

# Basketball Shot Clock Set LX2160 Manual



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## **Specifications**

**Model:** LX2160

**Packing List:** Two shot-clock cabinets, two 10-ft. stereo patch cables, and two junction boxes

**Displays:**

**Shot-Clock Display:** 12-inch tall Red LED digits

**Visual Horn Indicator:** 4-inch Red LED cluster

**Dimensions:** 24 inches W x 27 inches H x 6 inches D each

**Weight:** 20 lbs. each

**Location of Serviceable Components:** To access serviceable components, remove entire face with 1/4-inch nut driver.

**Power Requirements:** 120 VAC, 2.0 Amps, 60 Hz each each

**Accessories:** Two 4-1/4 in. x 2-1/4 in. x 2 in. junction boxes with 1/4 in. stereo jacks mounted on the face plates are attached to the data cables at the point of operation. Two 10 ft. stereo patch cables connect the control console to the junction boxes.

## **Scoreboard Installation**

Electro-Mech basketball LX-series shot clocks are designed to be operated in conjunction with our LX-series basketball scoreboards and to be fed data (directly or indirectly) from the control console supplying data to the basketball scoreboard. Because the shot clocks have no purpose unless they are linked to the same console as the main scoreboard, a control console is not usually packaged specifically with shot clock displays. But an Electro-Mech basketball control console is necessary. In addition, the shot clocks will require a means of receiving data from the console. For this reason, you must purchase either data cable (for wired systems) or ScoreLink receivers (for wireless systems) from Electro-Mech to complete the installation of shot clocks.

Items not provided by Electro-Mech that are necessary for installation:

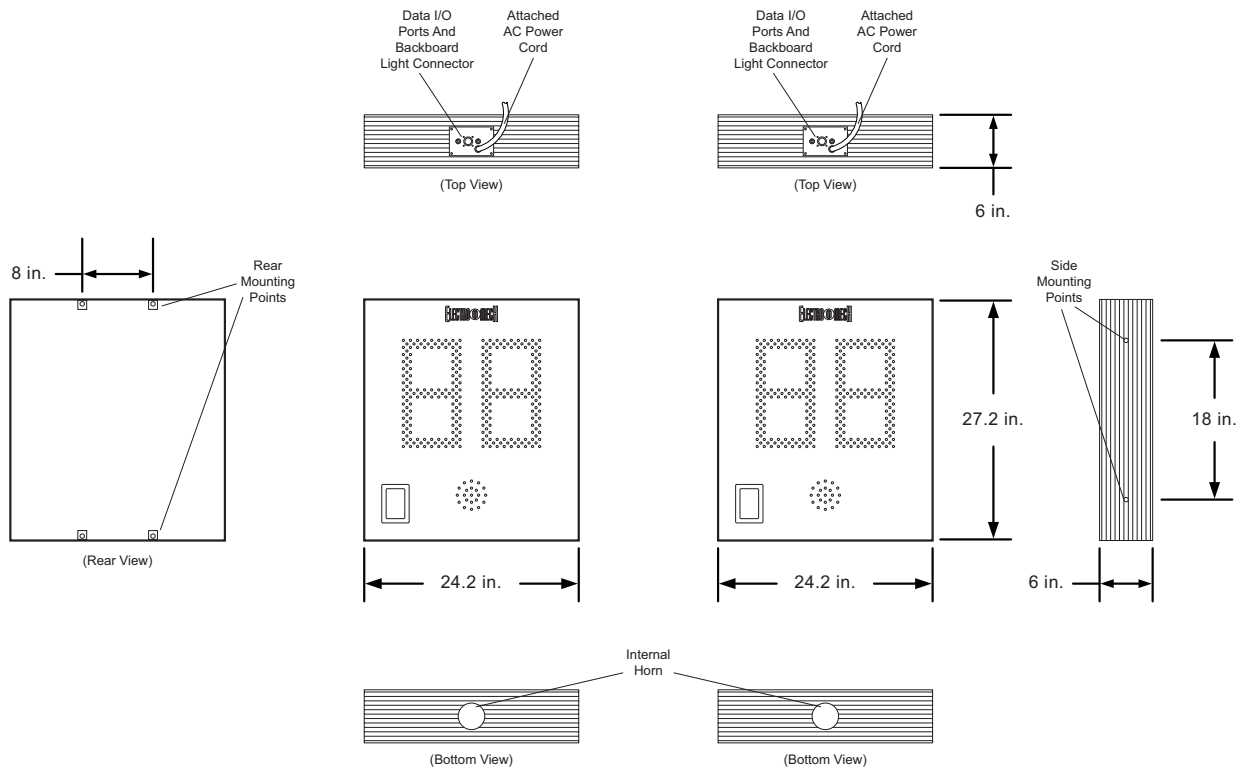
- Hardware to mount each shot-clock cabinet to a backboard or elsewhere.
- A grounded NEMA 5-15A 120 VAC receptacle (standard 3-prong outlet) for each shot-clock cabinet.
- A dedicated circuit breaker to turn the shot clocks on and off (usually shared with the main scoreboard).

Electro-Mech performs installations in some areas. In other areas, we can help you contact an independent installer. In either case, we will make every effort to answer your installation questions. Qualified personnel should perform the scoreboard installation. Consult national and local codes before beginning installation.

### *Mechanical Installation*

Electro-Mech shot clocks were designed to be mounted on or near basketball backboards. Because of the variety of backboard manufacturers and styles, there is no industry standard method for attaching shot clocks to backboard structures. Our shot-clock cabinets allow for a variety of hardware styles and attachment points. The illustration on the following page shows the position of the tapped mounting points provided along the back and sides of the cabinets. The tapped points are designed to receive 1/2x13 threaded bolts.

## LX2160 Mechanical Details



One common mounting technique is to clamp the shot clock to a single vertical support running behind the cabinet. The mounting points on the back side of the cabinet allow for a vertical support up to 7 inches wide. Another common method is to bolt angle brackets, with one flange flush with the cabinet back, to the mounting points along the sides of the cabinets. These brackets can then be fastened to a wall or to the support structure behind the backboard.

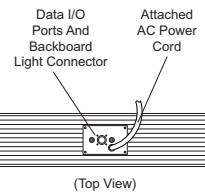
### *Electrical Installation*

We recommend a qualified electrician perform the needed electrical connections to ensure proper operation of the scoreboard. These connections include installing power receptacles, a local disconnect, and data cable or ScoreLink wireless systems.

### **Power Connections**

Each shot clock requires 120 VAC service to operate. Maximum power consumption for LX2160 shot clocks: 270 Watts each. On the top of each cabinet is an attached six foot power cord. Plug the power cord into a grounded NEMA 5-15R receptacle (standard 3-prong outlet). The receptacle should be controlled by a separate circuit breaker (typically shared between the two shot clock displays and the main scoreboard) so that the displays can be turned on and off without affecting other electrical devices in the facility. There is no built-in on/off switch. If the shot clocks have power, they are on. If not, they are off. The illustration on the following page shows the position of this power cord and the other connection points along the top of the cabinet.

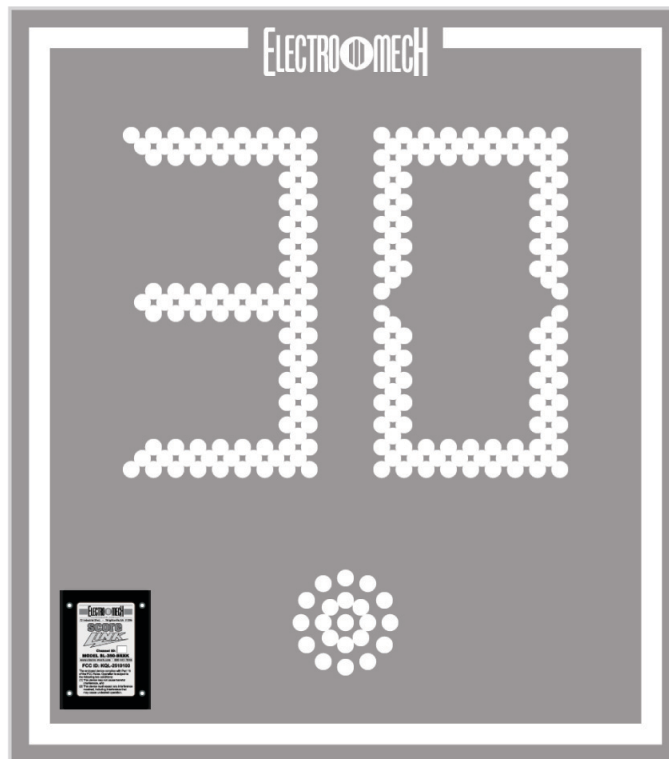
## LX2160 Power and Data Connections



### **ScoreLink**

The ScoreLink RF wireless communications system is designed to eliminate the need for data cables running from the control console to the scoreboard and other displays. If you have purchased this accessory, disregard the section of this manual titled Data Cable installation. Also, if you ordered embedded ScoreLink receivers when you purchased your shot clocks, they will be shipped pre-installed from the factory. See your ScoreLink manual included with this accessory.

### Embedded ScoreLink Wireless Receiver Location

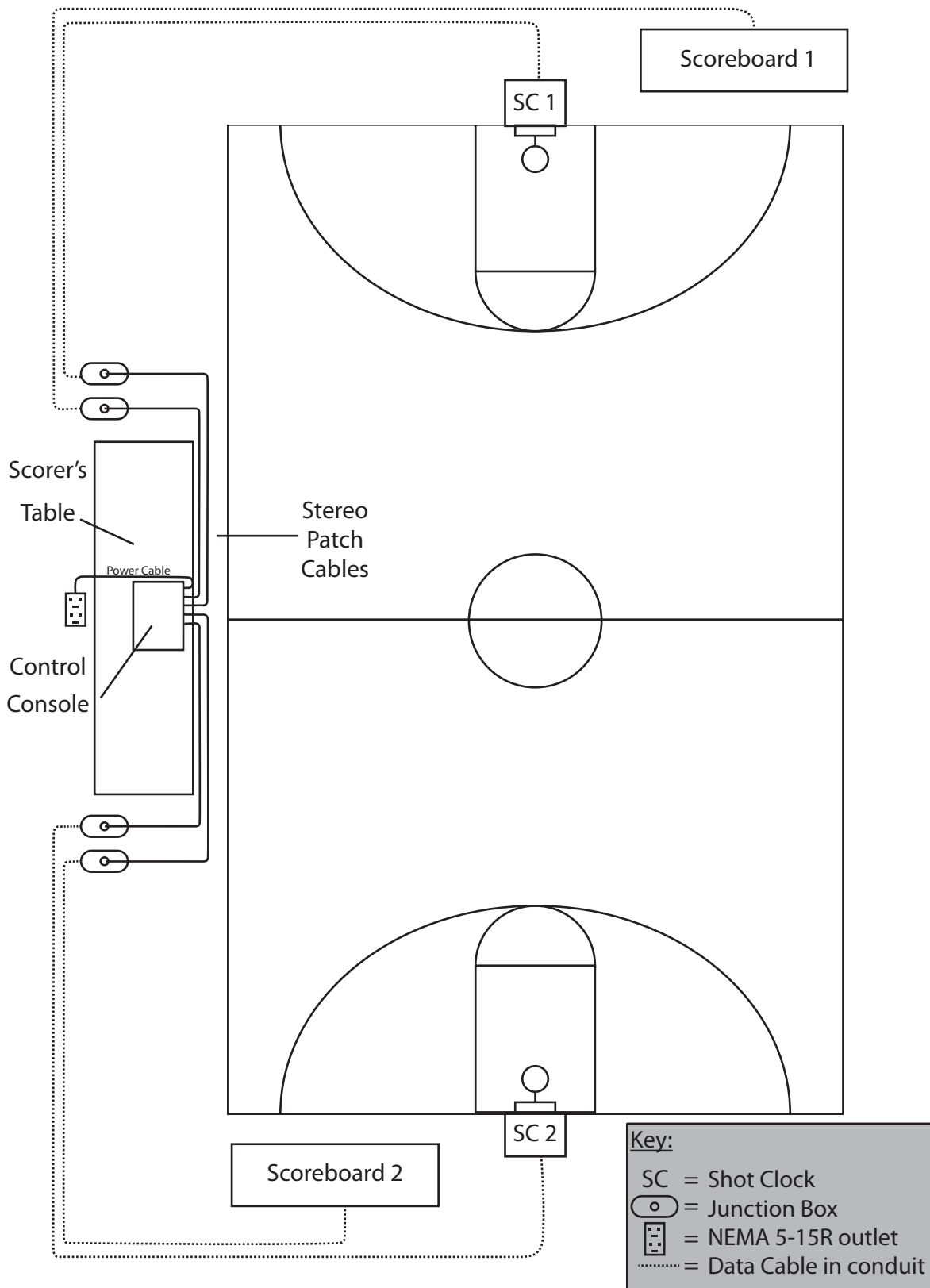


### **Data Cable Installation**

Typically the shot clocks receive data via a cable that is routed either from a junction box near the control console or from another scoreboard. These two methods of wired communication are discussed below

Method 1: Direct path from the control console. See illustration on the following page with additional information afterward.

Direct Wired Installation for Shot Clocks

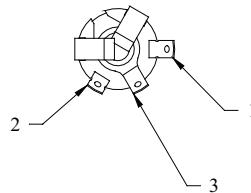


The back of your basketball control console includes four data outputs, meaning up to four displays may be supplied data directly from the console. You should NOT split a single data output and attempt to run two displays, both directly attached to one console output.

Electro-Mech provides a junction box (two for shot clock pairs) designed to mount near the place where you plan to operate your scoreboard. You may run up to 1,000 feet of data cable from this junction box through conduit, behind walls, and wherever else it needs to go to get to the scoreboard. The stereo socket on the junction box allows you to quickly plug in a patch cable from one of the stereo output sockets on the back of the control console. Between games you will want to unplug your control console and store it.

The stereo socket on the junction box is wired according to the diagram below.

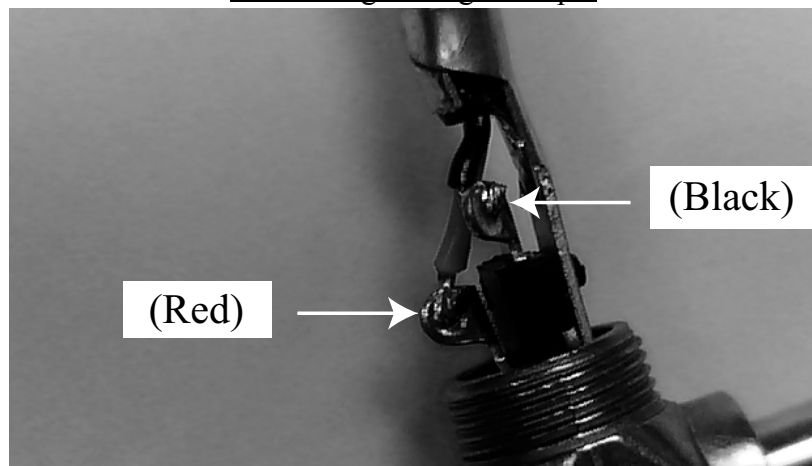
### Stereo Socket Wiring Diagram



PIN 1 - BLACK WIRE  
 PIN 2 - RED WIRE  
 PIN 3 - SHIELD WIRE

At the scoreboard end of the cable, you will need to attach the stereo plug provided by Electro-Mech. This plug connects to the stereo data input socket on top of the scoreboard cabinet. Use the photo below as a guide for soldering wires to the plug.

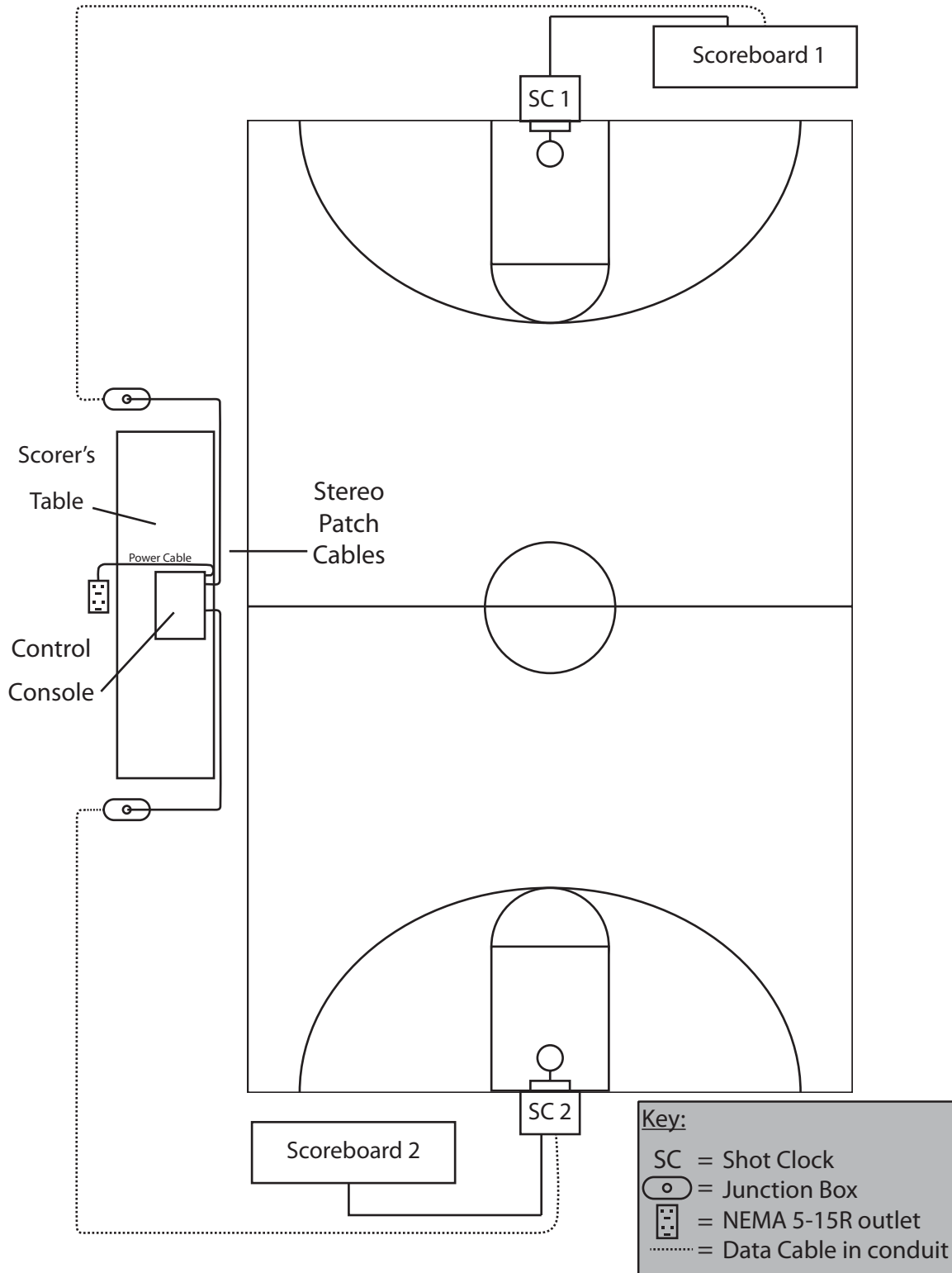
### Stereo Plug Wiring Example



Method 2: Daisy chaining from another scoreboard. See illustration on the following page with additional information afterward.



Daisy-Chained Wired Installation for Shot Clocks



Although you cannot split the signal from the back of your control console, you can daisy chain the signal from one scoreboard to another. Each scoreboard cabinet includes both a data input socket (for receiving data from the console) and a data output socket (for relaying data to another scoreboard). It is common for shot clocks to receive their data from a nearby scoreboard. If you choose this method, you should request additional stereo plugs from Electro-Mech to allow your data cable to attach to the sockets at each end of the path.

**Other Methods**

It is possible to route data cables in more complicated ways. You may, for instance, use the Score-Link wireless communications system to send data from your control console to your main scoreboard and then use a data cable to daisy chain from that scoreboard to a shot clock. Consult with your scoreboard sales representative during the planning phases of your project if your needs are more elaborate.

## Servicing

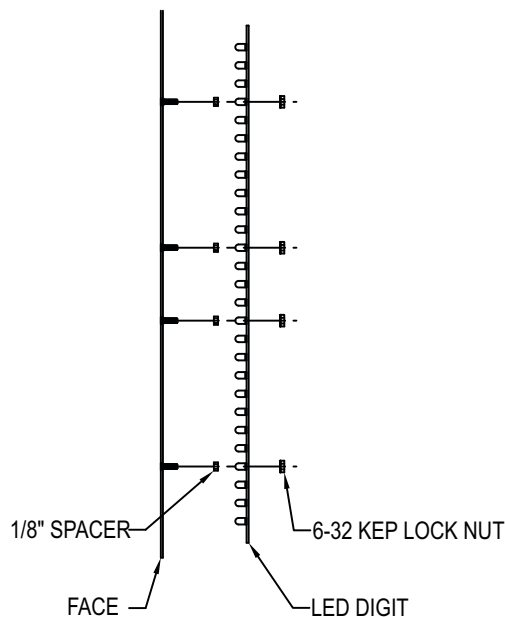
While your shot-clock was designed for years of trouble-free operation, some problems may occasionally occur. Electro-Mech offers onsite service in some areas. In other areas, we can help you contact an independent service technician. In either case, we will make every effort to answer your questions. Our trained personnel are ready to provide technical support from Monday to Friday during the hours of 8 AM to 5 PM Eastern Time. Our convenient toll free number is listed on the cover page of this product guide. Be sure to know your scoreboard model number when calling. Most scoreboard replacement parts are available for immediate shipment. Damaged parts can usually be repaired at significant cost savings.

If the shot clock turns on, but does not operate normally, make note of which functions are affected. If some LEDs either never turn on or always stay on, make note of their specific locations on the shot clock.

### *LED Digit and Indicator Replacement*

The LEDs that form digits and indicators are soldered on circuit boards mounted behind the face of the shot clock. Do not attempt to replace individual LEDs. In case of a malfunction, the entire LED circuit board must be removed. To avoid damage to electrical components, always turn off the power to the scoreboard when removing or replacing LED digits and indicators. The illustration below shows the components of a typical LED digit assembly.

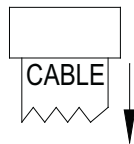
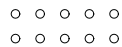
LED Digit Assembly



The following steps describe how to replace a defective LED digit or indicator:

1. Remove the sheet metal screws that fasten the face of the scoreboard to the frame. **Caution: Support the face with your hand before removing the last screw. The ribbon cable that connects to the rear of the circuit board is not designed to support the weight of the assembly.**
2. Disconnect the ribbon cable from the rear of each circuit board. The cables are labeled to indicate the proper circuit board connection. **Caution: Do not let the cable hang outside of the shot clock. It is easily cut by sharp metal edges. Damage to the ribbon cable may create short circuit paths that will damage other components.**
3. Place the assembly on a flat surface and remove the 32-kep lock nuts that hold the defective circuit board in place.
4. Remove the circuit board from the assembly.
5. Align the mounting holes in the replacement LED digit circuit board with the threaded studs on the face and install it on the face using the 32-kep lock nuts.
6. Plug the ribbon cable onto the header on the back of the circuit board. Refer to the illustration below in order to plug the ribbon IDC connector onto the circuit board in the proper orientation.

#### LED DIGIT HEADER



#### RIBBON CABLE IDC SOCKET



CENTER KEY

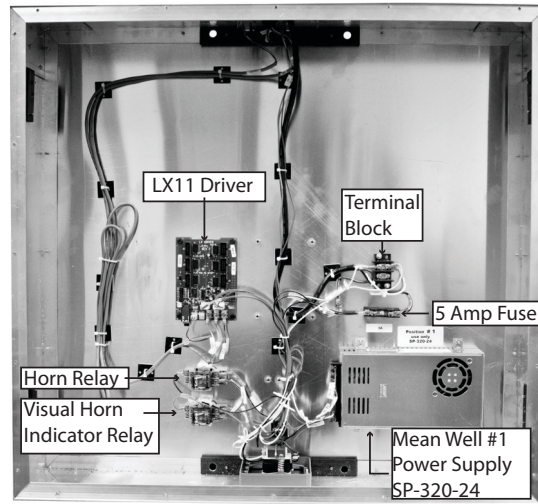
CENTER KEY ON RIBBON CABLE IDC SOCKET  
MUST POINT IN THE SAME DIRECTION AS THE  
ARROW ON THE REAR OF THE LED DIGIT.

7. Reinstall the face using the sheet metal screws.

### Serviceable Component Location and Parts Identified

All components can be accessed by removing the face of the shot clock. To do this, remove the sheet metal screws holding the face in place along the perimeter with a 1/4-inch nut driver. Always disconnect power before removing the face and making repairs.

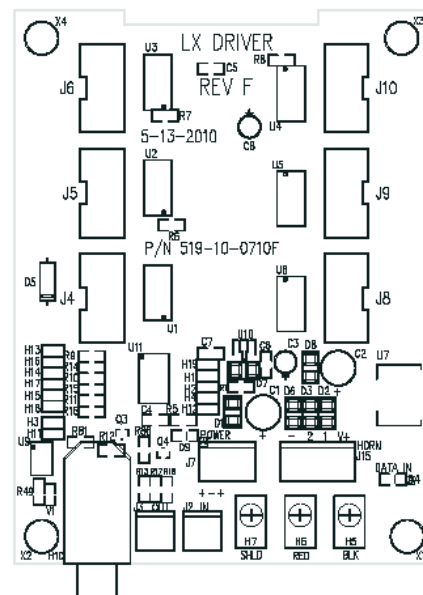
#### Internal Shot Clock Components



#### LX Driver PCB Replacement

Electrical connections to the LX Driver Printed Circuit Board are made with ribbon cable polarized IDC sockets and locking ramp crimp terminals housings that mate with jacks on the PCB. Four machine screws are used to secure the Driver PCB in place.

LX11 PCB Jack	Function
J2	ScoreLink Input Data (if used)
J3	Output Data
J4	Shot Seconds units digit
J5	Shot Seconds tens digit
J6	Not used on this scoreboard
J7	DC Power Input
J8	Visual Horn Indicator
J9	Not used on this scoreboard
J10	Not used on this scoreboard
J15	Shot Horn/Backboard Lights
SHLD, RED, BLK	Data Input

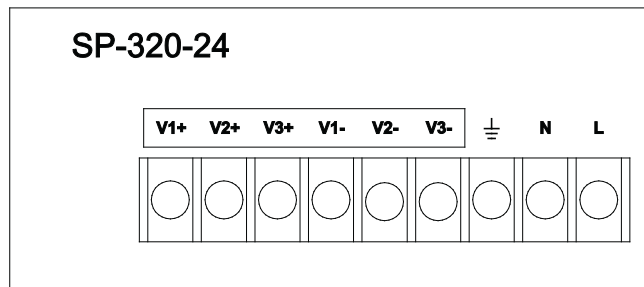


### *Power Supply Module Replacement*

The Model LX2160 uses a Mean Well SP-320-24 power supply module. Replacement modules are available from Electro-Mech or through distributors of Mean Well power supplies. The SP-320-24 power supply must be set to provide 18.9 VDC output, which is how it is configured when shipped from Electro-Mech. Connections are made to a set of screw terminals along the side of the power supply as illustrated below, along with a table listing the terminals and their corresponding functions.

**To avoid damage to the power supply module, always turn off the power to the scoreboard when removing or replacing it.**

A fuse holder with a 5 amp fuse is mounted above the Power Supply and connected inline with the incoming 120 VAC line side of the power coming in from Main Power terminal block. This fuse should only be replaced with one of the same type (5 amp, 250 volt, 3AG).



<b>Mean Well SP-320-24 Power Supply #1</b>	<b>Functions</b>
Line (L)	Main AC Power
Neutral (N)	
Ground	
V1 Positive (V1+)	LX11 Driver
V1 Negative (V1-)	
V2 Positive (V2+)	CPC connector for LED backboard light bar kit
V2 Negative (V2-)	
V3 Positive (V3+)	ScoreLink RF System (if used)
V3 Negative (V3-)	

# **Warranty**

## ***Electro-Mech Scoreboard Co. Five-Year Limited Warranty***

**The electrical components of all Electro-Mech scoreboards are guaranteed for a period of five (5) years from the date of invoice against defects in workmanship or material and will be replaced or repaired without cost to the owner, provided the equipment or parts are returned postage-paid to the factory in Wrightsville, GA. Shipping back to the owner will be via UPS ground service except when air or special method of return is specified by the owner, in which case shipping will be freight collect.**

**This warranty does not include labor charges incurred in the removal of component parts, service calls, or damages resulting from improper installation, improper operation, or problems caused by any repair, alteration or modification of the scoreboard not performed by Electro-Mech.**

**Equipment which is subjected to accident, neglect, abuse, misuse, or natural disasters, including but not limited to fire, wind, lightning, or flood, is not covered by this guarantee.**