:                      0:02.0
Stack Out Fade:                     0:02:0
Auto Save Interval (minutes):            5
```

2. Use the left wheel to select the **Stack In Fade** or **Stack Out Fade**.
3. Use the right wheel to increase or decrease the value for your selection.

To Modify the Auto Save Interval

1. From the **Setup Mode** screen, press the **Defalt** softkey.

    The **Show Defaults** screen appears.

2. Using the left wheel, select **Auto Save Interval (minutes)**.
3. Using the right wheel, select the desired auto save interval (between 5 and 30 minutes).

To Modify Hold Time, Delay or Fade Defaults

1. From the **Setup Mode** screen, press the **Defalt** softkey.

    The **Show Defaults** screen appears.

2. Press the **Timing** softkey.

    The **Default Scene Timing** screen appears.

Inten	Color	Beam	Focus		

```
             Default Scene Timing        Hold

                                          Inf
                         Delay            Fade
Intensity               0:00.0           0:00.0
Color                   0:00.0           0:00.0
Beam                    0:00.0           0:00.0
Focus                   0:00.0           0:00.0
```

3. To select **Intensity**, **Color**, **Beam** or **Focus**, use the left wheel or press the corresponding softkey.

4. To modify the delay for the selected property, use the center wheel.

5. To modify the fade for the selected property, use the right wheel.

6. To modify the hold time for the look, use the side wheel.

The DMX Menu

Use the **DMX** menu to reserve and un-reserve DMX channels. These features are identical to those that are accessible in the **Instrument** menu. For complete details, please see "To Reserve and Un-reserve DMX Channels" beginning on page 51.

To Reserve DMX Addresses

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **DMX** softkey.

   The **DMX** screen appears.

Resrve					

```
001 - 100 <100> Default Reserved
101 - 512 <412> Open                              ▼
```

3. Press the **Resrve** softkey.

```
┌──────────┬──────────┬────────┬───────────┬──────────┬──────────┐
│ Resrve   │ Delete   │        │           │          │          │
├──────────┴──────────┴────────┴───────────┴──────────┴──────────┤
│                                                                 │
│ 001 - 100 <100> Default Reserved                                │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│    Space                         DMX                            │
│      1                           101                            │
└─────────────────────────────────────────────────────────────────┘
```
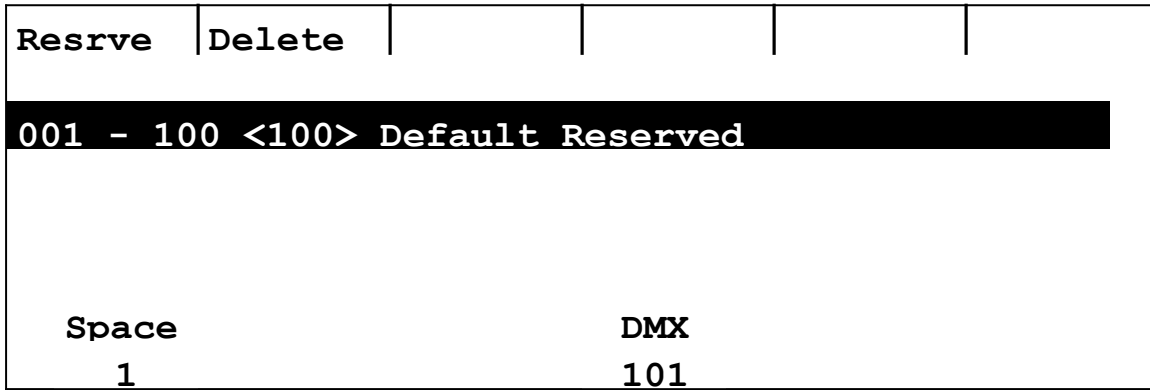
4. Use the left wheel to specify the number of "spaces" or DMX addresses that you want to reserve.

5. Use the center wheel to specify the first address that you want to reserve.

6. Press the **Resrve** softkey to complete the operation.

To Un-Reserve DMX Addresses

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **DMX** softkey.

   The **DMX** screen appears.

3. Press the **Resrve** softkey.

4. Use the side wheel to select which reserve item in the list you want to delete.

5. Press the **Delete** softkey.

The Update Menu

You will use the **Update** menu when Leprecon releases a new version of the LP-X's program or library.

To Update the LP-X Program

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **Update** softkey.

   The **Board Updates** screen appears.

3. Insert a floppy disk with the LP-X program update into the floppy disk drive.

   You may have obtained the update on a floppy disk from Leprecon. You may have received it via email and copied it onto a floppy disk. Or you may have downloaded it from the Leprecon web site (www.leprecon.com) and copied it onto a floppy disk.

4. Press the **Progrm** softkey.

```
                    Upgrade Program


         This wil load a new program version
                from the floppy drive.
         Please place a program update disk in
         the drive and press Yes to continue.
                    Yes / No
```

5. Press the **Yes** button to proceed.

    The LP-X displays program update status information on the screen.

To Update the LP-X Library

1. From the **Setup Mode** screen, use the side wheel to scroll to the second menu.

2. Press the **Update** softkey.

    The **Board Updates** screen appears.

3. Insert a floppy disk with the LP-X library update into the floppy disk drive.

    You may have obtained the update on a floppy disk from Leprecon. You may have received it via email and copied it onto a floppy disk. Or you may have downloaded it from the Leprecon web site (www.leprecon.com) and copied it onto a floppy disk.

4. Press the **Lib** softkey.

```
                    Update Library


          This wil load a new library version
                from the floppy drive.
          Please place a library update disk in
          the drive and press Yes to continue.
                    Yes / No
```

5. Press the **Yes** button to proceed.

    The LP-X displays library update status information on the screen.

The Miscellaneous Menu

The **Miscellaneous** menu provides access to:

- Total, used and free memory display

- MIDI settings

- The LP-X's clock setting. Note that until you set the clock, it will display 12:00 on the screens where it appears.

To Set the MIDI In and Out Channels or Clock

1. From the **Setup Mode** screen, press the **Misc** softkey.

   The **Misc Settings** screen appears.

```
             Misc Settings


Memory: Total: 14.94 MB  Used: 142 KB
Free: 14.81 MB


MIDI In:                        1
MIDI Out:                       1
Clock:                     12:00
```
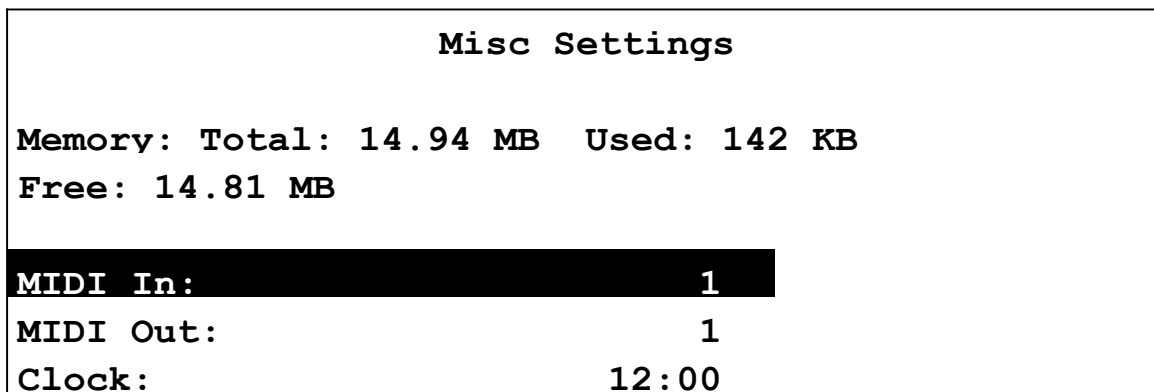
2. Use the left wheel to select **MIDI In**, **MIDI Out** or **Clock**.

3. Use the center wheel to increase or decrease the value for your selection.

   The range for MIDI In is Omni or 1 through 16.

   The range for MIDI Out is 1 through 16.

4. Press the **Yes** key when you are done.

To Send MIDI Signals

The LP-X can send and receive MIDI signals for the following events:

- Motion of **Manual Faders**

- Motion of **Playback Faders**

- Button press of **Solo/Add Bump** buttons

- Button press of **Conventional Light Bump** buttons

- Changes of the **Page** selection

- **Except + Select** button combination (to move backward in a scene list)

- Button press of all **Stack** buttons (**Stack On**, **Go**, **Hold** and **Back** buttons)

- Motion of **Stack** fader

- Motion of **Manual** fader

- Motion of **Master** fader

- Button press of **Blackout** button

MIDI signals are sent and received only in **Run** mode.

NOTE: If the LP-X receives a *System Reset* command from the master device, it resets the board to its default state. The *System Reset* command value is FF. The default state of the board is all faders at zero—including Master and Manual faders—**Run/Scene** mode and the **Bank Switch** button set to *Bank 1*.

For complete details about MIDI, including a MIDI map, please refer to "Appendix B: MIDI Protocol Specification" beginning on page 211.

1. To send MIDI signals to another device, connect a MIDI cable from the LP-X's MIDI Out port to the device's MIDI In port.

2. Set the LP-X's MIDI Out and the device's MIDI In to the same channel.

3. Zero out all faders on the LP-X and turn off the Stack.

4. Put the LP-X into **Run** mode.

5. Put the receiving device into **Record** mode.

6. When sending MIDI output to another device, your first action should always be raising the **Manual** and **Master** faders.

7. Play back the show as you normally would.

8. Take the receiving device out of **Record** mode.

To Receive MIDI Signals

1. To receive MIDI signals from another device, connect a MIDI cable from the device's MIDI Out port to the LP-X's MIDI In port.

   Depending upon your configuration, you also may be able to connect to the device's MIDI Thru port.

2. Set the LP-X's MIDI In and the device's MIDI Out to the same channel.

3. Zero out all faders on the LP-X and turn off the Stack.

4. Put the LP-X in **Run** mode.

5. Send the signal from the device.

Creating Moving Light Devices

Moving light devices that are not included in the LP-X library can be added at any time. You will need information from the manufacturer that specifies the DMX channel assignments for the attributes of the devices.

To Create a New Moving Light Device

1. From the **Setup Mode** screen, press the **Device** softkey.

   The **Device List** screen appears.

```
New     |        |        |        |        |
```
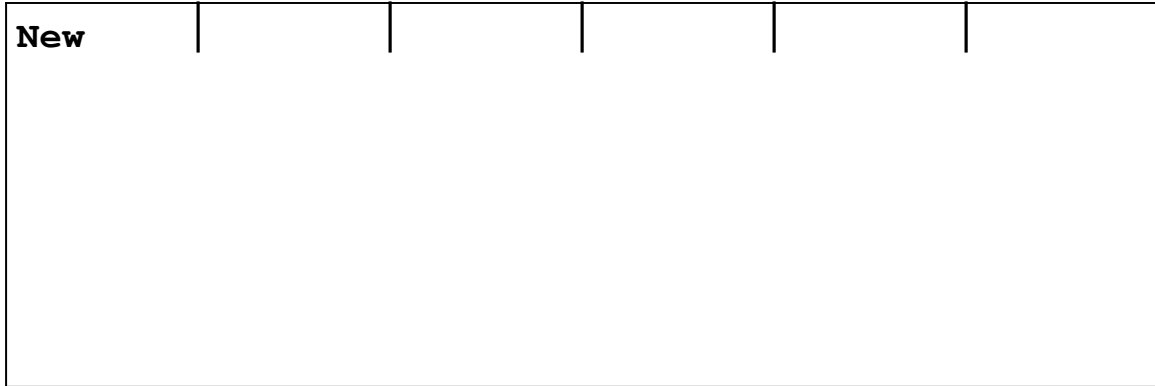
2. Press the **New** softkey.

   The **Create New Device** screen appears.

```
Save    |        |        |        |        |

                Create New Device


Device Name:            Manufacturer:
User Fixture 01         Unknown


                   Focus Type          Channels
                    16 Bit                20
```
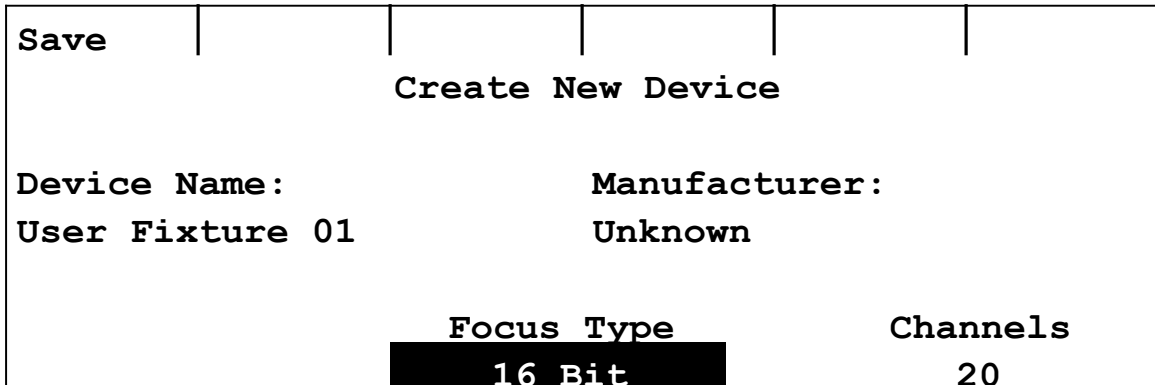
Use the left wheel to move between the **Device Name** box and the **Manufacturer** box.

3. The default name for the new device is **User Fixture 1**. Use the keypad to enter a name for the device.

4. The default manufacturer for the device is **Unknown**. Use the keypad to enter the manufacturer.

5. Use the center wheel to specify the focus type. Available options are **8 bit**, **16 bit** and **Mixed**.

6. Use the right wheel to specify the number of channels for the device.

```
Save     |        |        |        |        |
              Create New Device


Device Name:              Manufacturer:
MY DEVICE                 LEPRECON


                  Focus Type        Channels
                    8 Bit              16
```

7. When you are ready, press the **Save** softkey.

   You are now ready to begin adding attributes to the device.

```
Add      |        |        |        |        |
              MY DEVICE
```

8. Press the **Add** softkey.

```
Save     |Name    |        |        |        |
    Create Attribute: MY DEVICE
   Attribute Name:
Color mix Cyan    <C>    Channel:           1
Color mix Magen   <C>    Min Value:         0
Color mix Yello   <C>    Max Value:       255
Color wheel 1     <C>    Default Value:     0
Control           <B>
```

The left column shows a list of all the attribute names from all of the fixtures that are currently loaded into the system. An attribute name followed by <C> is a color attribute. An attribute name followed by <B> is a beam attribute. An attribute name

followed by <F> is a focus attribute. If you have not yet added any fixtures, this list will be blank.

9. Use the left wheel to select an attribute name from the list.

    If the attribute name you need isn't on the list, press the **Name** softkey.

```
Save      |         |         |         |         |
                Create new Attribute name


Name:                          Group:
Unnamed                        Beam
                               Color
                               Focus
```
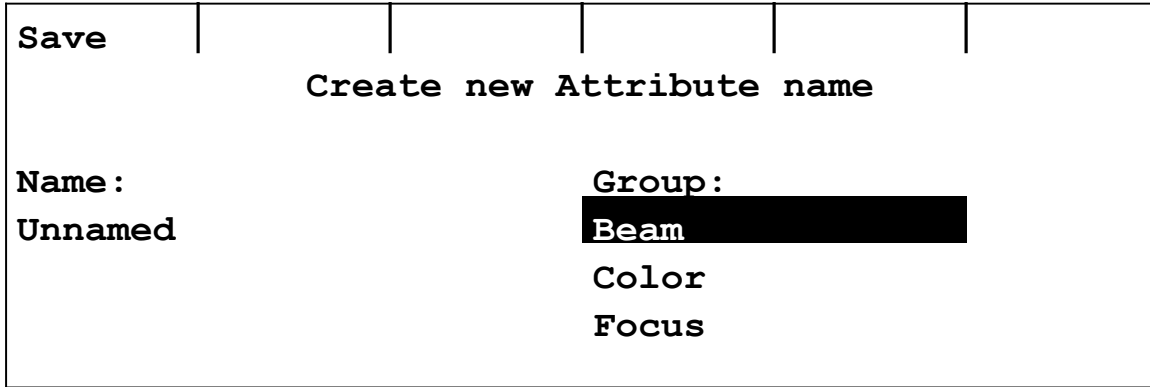
Use the keypad to enter a name for the attribute. Use the right wheel to specify the type of attribute. Press the **Save** softkey when you are done. The attribute name is added to the list.

10. Use the center wheel to scroll between **Channel**, **Min Value**, **Max Value** and **Default Value**. Use the right wheel to set the value for each.

    Usually these values will be specified by the manufacturer. Typically the minimum value is zero and the maximum value is 255. However, some instruments have two attributes on one channel—a split attribute. When this is the case, one attribute usually will have a minimum value of 1 and a maximum value of 127 and the second attribute will have a minimum value of 128 and a maximum value of 255. Any value ranges are possible, as long as they do not overlap.

    For the default value, specify the DMX values that the LP-X should use when a light is first selected. The LP-X library uses white as the default color, open as the default beam and 128 as the default focus value for pan or tilt.

```
Save      |Name     |         |         |         |
      Create Attribute: MY DEVICE
   Attribute Name:
Gobo wheel 2     <B>     Channel:              1
Iris             <B>     Min Value:            0
Pan              <F>     Max Value:          255
Pan fine         <F>     Default Value:      128
Shutter          <B>
```
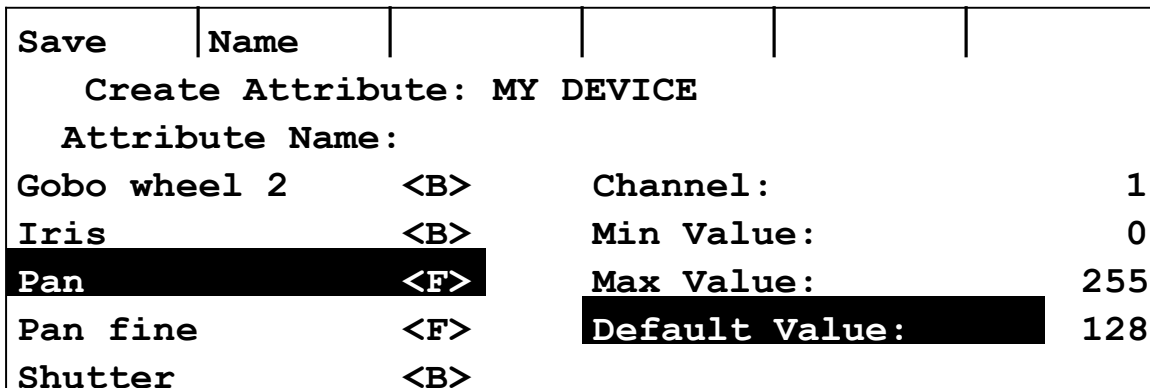
11. When you are ready, press the **Save** softkey.

Add	Edit	Delete				
		MY DEVICE				
1 Pan			**F**			

12. To assign another attribute to the device, press the **Add** softkey and repeat steps 9 through 11.

To Edit a Moving Light Device

Editing devices (especially devices that are included in the LP-X library) may have undesired consequences. For example, if you edit an attribute to restrict the range, any values outside that range will not be downloaded. This can break labels.

1. From the **Setup Mode** screen, press the **Device** softkey.

   The **Device List** screen appears.

2. Use the side wheel or the **Plus** (**+**) and **Minus** (**-**) buttons to select a device to edit.

3. Press the **Edit** softkey.

Add	Edit	Delete				
		MiniMac Profile				
1	Dimmer		I			
1	Shutter		B			▼
2	Color wheel 1		C			
3	Gobo wheel 1		B			
4	Gobo Rotate		B			
5	Pan		F			

4. To add an attribute to the moving light device, press the **Add** softkey.

   Then follow steps 9 through 11 from the procedure given in the section "To Create a New Moving Light Device" beginning on page 204.

5. To edit an attribute of the moving light device, select the attribute and press the **Edit** softkey.

Then follow steps 9 through 11 from the procedure given in the section "To Create a New Moving Light Device" beginning on page 204.

6. To delete an attribute from the moving light device, select the attribute and press the **Delete** softkey.

    The LP-X asks you to confirm the operation.

7. Press **Yes** to complete the operation. Press **No/Esc** to cancel the operation.

Appendix A:
Maintenance and Repair

Handling

It is a good idea to invest in a properly designed flight case. Your Leprecon dealer can provide case, and several popular case manufacturers have specifications for Leprecon consoles. The case should be sturdy enough to resist punctures, and contain at least one inch of foam padding around the console.

Extreme Temperatures

Touring gear is often exposed to extreme temperatures. It is a good idea to allow the console to reach room temperature before turning it on. Very cold weather will cause condensation to form when the console is brought into a warm room. In this case, allow the board to warm up before turning it on; this will allow the moisture from condensation to evaporate before power is applied. In extreme heat, it is best to keep the console shaded from direct sunlight, and under cover when not in use.

110/220 Volt Current

Underneath the power jack on the LP-X you will see a red switch. When the switch is set to **115**, the LP-X will run on 110V current. When the switch is set to **230**, the LP-X will run on 220V current.

Warranty Information

Leprecon will repair any defects in materials or workmanship on the LP-X for a period of one year from the date of sale. The equipment must be returned postpaid to the factory, and Leprecon will pay return shipping charges. Leprecon is not responsible for incidental damages, or for damage 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 Leprecon 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. You can also visit our web site at www.leprecon.com.

Appendix B:
MIDI Protocol Specification

MIDI Message Formats

MIDI System Reset Message

Message Type	Function Byte 1
SYSTEM RESET	0xff (255)

MIDI Controller Channel Messages

Because MIDI restricts the Controller Channels to a range of 0-127, and the LP-X has channels with values greater than 127, the LP-X extends the channel range by defining a Controller Channel message that sets the high order channel. This High Controller Channel message need only be sent after a SYSTEM RESET message or when the high order channel changes. The LP-X saves the high order channel and uses it with subsequent Controller Channel messages to create the referenced Extended Controller Channel. A Controller Channel value of 127 in Byte 2 indicates a High Controller Channel message and the byte 3 value of the message is the new High Order Channel.

The Controller Channel message sets the value of the referenced Extended Controller Channel.

Message Type	Function Byte 1	Controller Channel Byte 2	Value Byte 3
Controller Channel	0xB0 (176) + MIDI Channel (0-15)	0-126 = Low order controller channel	0-127 = value / 2
High Controller Channel	0xB0 (176) + MIDI Channel (0-15)	127 = Set High Order Channel	0-127 = High order channel

Note: After the LP-X receives a System Reset message it clears its High Order Channel value and will send an High Controller Channel message before sending the first Controller Channel message. The sending MIDI Controller should send a High Controller Channel message before sending the first Controller Channel message.

The Controller Channel (byte 2) is the low order channel value. The actual extended controller channel referenced by the message is:

Extended Channel = ((Last High Order Channel) * 127) + Low Order Channel)

The transmitted value in byte 3 is half the actual value of the channel. So a value of 2 is sent as 1 and a value of 255 is sent as 127.

MIDI Message Output

The LP-X conforms to the MIDI message format specification. The LP-X is capable of sending MIDI message which represent changes in front panel inputs used by the Realtime cue processing code. It sends messages only when the system is in the RUN mode. The LP-X does not send any MIDI messages for changes to user interface front panel inputs.

Section 1 details the message formats. The LP-X only sends MIDI Controller Channel Messages with the unit's assigned MIDI output channel number.

The LP-X sends one or two MIDI messages whenever the system detects a button press, button release or fader movement related to the running of a show. It does not send messages related to programming a show. The first message, a High Controller Channel message, is optional and defines the high order controller channel. The first message is sent only if the High Order Controller Channel changed from the last MIDI output message. Its controller function channel is set to MIDI_EXTENDED_CHANNEL (127). The second, a Controller Channel message, contains the low order controller channel and the current value for the input.

MIDI Message Input

The LP-X accepts all valid MIDI messages but only processes MIDI Controller Channel, High Controller Channel and System Reset messages. If the MIDI input channel number is set to OMNI, then the system processes all MIDI Controller Channel and High Controller Channel messages, ignoring the MIDI channel number. Otherwise the system processes only MIDI Controller Channel messages containing the unit's MIDI input channel number.

The LP-X processes MIDI High Controller Channel messages where the controller function channel is set to MIDI_EXTENDED_CHANNEL (127) by saving the high order controller channel value. It uses this value when processing MIDI Controller Channel messages that have a function channel value of 0-126 to form an Extended Controller Channel.

The LP-X always accepts the MIDI System Reset message. Upon receiving the System Reset message, the LP-X performs the following actions:

1. puts unit into RUN mode

2. shows the conventional scene channel display

3. clears all button presses

4. zeroes the internal value of all faders

5. enables bank 0 faders and buttons

Example of a MIDI Message Sequence

Assume LP-X input channel = 3

Operation	Message 1	Message 2
System Reset	0xFF	n/a
Set FADER_01 = 255 (100%)	0xB3 0x7F 0x00	0xB3 0x0D 0x7F
Set FADER_02 = 128 (50%)	0xB3 0x0E 0x40	n/a
Set FADER_BUMP_01 = ON	0xB3 0x7F 0x01	0xB3 0x03 0x7F
Set FADER_BUMP_01 = OFF	0xB3 0x03 0x00	n/a

LP-X Controller Channel Identities

Symbolic Name	ID		Symbolic Name	ID
MASTER_FADER	2		FADER_13	25
MANUAL_FADER	3		FADER_14	26
STACK_FADER	4		FADER_15	27
PLAYBACK_00	5		FADER_16	28
PLAYBACK_01	6		FADER_17	29
PLAYBACK_02	7		FADER_18	30
PLAYBACK_03	8		FADER_19	31
PLAYBACK_04	9		FADER_20	32
PLAYBACK_05	10		FADER_21	33
PLAYBACK_06	11		FADER_22	34
FADER_01	13		FADER_23	35
FADER_02	14		FADER_24	36
FADER_03	15		FADER_BUMP_VIRTUAL	154
FADER_04	16		KEYPAD_EXCEPT	183
FADER_05	17		PLAYBACK_SELECT_01	199
FADER_06	18		PLAYBACK_SELECT_02	200
FADER_07	19		PLAYBACK_SELECT_03	201
FADER_08	20		PLAYBACK_SELECT_04	202
FADER_09	21		PLAYBACK_SELECT_05	203
FADER_10	22		PLAYBACK_SELECT_06	204
FADER_11	23		PLAYBACK_BUMP_01	156
FADER_12	24		PLAYBACK_BUMP_02	157

Symbolic Name	ID
PLAYBACK_BUMP_03	158
PLAYBACK_BUMP_04	159
PLAYBACK_BUMP_05	160
PLAYBACK_BUMP_06	161
BLACK_OUT_BUTTON	111
STACK_ON_BUTTON	124
BACK_BUTTON	121
HOLD_BUTTON	122
GO_BUTTON	123
STACK_SELECT	206
FADER_BUMP_01	130
FADER_BUMP_02	131
FADER_BUMP_03	132
FADER_BUMP_04	133
FADER_BUMP_05	134
FADER_BUMP_06	135
FADER_BUMP_07	136
FADER_BUMP_08	137

Symbolic Name	ID
FADER_BUMP_09	138
FADER_BUMP_10	139
FADER_BUMP_11	140
FADER_BUMP_12	141
FADER_BUMP_13	142
FADER_BUMP_14	143
FADER_BUMP_15	144
FADER_BUMP_16	145
FADER_BUMP_17	146
FADER_BUMP_18	147
FADER_BUMP_19	148
FADER_BUMP_20	149
FADER_BUMP_21	150
FADER_BUMP_22	151
FADER_BUMP_23	152
FADER_BUMP_24	153
ENCODER_PAGE	273

Glossary

Attribute: Each adjustable feature of the instruments is referred to as an attribute. Iris, Color Wheel 1, Gobo Wheel 1 and Pan Fine are all examples of attributes. In some cases, an instrument attribute will be completely controlled by a single DMX channel. In some cases, more than one channel may be interpreted to determine the status of an attribute—as is the case with color mixing. Finally, a single control channel may contain information for two different attributes; this is the case with some Clay-Paky fixtures that combine Iris and Gobo rotation on a single channel to minimize the control channel requirements.

Beam: The shape of the beam as modified by passing it through a variety of modifiers (shutter, iris, gobo).

Board Channel: Lowest level of independent control in the board. A single board channel may be used to control several dimmer channels.

Bump Button: A switch used to quickly bring a board control to 100%. Pressing a **Bump** button is an alternative to flinging a fader to full. The LP-X has a **Bump** button for each board channel, located below the fader.

Channel: See *Board Channel* and *Dimmer Channel*.

Chase: A repeating pattern of scenes typified by moving marquee lights around the outdoor signs on the theatre itself. The "rate" of a chase refers to the time each scene is active before being replaced with the next scene.

Color: A property of a Moving Light. In some fixtures, color is determined by a palette of colors on a wheel. In other fixtures, color is determined by a mixture of colors on (usually) three filters.

Color (Color Property): Color effects in a Moving Light are generally produced by placing a color media in the path of the beam. Dichroic filters are the media of choice. Usually a disc with several filters is placed so that rotating the disc will move one of the filters into position. Some fixtures have the ability to spin the color wheel continuously for an entertaining effect.

Color Mixing (Color Property): Some advanced instruments use the combination of three-color media to produce a wide range of colors. Usually referred to as CYM or color mixing, three channels are used to set the relative saturation of the component colors. This also allows fading from one color to another without the abrupt change that is characteristic of a rotating color wheel.

Crossfade: The action of changing smoothly from one scene to another. The intent is a smooth transition from one look to another over a fixed time. The term "dipless" describes a method of handling intensity that does not disturb the level of lights with identical settings in the current and upcoming scenes.

Cue: See *Look*.

Dimmer (Intensity Property): The high-performance Moving Lights of today usually utilize discharge lamps as a light source. These arc lamps are compact, efficient and have a high color temperature. On the down side, they require a large and heavy ballast and cannot be dimmed electrically. As a result, the dimming system usually consists of a mechanical element such as a disk with progressively narrower slots.

Dimmer: A solid state electronic device that controls power delivered to stage instruments. Usually operates by AC power to incandescent lamps. Typically dimmer channels are built with 10 amp (1Kw) or 20 amp (2Kw) capacity.

Dimmer Channel: The control of a single dimmer. Dimmers have only one attribute—level. Usually dimmers are controlled via a digital industry standard protocol called DMX512.

Dipless Crossfade: See *Crossfade*.

DMX Mode: For some moving light fixtures, you can select between several modes of operation. A DMX mode requiring fewer channels will support fewer features or offer control that is less fine. A DMX mode requiring more channels will support more features or offer finer control.

Effects (Beam Property): The number of elements that can be introduced into the optic path is limited only by the imagination of instrument designers and the budgets of the users. Besides the standards of gobo and color, several popular instruments incorporate another general-purpose wheel for effects. These can include prisms to split the beam, color correction filters and diffusion media or "frost". The exact features that are loaded in an effects wheel can vary widely.

Fader: A potentiometer that is used to set the level of a board channel.

Fixture: See *Moving Light* and *Dimmer*.

Focus: The position of the beam and sharpness or definition of the beam edge.

Frost (Beam Property): The number of elements that can be introduced into the optic path is limited only by the imagination of instrument designers and the budgets of the users. Besides the standards of gobo and color, several popular instruments incorporate another general-purpose wheel for effects. Such effects can include diffusion media or "frost".

Gobo (Beam Property): A gobo is a cut out pattern that is inserted into the beam so as to project a pattern on the stage. The gobo has been around about as long as instruments with lenses. As with color wheels, gobo wheels are positioned in the light beam and can be rotated to the proper position on cue. Some gobo sizes are standardized which allows custom gobo patterns to be fabricated and inserted into the gobo wheel for specific effects.

Group: A group is a convenient functional set of instruments. An instrument can be a member of multiple groups. The user creates groups to facilitate selecting multiple instruments for programming. A group can consist of instruments of different personalities and manufacturer types.

Handle: See *Fader*.

Highest Takes Precedence: A method of playing back several preset scenes at one time. The level for each channel is determined by finding the highest level for each channel present in all of the active (piled-on) scenes. Example:

Recorded Channel Value	Preset Playback Position	Result
50%	75%	37.5% (75% of 50)
25%	90%	22.5% (90% of 25)
30%	100%	30.0% (30% of 100)

The output value for the channel with these scenes piled on as shown would be 37.5%.

HTP: See *Highest Takes Precedence*.

Indexed Gobo (Beam Property): An effect that allows the gobo to be precisely oriented or *indexed*. This is important when a pattern is projected, such as a corporate logo.

Instrument: See *Moving Light* and *Dimmer*.

Intensity: The brightness of the beam, usually controlled by a mechanical dimmer in a moving light.

Iris (Beam Property): The iris of an moving light is identical to any other iris—a clever multi-leaf element that produces a variable sized round aperture. As the iris size changes, the intensity of the remaining beam remains constant.

Label: A name applied to a specific attribute value or a combination of attribute values. This allows the user to pick attribute values by names—not by numbers.

Last Takes Precedence (LTP): The method of determining output when several looks are executed simultaneously. In dealing with conventional light looks, the highest channel level takes precedence (HTP). With moving light looks, the last look executed takes precedence over the previous looks.

LTP: See *Last Takes Precedence*.

Look: Stored information that contains the level for each board channel. Looks are the basic units or building blocks that a designer produces on stage.

Mirror (Focus Property): The positioning of the mirror is responsible for the "focus" or position of the beam. Generally, stepper motors are used to set the mirror position, with an XY axis for pan and tilt. Some instruments use a single 8-bit value for mirror position; other instruments use a 16-bit value. This information is significant only for ensuring that the LP-X set-up for an instrument is correct. Because of the limitations in the pan and tilt mechanisms, the area that a moving mirror can light is restricted. Instruments such as the Vari*lite and Studio color, on the other hand, are moving head or true moving lights. These instruments are less restricted in their range of movement but use all of the features of the LP-X Moving Light Controller software as a moving mirror instrument would.

Moving Light: A special class of light fixtures that have programmable properties. Unlike conventional lights (dimmers) that have only the property *level*, moving lights have four properties—color, beam, focus and intensity.

No Change: In moving light programming, a label or attribute setting specifying that the look should not change from the value or values in the last look. In the following example, the color for CUE_002 would be red because the preceding look has the color red.

CUE_001   RED

CUE_002   NO CHANGE

CUE_003   BLUE

If the setting for the color in CUE_001 were changed to blue, the color in CUE_002 would also change to blue.

Also known as *transparency*.

Personality: The mapping of parameters to DMX channels is accomplished by an instrument database that is factory defined and is extensible by the user. The response of the instrument to DMX data is determined by its personality, which is stored in the LP-X database.

Pile-On: See *Highest Takes Precedence*.

Playback: The faders on the LP-X that control entire looks of conventional instruments and moving light instruments as well as chases are called playbacks. Their function is to bring looks back from memory on demand. In the LP-X, all 6 playbacks can be used at the same time.

Preset: See *Look*.

Preset Scene: See *Look*.

Prism (Beam Property): The number of elements that can be introduced into the optic path is limited only by the imagination of instrument designers and the budgets of the users. Besides the standards of gobo and color, several popular instruments incorporate another general-purpose wheel for effects. Such effects can include prisms to split the beam.

Rotating Gobo (Beam Property): Another special effect is the ability to rotate a gobo pattern. This is not to be confused with spinning the entire wheel. Still another stepper motor is used to rotate the individual gobo in its position on the gobo wheel. Usually another control channel is used to set the rate and direction of the rotation.

Scene: See *Look*.

Scene List: A series of looks assigned to a playback. A scene list can be executed manually, can be executed automatically or can be executed as a chase.

Shutter (Beam Property): To produce a fast blackout, a mechanical shutter is used that blocks all light output very quickly. Opening and closing the shutter rapidly is used as a strobe effect.

Split Dipless Crossfade: See *Crossfade*.

Step: See *Look*.

Timed Fade: A pre-programmed event that performs a crossfade from one scene to another. Usually this is triggered by the board operator with a switch that invariably is called a **Go** button. Timed fades in the LP-X are performed in the **Stack** section.

Xfade: See *Crossfade*.

Zoom and Focus (Beam Property): As Moving Lights are used for their static properties as well as their ability to move, manufacturers have added motor controls to the optics. The results are the ability to control the "sharpness" or definition of the beam edge (focus) and the size of the projected beam (zoom). Controlling the beam size with the iris maintains the intensity as the area of coverage changes. Zooming the fixture concentrates the light into a larger or smaller area with a corresponding change in illumination.

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