



## OPERATING INSTRUCTIONS AND SERVICE MANUAL

### HOCKEY SCOREBOARD

MODEL MP-3589X WITH Shots On Goal Adder

And 199 Scoring

|                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                    |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>ADVERTISING PANEL</b>                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                    |  |
| <b>HOME</b>                                                                                                                                                                                                                                        |  | <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">             00:00           </div> <div style="border: 1px solid black; padding: 2px;">             00:00           </div> </div> |  |                                                                                                                                                                                                                                                    |  | <b>GUEST</b>                                                                                                                                                                                                                                       |  |
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| <b>GOAL</b>                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                    |  | <b>GOAL</b>                                                                                                                                                                                                                                        |  |
| <b>PLAYER</b>                                                                                                                                                                                                                                      |  | <b>PENALTY</b>                                                                                                                                                                                                                                     |  | <b>PLAYER</b>                                                                                                                                                                                                                                      |  | <b>PENALTY</b>                                                                                                                                                                                                                                     |  |
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| <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">             00:00           </div> <div style="border: 1px solid black; padding: 2px;">             00:00           </div> </div> |  | <b>SHOTS ON GOAL</b>                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                    |  | <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">             00:00           </div> <div style="border: 1px solid black; padding: 2px;">             00:00           </div> </div> |  |

EFFECTIVE S.N.9840, JANUARY 26, 1995

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## 1. GENERAL INFORMATION

### 1.1 DESCRIPTION

Your All-American scoreboard has been carefully inspected and tested before leaving the factory. It is possible, however, that components may be loosened or forced out of adjustment in transit. If this occurs, follow the troubleshooting guide (section 4). If equipment then fails to operate, contact immediately:

ALL-AMERICAN Service Department  
EVERBRITE LLC  
P.O. Box 100  
Pardeeville, WI 53954  
Telephone: (608) 429-2121  
Toll Free: 800-356-8146

Parts being returned for repair are to be sent to:

ALL-AMERICAN Service Department  
EVERBRITE LLC  
401 S. Main Street  
Pardeeville, WI 53954

#### **NOTE**

If you need to send parts in for repair, please call the ALL AMERICAN service department for a returned goods authorization (RGA) number.

### 1.2 Identification

ALL-AMERICAN uses a 4 digit serial number for scoreboard identification. The serial number tags are located on the back of the control console and the lower right hand corner on the face of the scoreboard display. When contacting the factory for assistance it is important that the model number and serial number are known.

### 1.3 Damage

Upon receipt, check for visible damage. If this occurs, or if damage is found after shipment has been accepted, follow the damage claim procedure.

### 1.4 Damage Claim Procedure

An instruction sheet is enclosed advising the consignee in case of damage in transit.

If damage is noted at the time of delivery, consignee must obtain an 'Inspection of Bad Order' from the delivering carrier. In order to process your claim, this must be properly filled out with a complete statement of all damage and it must be signed by the carrier.

If damage is discovered after delivery, you should call the delivery company. Have them make out a Concealed Damage Report. Fifteen days after delivery are allowed, so this should be done promptly or it is impossible to process this claim.

Advise EVERBRITE corporation of necessary replacement parts, or repairs. Consignee will be invoiced and then should file a claim with the carrier to recover charges. To file your claim follow this procedure:

(A) Cost of replacement parts, or repair charges, are invoiced to the carrier by the consignee.

(B) The following documents, properly filled out, plus invoice, are forwarded to the trucking company in support of your claim:

- (a) Original bill of lading
- (b) Original paid freight bill
- (c) Certified copy of original invoice
- (d) Standard form for presentation of loss and damage claim

## 2. INSTALLATION

### 2.1 General Information

Shipping papers accompany each scoreboard. Check carefully to see that you receive the following:

- 4 ea Hockey Displays
- 1 ea Control Console
- 1 ea Service Manual
- 1 ea Mounting Hardware Package
- 1 ea Wall Junction Box
- 1 ea Trumpet Horn
- ? ft Control Cable (if ordered)

#### IMPORTANT!

The MP-41 cable supplied by ALL AMERICAN SCOREBOARDS for use on the Microprocessor based scoreboards is specifically designed for this system. Use of a substitute cable may void the warranty on the scoreboard!

### 2.2 Inspection

Inspect each unit and tighten all screws, lamps, and fittings that may have loosened in shipment.

**NOTE**

A small length of rubber hose may be used as a lamp extractor. Simply taper the inside of the hose with a sharp knife to fit the lamp.

### 2.3 Pre-Test

Before installing the scoreboard, pre-test all functions.

### 2.4 Data Cable Installation

The MP-41 data cable carries only low voltage signals and therefore can be installed with or without conduit. consult section 6 for junction box and scoreboard wiring.

### 2.5 Electrical connections

This scoreboard requires a 120/208 V. 60 HZ 3 Phase 4 wire with ground 60 AMP service for the exclusive use of the scoreboard.

**NOTE**

To protect the MP-3000 control from damage, it is advisable that you disconnect the control and store in a dry secure area when not in use.

**NOTE**

This equipment is **ETL** (Electronics Testing Laboratories) **CSA** and **NRTL** approved and complies with the requirements in part 15 of the FCC rules for a class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and television reception, requiring the operator to take whatever steps are necessary to correct the interference.

## 3. CONTROL CONSOLE OPERATION

### 3.1 Scoreboard Power

Turn on the branch circuits to the scoreboard. The Home and Guest scores will show "0" .

### 3.2 Console Display

The 2 line by 20 character Liquid Crystal Display module displays the scoreboard information entered from the keyboard. The following information is displayed continuously: Time, Home and Guest scores, Period, Auto Horn Enable, and Penalty Enable.

### 3.3 Console Power

Plug the control console cable into the wall junction box.

Push **ON/OFF** once to turn the console on.

Push **ON/OFF** a second time to shut the console off.

When first turned on; the console display should show as follows.

**SCOREBOARD CONTROL**  
**1991 VERSION 3.3**

### 3.4 To Use Scoreboard For Hockey

Enter the two digit code (40) shown in the lower right corner of the keyboard as in the following example:

Push **CODE** **4** **0** **ENTER .**

When the proper code has been entered, the timer will show ":00" and the console display will show as follows.

**0 :00 0**  
**0 H 0**

### 3.5 Time Setting and Control

To set an 8 minute period, Push: **SET** **8** **0** **0** **ENTER .**

Any time up to 99:59 may be preset in a similar manner.

The **UP/DN** key determines the timer mode. When in the UP mode an arrow up symbol is displayed next to the time on the LCD display. If in the DOWN mode there is no arrow displayed.

Switching the time toggle switch to the IN and OUT position, starts and stops the timer.

Push **RESET** to return the timer to the previously set value.

### 3.6 Team Scores

The Home and Guest Scores can be changed in three different ways.

(A) To add 1 to the existing score: Push **+1 .**

(B) To directly enter or correct a score: Push Home or Guest **SCORE** followed by the desired number, then **ENTER** .

Example: Present Home Score is 15. Change the score from 15 to 23.

Push: Home **SCORE** **2** **3** **ENTER** .

(C) To clear the score: Push **SCORE** **CLEAR** .

### 3.7 Goal Indicator

Push **GOAL** to illuminate the appropriate goal indicator.

The LCD will show the letter G when the goal indicator is on.

### 3.8 Horn

The horn will blow for 1/2 second each time **HORN** is pressed.

The horn will blow automatically at the end of each period for 2 seconds.

The automatic horn function may be disabled by using the **AUTO HORN** key.

An 'H' is displayed on the LCD when this function is enabled.

### 3.9 Period Indicators

Push **PERIOD** once to increment the period indicator. The LCD display will show the period directly below the time.

### 3.10 Time out Period

An automatic time out period of 1 minute is provided for "Time Outs" when the main timer is not running.

Push: **TIME OUT TIMER** to start the 1 minute timer. The LCD will show "TIME OUT = 1:00" and start to count down. When 1 minute has elapsed the internal beeper sounds, and the display returns to the current game time.

If you want to return to play before the Time Out Timer gets back to zero,

push: **CLEAR** and the console will return to play mode.

### 3.11 Player Number and Penalty Time Operation

To set a penalty time push: **PEN 1** or **PEN 2** followed by the penalty

time, then **ENTER**, then the player number and **ENTER** again.

EXAMPLE: If Player number 12 has a 3 minute penalty, and this is the first penalty, key in the following.

**PEN 1** **3** **0** **0** **ENTER** **1** **2** **ENTER** .

To enable the timers, push: **PEN ON** .

### 3.12 Basketball Operation

When using the MP-3589X scoreboard for basketball, replace the Hockey slipsheet with the Basketball slipsheet. The code is 58 for Basketball. All keyboard entries are made in the same way as for hockey, with the following exceptions:

The console LCD display shows; time, home and guest score, home and guest team fouls, period, ball possession, bonus, and auto horn enable, and 1/10 second enable continuously.

The **+1**, **+2**, and **+3** keys now control the team scores.

### 3.13 Team Fouls

The Home and Guest team fouls are entered in the same manner as the home and guest team scoring direct entry method.

Example: Present guest team foul is 3. Change to 4.

Key in Guest **FOUL** **ENTER** .

The scoreboard display will now show 4 team fouls for the guest team.

### 3.14 Player Number and Player Fouls

The player number and player fouls information is entered as in the following example:

If player number 25 gets a foul;

Push **PLAYER NO.** **2** **5** **ENTER** **1** **ENTER** .

The control console memory will store the player numbers and fouls for 15 players for each team. This information may be viewed on the LCD display at any time.

This information is now stored in memory. To view the information, push **HOME STATS** or **GUEST STATS** key. The first 8 player numbers entered, and their fouls are displayed.

Push the **HOME STATS** or **GUEST STATS** key a second time to display the next 7 player numbers and fouls. To return to normal game display, push **GAME DISPLAY** .

To clear a player number/foul from memory: push, **PLAYER NO.** followed by the number you want to clear, then **ENTER** **CLEAR** .

### 3.15 Boxing Operation

When using the scoreboard for Boxing, replace the console slipsheet with the boxing slipsheet. The code is 61 for boxing. Operation of all keys is similar to basketball operation.

## 4. MAINTENANCE AND TROUBLESHOOTING

### 4.1 Introduction

This section gives maintenance and troubleshooting information. Included are troubleshooting guides for typical scoreboard malfunctions. If the cause of a problem cannot be determined, please contact the customer service department.

### 4.2 Test Equipment

A simple analog or digital voltmeter will be sufficient for all user repairable problems. Printed circuit boards requiring troubleshooting should be returned to the factory.

#### WARNING

120 VAC wires are exposed whenever the cover over the controller assembly is removed from the scoreboard. Use extreme caution during troubleshooting or repair. To avoid possible damage always remove power before removing the cover or replacing assemblies.

### 4.3 Troubleshooting

Whenever possible, follow the troubleshooting guides prior to contacting the customer service department. If a problem not described in the guides exists, contact the customer service department immediately. Refer to the diagrams provided for assistance in troubleshooting scoreboard malfunctions.

### 4.4 Troubleshooting Guides

#### (A) Scoreboard doesn't light and console doesn't work

- (a) Check that the main power switch is turned on.
- (b) Replace any defective or blown fuses.
- (c) Check the power connections and voltages at the scoreboard.
- (d) Contact the customer service department.

(B) Scoreboard digits don't light, but the console works

- (a) With the main power switch "off"; remove the cover over the controller assembly.
- (b) Check all connections.
- (c) Turn the main power on.
- (d) If the scoreboard still doesn't light, check the transformer voltage going to the receiver PCB (printed circuit board) assembly (blue wires) using a voltmeter set on the 12 VAC or higher scale.

If the voltage is less than 8 VAC contact the customer service department.

If the voltage is between 8-12 VAC see the replacement parts list for a receiver PCB assembly, and contact the customer service department.

(C) The scoreboard digits light but the console doesn't work

- (a) Check for continuity between the scoreboard and the junction box.
- (b) If an open circuit is found, the problem is either the cable or a cable connection.
- (c) If the continuity test checks good, check the voltage between the green wire and the white wire in the junction box, using a voltmeter set on the 12 VAC or higher scale.

If the voltage is 0 VAC see the controller parts list for a transformer assembly.

If the voltage is less than 8 VAC consult the controller wiring diagram for instructions on long cable compensation.

If the voltage is between 8 VAC and 12 VAC contact the customer service department.

(D) The scoreboard digits light, the console works, but there is no control of the scoreboard.

- (a) Check the voltage between the black and red wires in the junction box with a voltmeter set on the 3 VDC or higher scale. The voltage should read somewhere between 2-3 VDC when the console is working properly.
- (b) If the voltage is 0 VDC contact the customer service department for assistance.
- (c) If the voltage is correct, (2-3 VDC) check that this reading also appears at the scoreboard.
- (d) If the correct voltage also appears at the scoreboard, see the replacement parts list for a receiver PCB assembly.

(E) The scoreboard works, but some lights stay on all the time

- (a) With the main power "OFF", switch the plug from the bad digit with the plug for a known good digit.

EXAMPLE: Plug "C" into "D" and "D" into "C" locations.

- (b) Turn the power back on. If the same lamps remain lit all the time, the problem is a shorted lamp socket. If the lamps on a different digit now stay lit all the time, the problem is on the driver PCB assembly. See the replacement parts list for the proper replacement part.

(F) The scoreboard works, but some lights do not come on.

(a) Check for burned out lamps.

**IMPORTANT !!!**

In this scoreboard the 120 volt line is on the lamp socket all the time, and the common is switched to turn the lamps on and off. For this reason, to avoid damage to the equipment or personal injury, it is important to turn the main power off when changing the lamps.

(b) Check for a broken wire or bad connection on the 12 pin connector.

(c) See the replacement parts list for the proper replacement driver board.

5. REPLACEMENT PARTS LIST

5.1 Scoreboard Display Parts

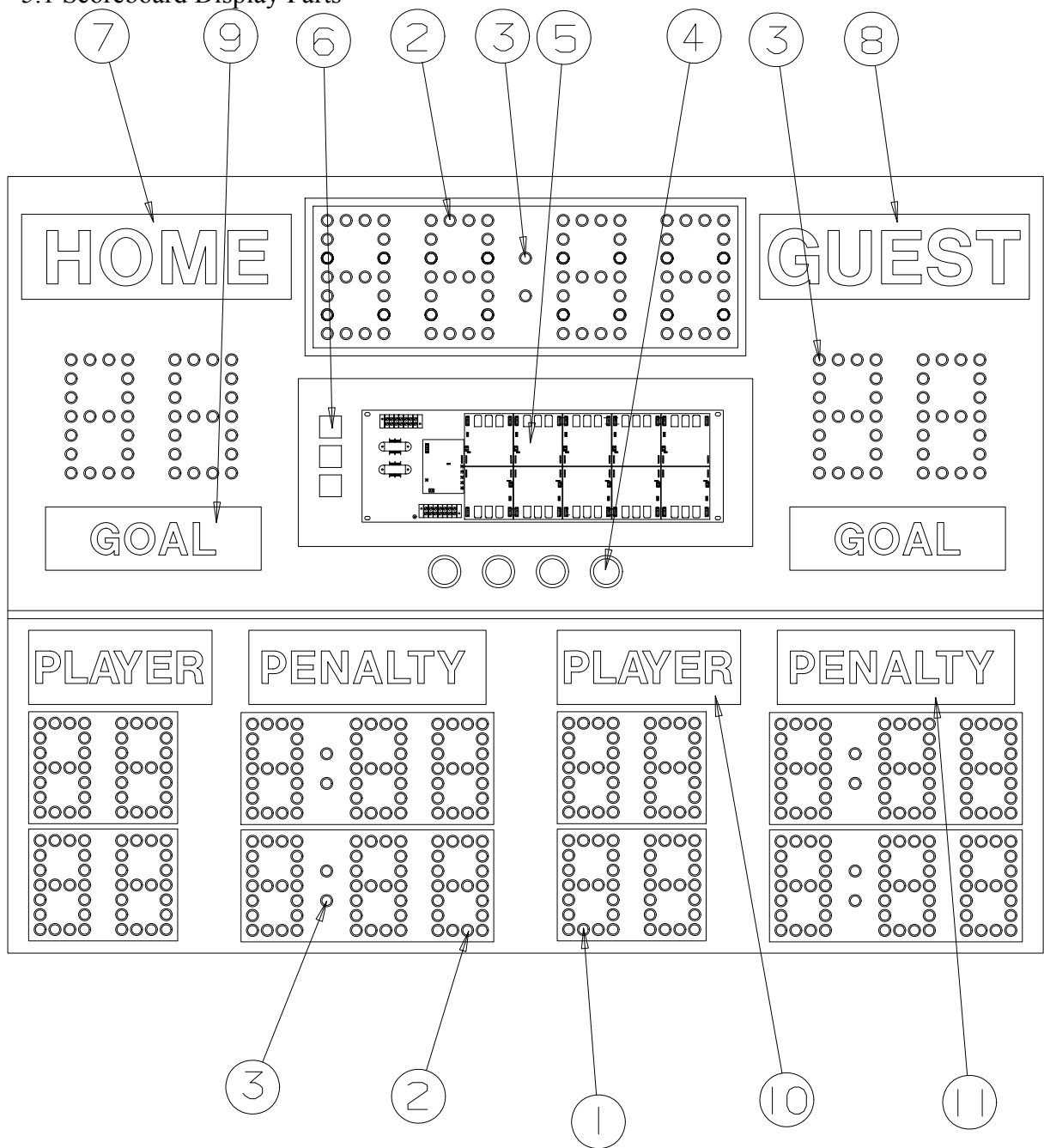


figure 1

DISPLAY ASSEMBLY

## REPLACEMENT PARTS LIST (MP-3589X)

| fig. &<br>index                                                          | MFG PART<br>NUMBER                                                                                 | DESCRIPTION                                                                                                                                                                                                             | REF<br>DES                                                   | VENDOR<br>PART #                                                                                          |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 1-<br>1-1<br>1-2<br>1-3<br>1-4<br>1-5                                    | 180163X<br>850000<br>850001<br>850002<br>850024<br>151362                                          | Display Assembly<br>Lamp, 7C7/125V Red<br>Lamp, 7C7/125V White<br>Lamp, 7C7/125V Amber<br>Lamp, 25W/130V Red<br>Controller Assembly                                                                                     | A2<br><br><br><br><br><br><br><br><br><br><br><br><br>F1-F10 | 180163<br>7C7/R<br>7C7/W<br>7C7/A<br>25A19 RED<br>151362                                                  |
|                                                                          | *****SEE FIGURE 2*****                                                                             |                                                                                                                                                                                                                         |                                                              |                                                                                                           |
| 1-6<br>1-7<br>1-8<br>1-9<br>1-10<br>1-11<br>1-12<br>1-13<br>1-14<br>1-15 | 119337<br>150036<br>150037<br>150038<br>150393<br>150075<br>850029<br>700102<br>EL055800<br>121880 | Line Filter, Mallory<br>Placard, Home<br>Placard, Guest<br>Placard, Goal<br>Placard, Player<br>Placard, Penalty<br>Lamp, 25W/130V IF<br>Resistor, 2 OHM 10 WATT<br>Terminal Block, 3C<br>Fuse, 15A 250V 1/4 X 1 1/4"    |                                                              | 20VB1<br>150036<br>150037<br>150038<br>150393<br>150075<br>25A19 IF<br>HLM-10-10Z<br>B-03 EAGLE<br>ABC-15 |
|                                                                          | SU4450<br>HB005500<br>HB002300<br>SW005100<br>702785<br>EL053000<br>HB002400<br>WH009100<br>122763 | Control Console<br>Slipsheet Pair<br>Transmitter PCB Assembly<br>Toggle Switch,<br>Connector, 5 Pin Male Cable<br>LCD Display, 2 Line 20 Character<br>Keyboard Assembly,<br>Ribbon Cable Assembly, 14C 8"<br>Enclosure, | A1<br>S1<br>P1                                               | SU4450<br>HB005500<br>HB002300<br>SW005100<br>RM12BPG5P<br><br>HB002400<br>WH009100                       |
|                                                                          | 151204<br>702786<br>150500<br><br>150205<br>700618                                                 | Wall Junction Box, Single<br>Connector, 5 Pin Female<br>Cable, MP-41 Control<br><br>Wall Junction Box, Dual<br>Diode, 1N457A                                                                                            | J1-J3<br><br><br>D1/D2                                       | 151204<br>RM12BRD5S<br>8723<br><br>150205                                                                 |

## 5.2 Scoreboard Controller Assembly Parts

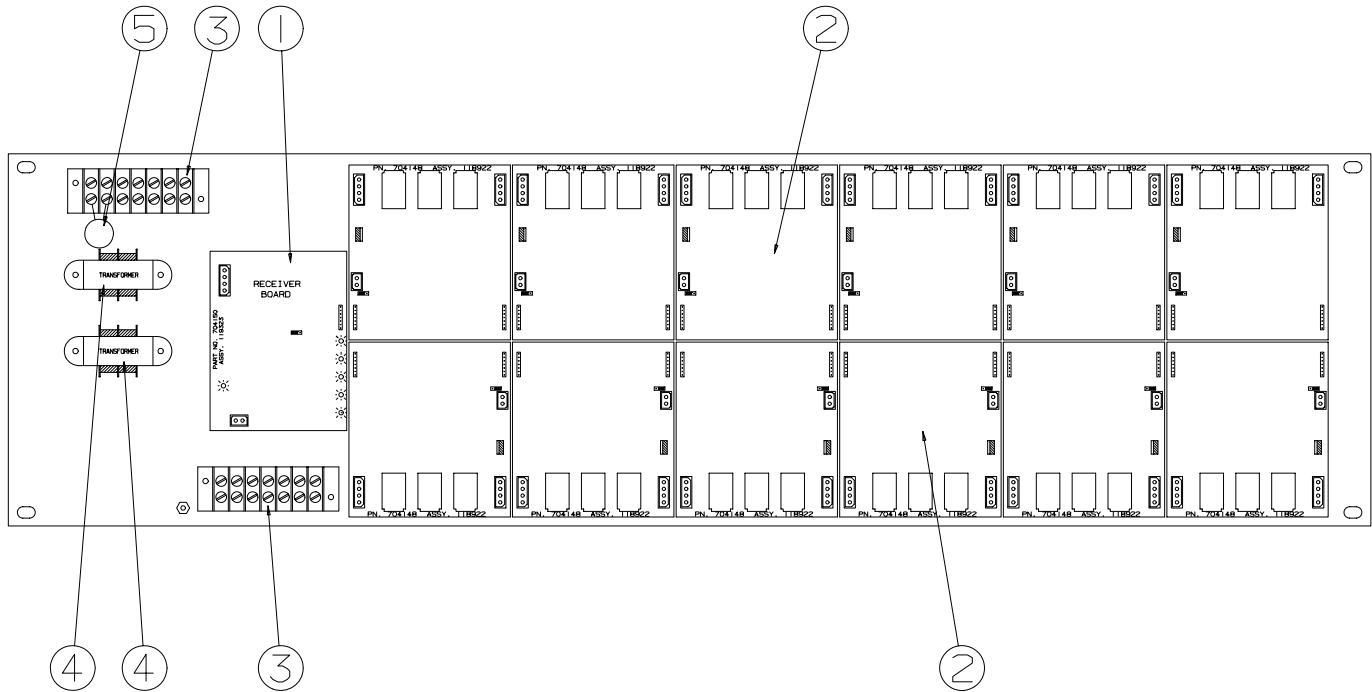


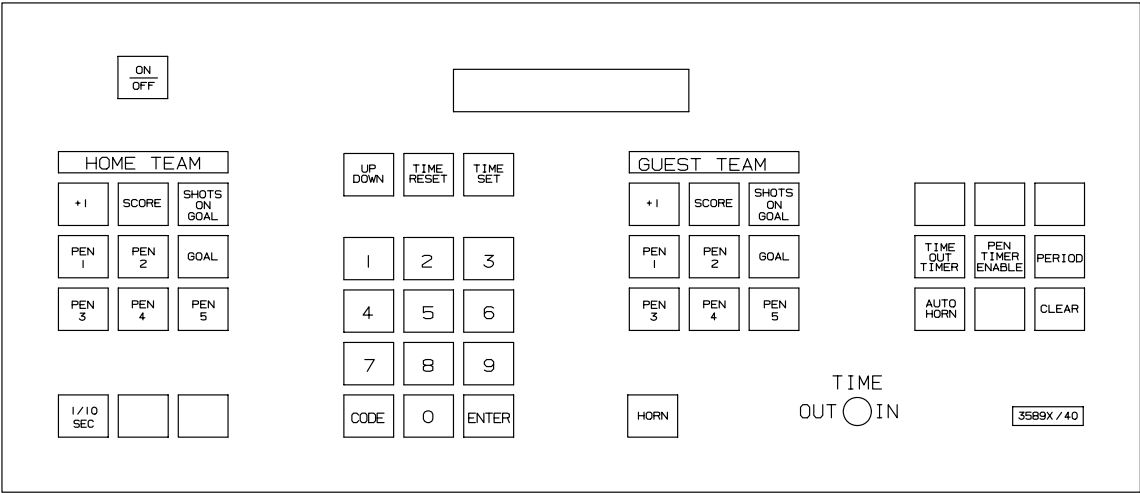
figure 2

### CONTROLLER ASSEMBLY

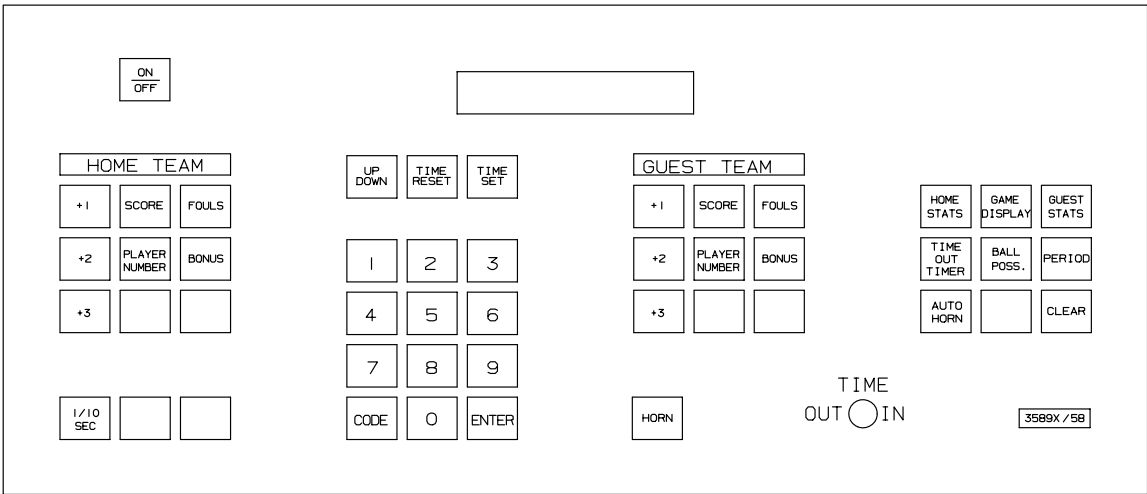
| REPLACEMENT PARTS LIST (MP-3589X Controller Assembly) |                 |                                    |         |               |
|-------------------------------------------------------|-----------------|------------------------------------|---------|---------------|
| fig.& index                                           | MFG PART NUMBER | DESCRIPTION                        | REF DES | VENDOR PART # |
| 2-                                                    | 151362          | Controller Assembly                | A2      | 151362        |
| 2-1                                                   | 119323          | Receiver PCB Assembly              | A3      | 119323        |
| 2-2                                                   | 118922          | Driver PCB Assy, 3 Position #1-#12 | A4-15   | 118922        |
| 2-2A                                                  | 930674          | Cable Assy, 3" Ribbon W/ 7C Fem.   |         | CE100F22-7    |
| 2-3                                                   | 701137          | Terminal Block, 7C                 |         | 670-7         |
| 2-4                                                   | 703719          | Transformer Assy, 8V/18V           | T1/T2   | CS-697        |
| 2-5                                                   | 700520          | Varistor,                          |         | ERZ-C20DK201U |
| 2-6                                                   | 705723          | Spacer, P.C. Board                 |         | LCBS-6-01     |

6. DIAGRAMS

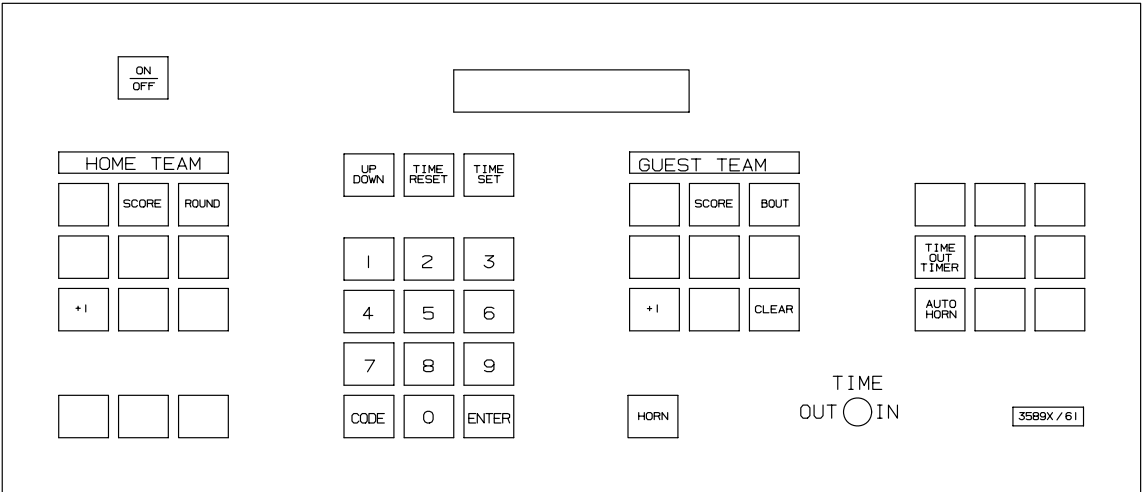
6.1 Control Console Keyboard and Slipsheet Layout



HOCKEY



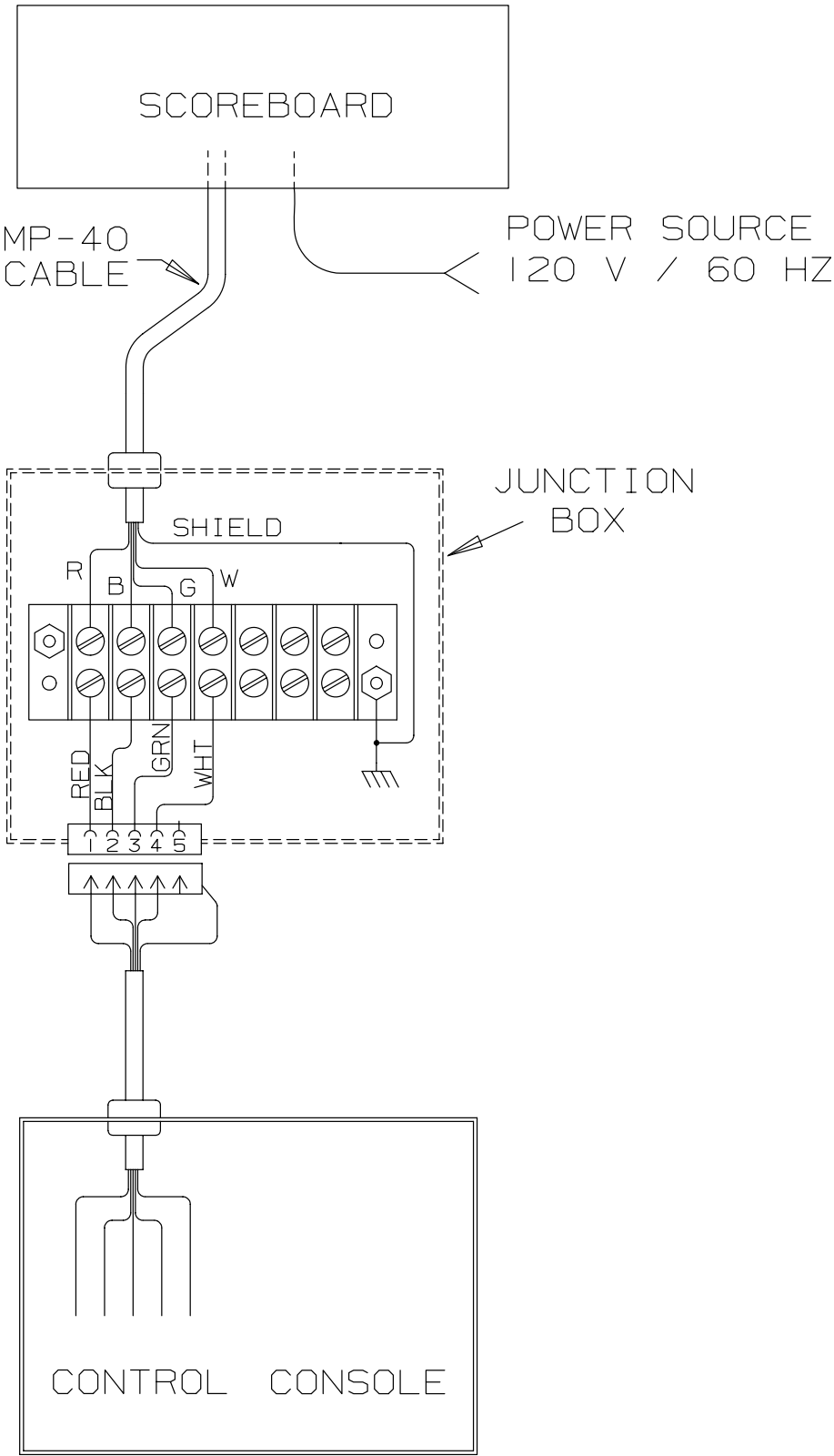
BASKETBALL



BOXING

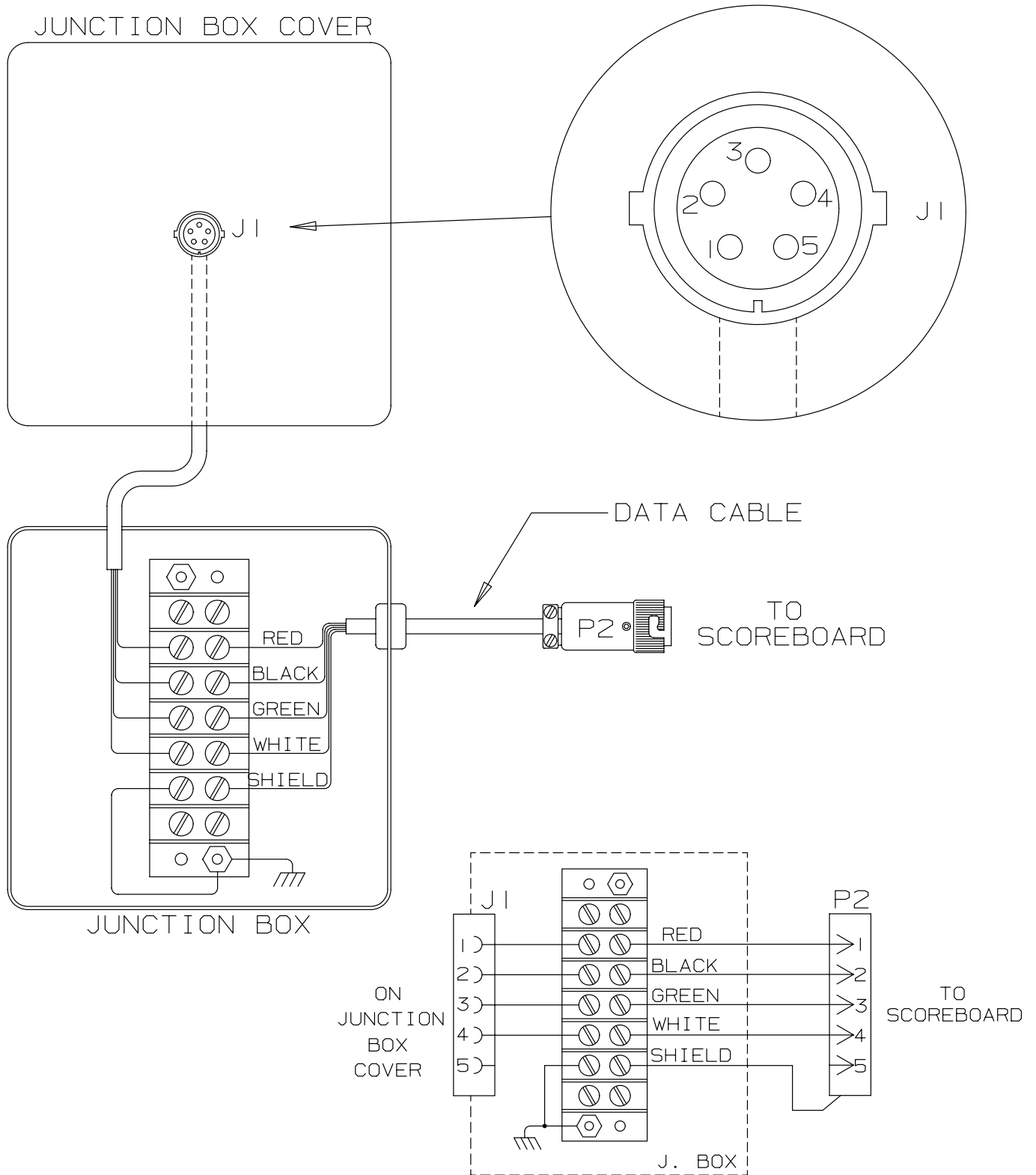
CONSOLE KEYBOARD

6.2 Scoreboard System Layout



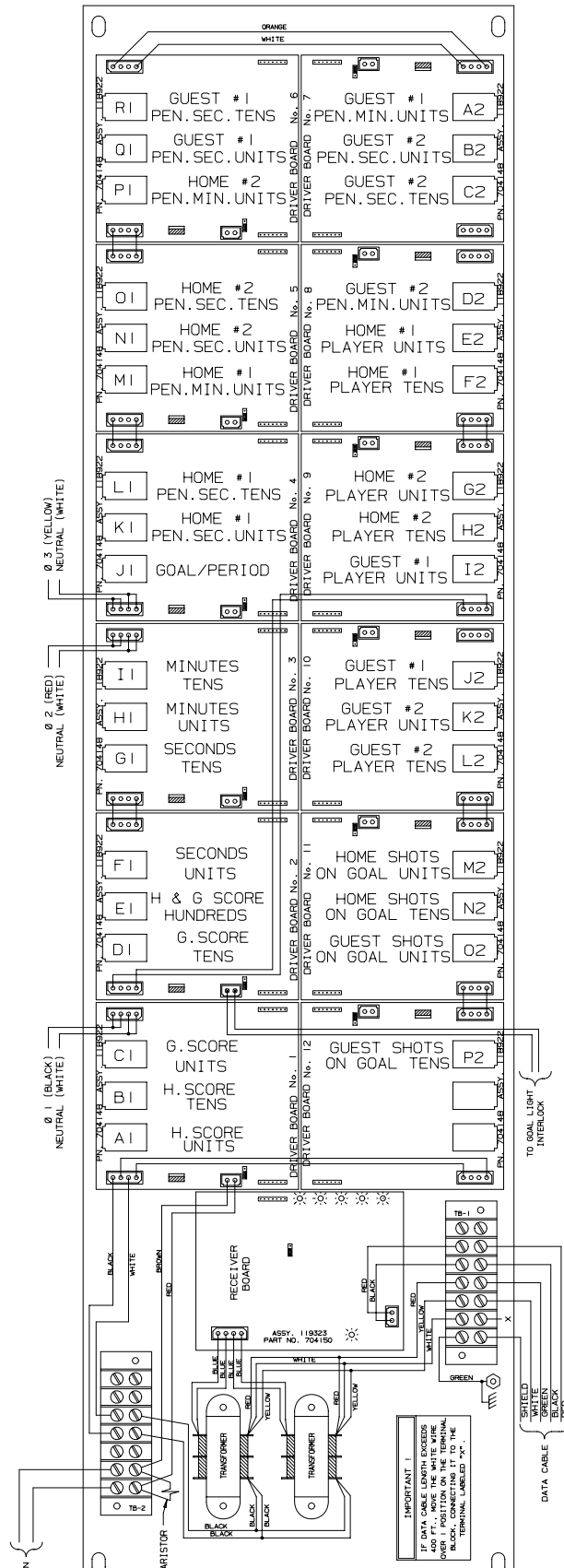
## SYSTEM LAYOUT

### 6.3 Single Wall Junction Box Wiring



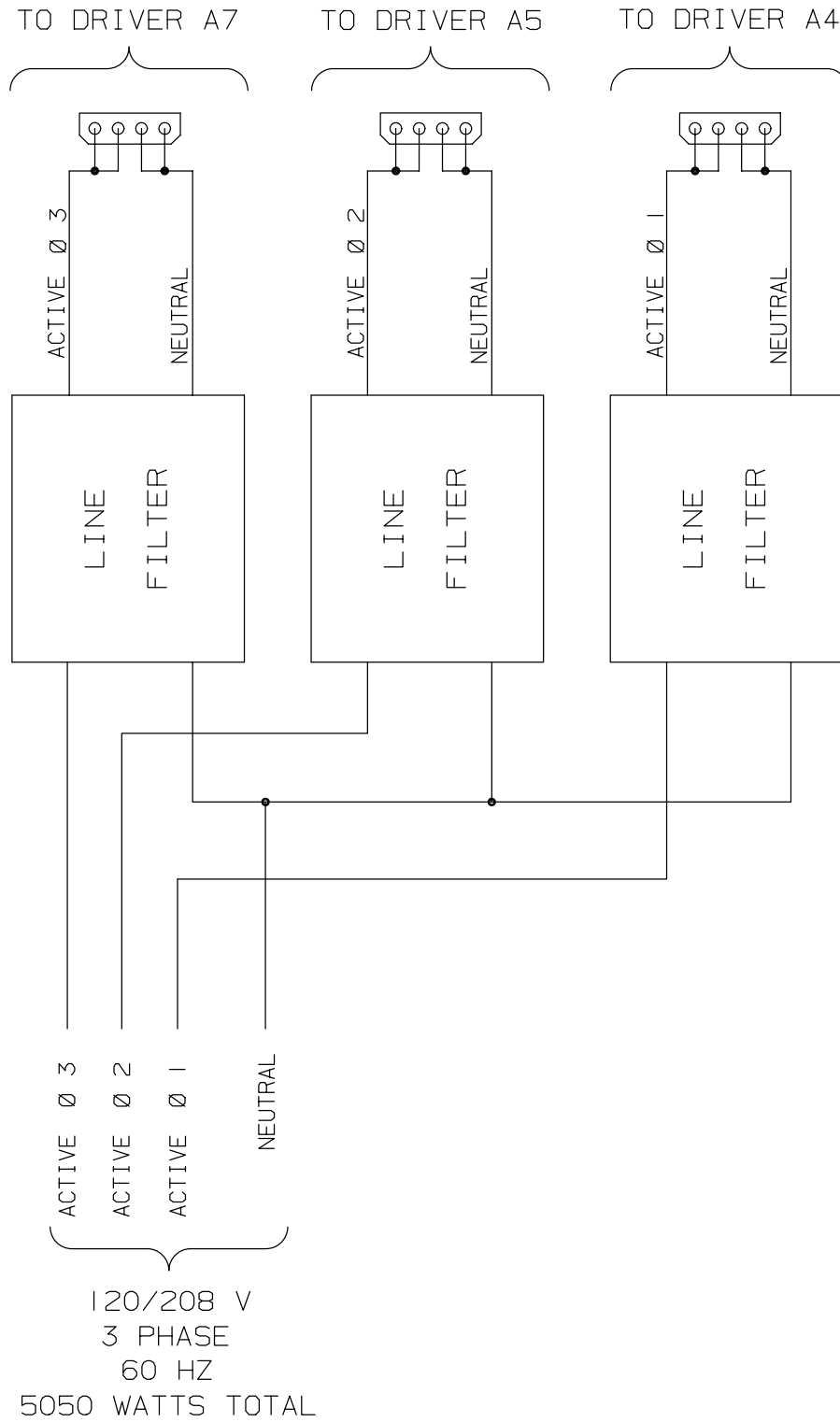
# SINGLE WALL JUNCTION BOX WIRING

## 6.5 Controller Assembly Wiring



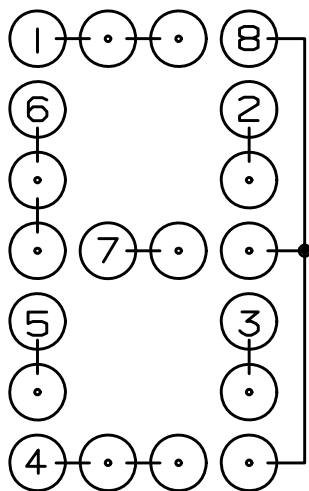
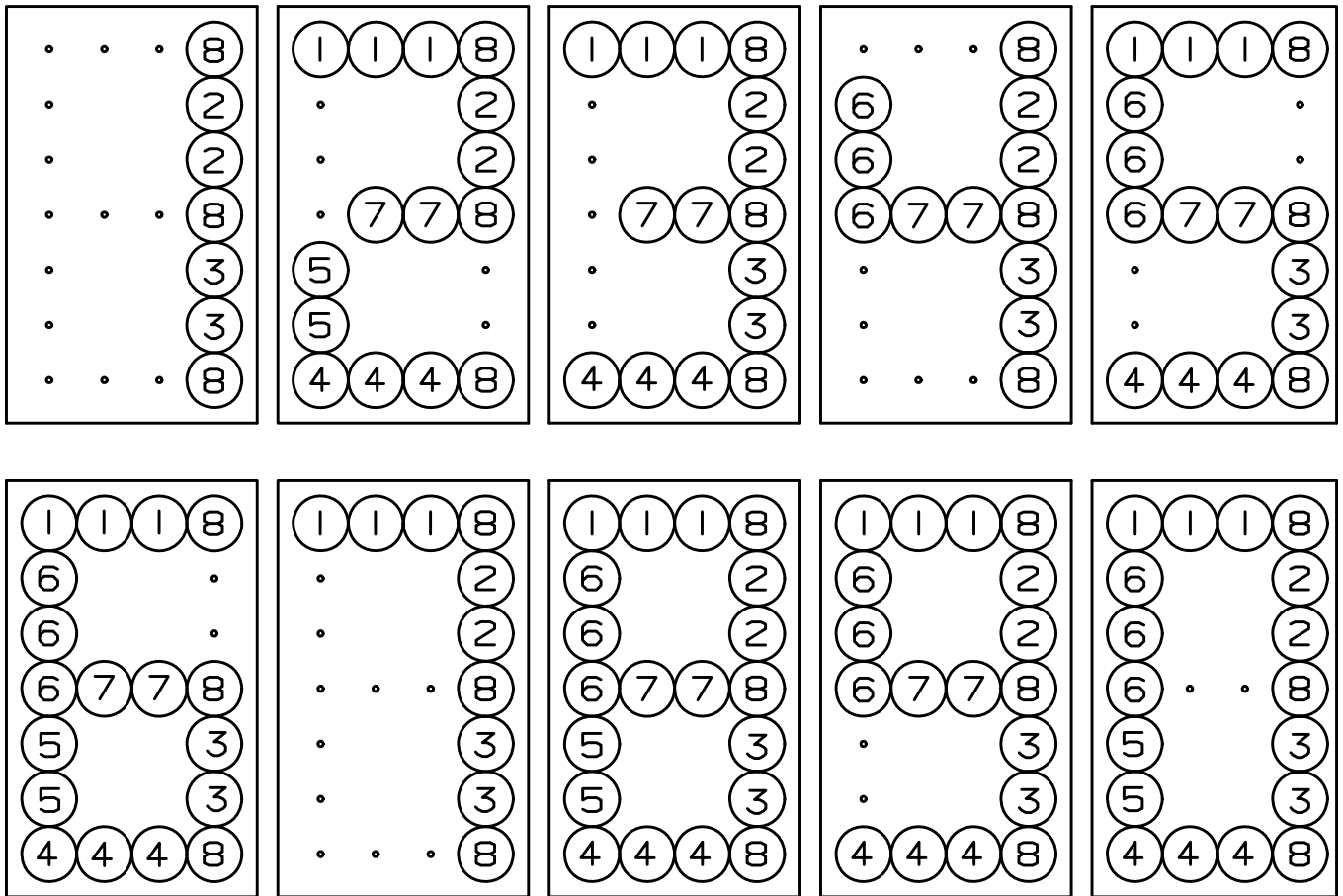
## CONTROLLER ASSEMBLY

### 6.6 Line Filter Wiring Diagram



## LINE FILTER WIRING

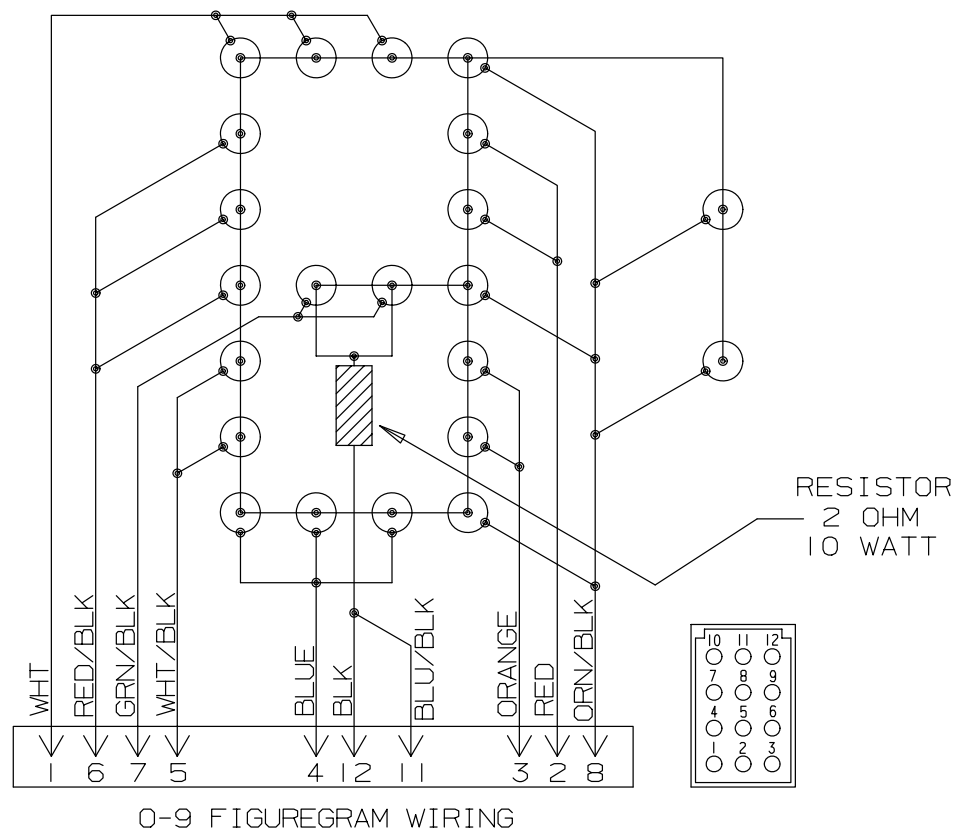
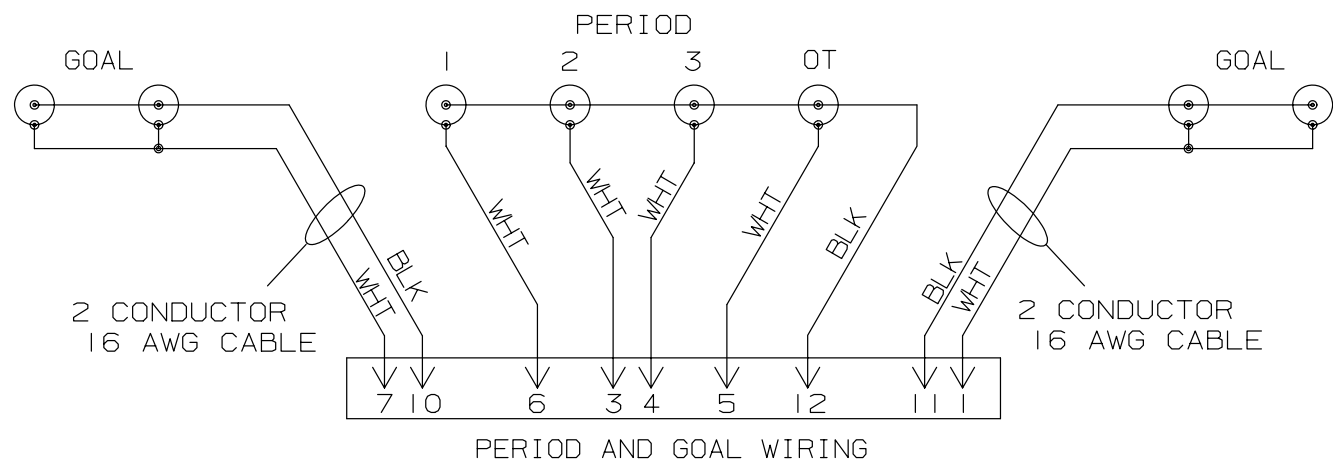
## 6.7 Microprocessor 4 X 7 Lamp Pattern (8 Bit)



|             |   | NUMERALS |   |   |   |   |   |   |   |   |   |
|-------------|---|----------|---|---|---|---|---|---|---|---|---|
| BIT NUMBERS |   | 0        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|             | 1 | 0        | . | 2 | 3 | . | 5 | 6 | 7 | 8 | 9 |
|             | 2 | 0        | 1 | 2 | 3 | 4 | . | . | 7 | 8 | 9 |
|             | 3 | 0        | 1 | . | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|             | 4 | 0        | . | 2 | 3 | . | 5 | 6 | . | 8 | 9 |
|             | 5 | 0        | . | 2 | . | . | . | 6 | . | 8 | . |
|             | 6 | 0        | . | . | . | 4 | 5 | 6 | . | 8 | 9 |
|             | 7 | .        | . | 2 | 3 | 4 | 5 | 6 | . | 8 | 9 |
|             | 8 | 0        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

MICROPROCESSOR 4 X 7 (8 BIT) LAMP PATTERN

6.8 Figuregram Wiring



8 BIT FIGUREGRAM WIRING

## 6.9 Jumper Location on 3 Position System

All of the 3 position drivers and receivers are identical except for the jumper on each board. Make sure the jumpers are set for the model of scoreboard you are installing them into.

- (A) On the receiver board (refer to figure); Jumper pins 2 & 3 for models MP-3385, MP-3312, MP-3529, and MP-3549. Jumper pins 1 & 2 for all other models.
- (B) On the driver board (refer to figure); Jumper pins 1 & 2 for use of a horn. Jumper pins 2 & 3 for all others.

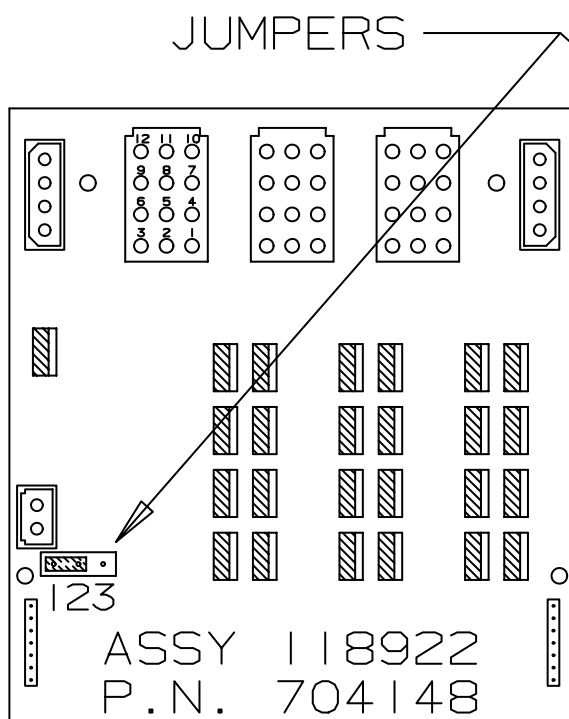


FIGURE A

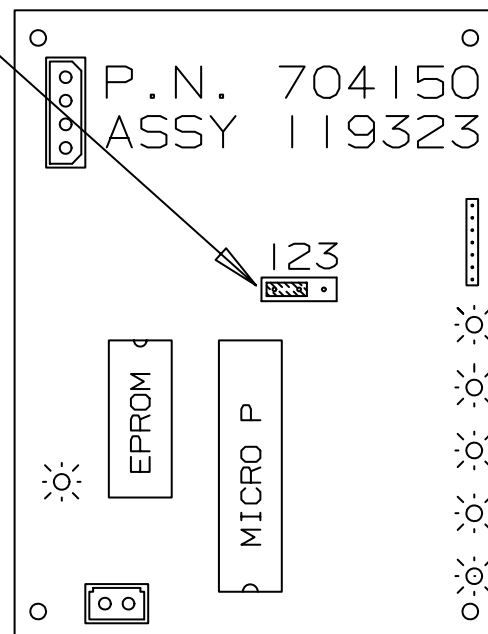
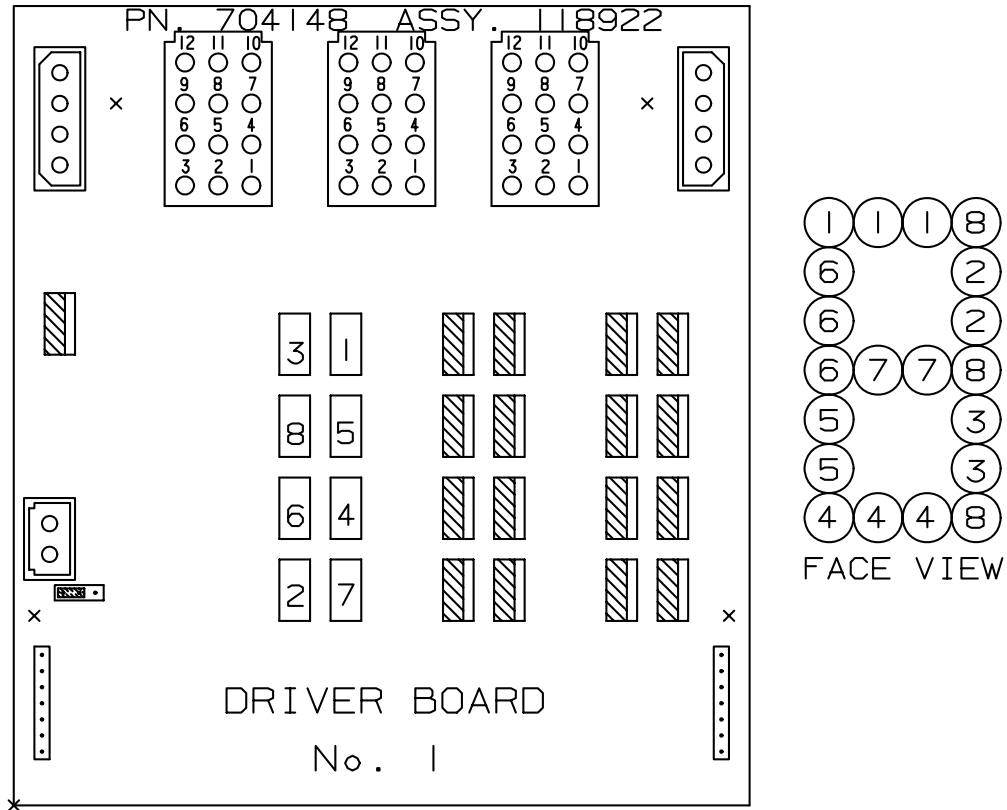


FIGURE B

## JUMPER LOCATION

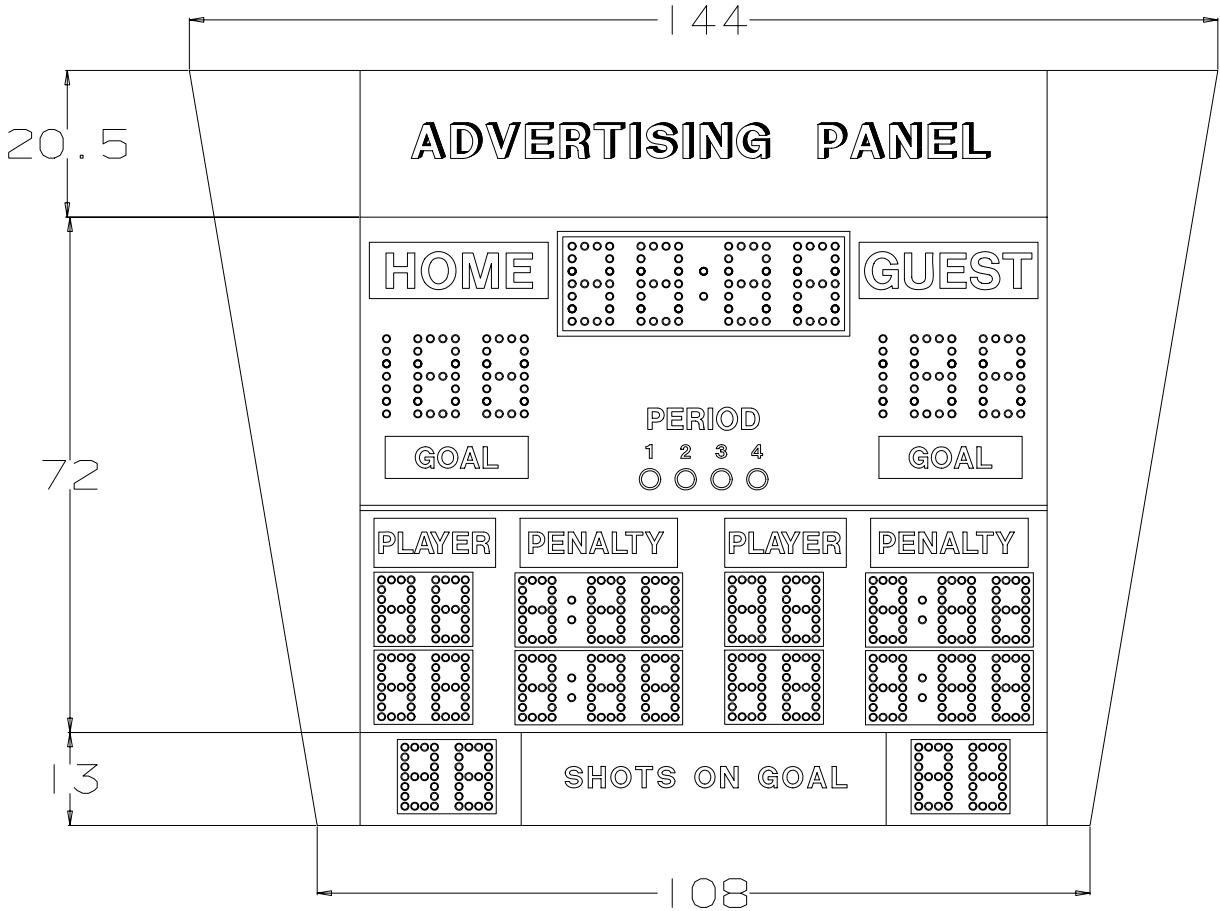
### 6.10 Triac Placement

The triac is the switch that controls the figuregram lamps. The triacs for any given figuregram are adjacent to the twelve pin connector on the driver board that controls that figuregram. Shown below is the triac placement and bit designation relative to the figuregram bit pattern.



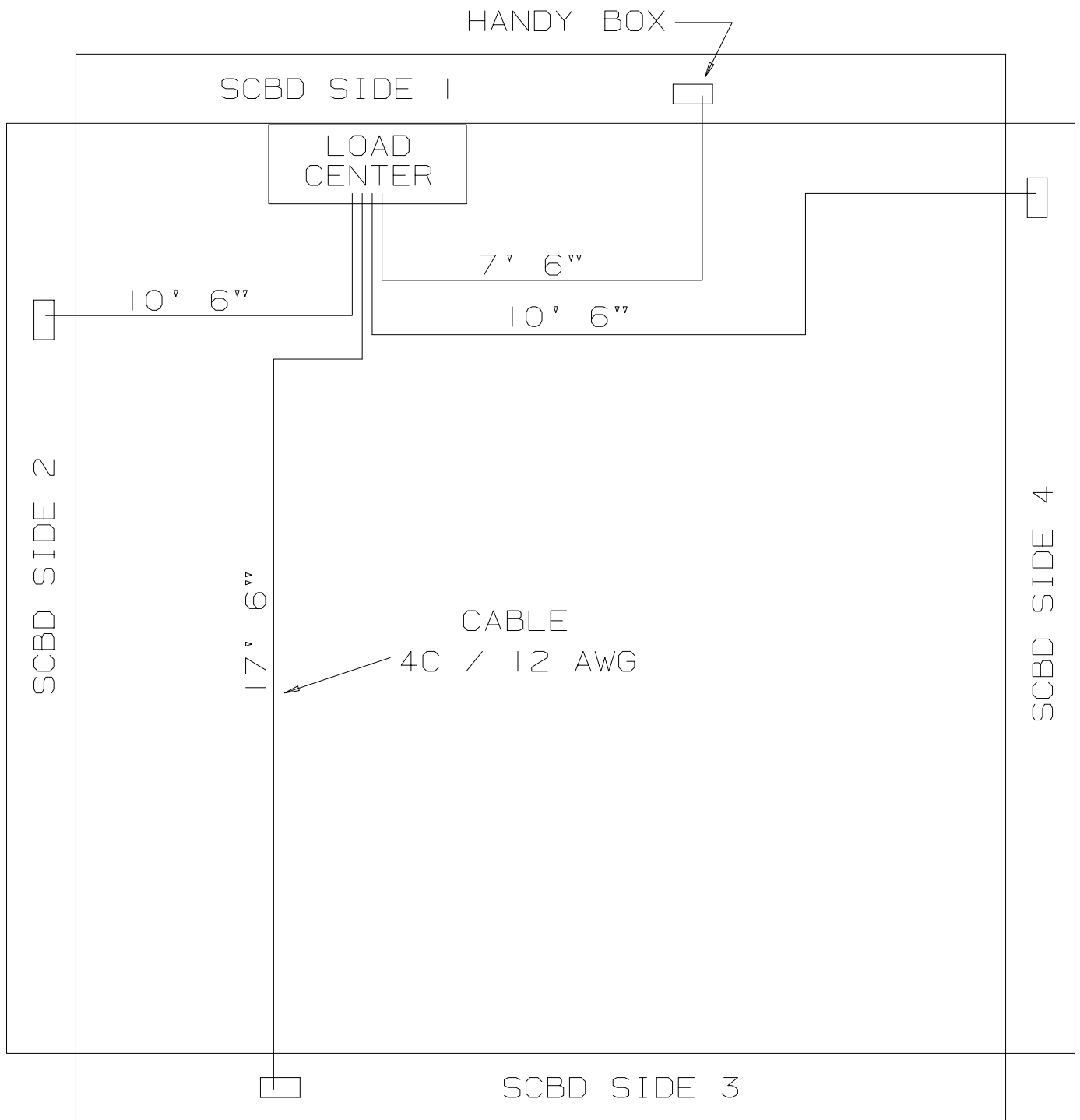
MP TRIAC PLACEMEN

6.11 Installation Drawing



## INSTALLATION DRAWING

### 6.11 Installation Drawing



## INSTALLATION DRAWING