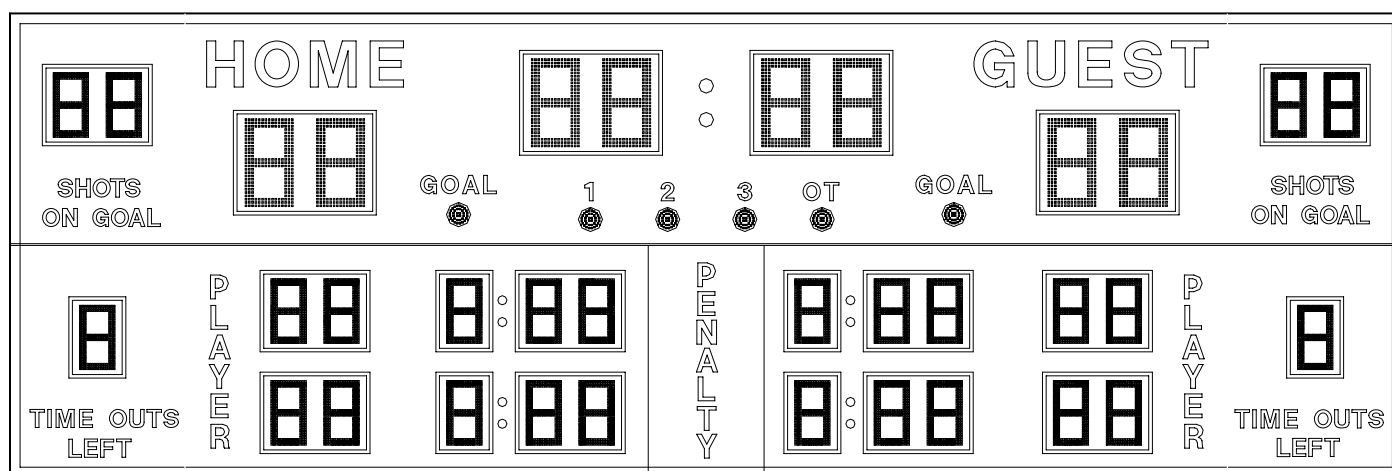


# **ALL AMERICAN** **SCOREBOARDS**™

**[www.allamericanscoreboards.com](http://www.allamericanscoreboards.com)**

MP-7524 Outdoor Hockey Scoreboard with MP-5000 Control Console  
 Operating Instructions and Troubleshooting Guide



EFFECTIVE S.N.XXXX, SEPT. 13, 1996

## Table of Contents

Section	Pages
<b><u>1. General Information</u></b> .....	<b>2-3</b>
1.1 Description	
1.2 Identification	
1.3 Included Components	
1.4 Damage	
1.5 Damage Claim Procedure	
1.6 Repair Procedure	
<b><u>2. Installation</u></b> .....	<b>4-4</b>
2.1 Inspection	
2.2 Initial Testing	
2.3 Data Cable Installation	
2.4 Electrical Connection	
2.5 General Installation Instructions	
<b><u>3. Scoreboard Operation</u></b> .....	<b>5-6</b>
3.1 Scoreboard Power	
3.2 Control Console Display	
3.3 Control Console Operation	
3.3.1 Control Console Power	
3.3.2 Initial Operation	
3.3.3 Team Score Operation	
3.3.4 Inning Operation	
3.3.5 Ball, Strike, and Out Operation	
3.3.6 Dimming Operation	
<b><u>4. Maintenance and Troubleshooting</u></b> .....	<b>7-8</b>
4.1 Introduction	
4.2 Test Equipment	
4.3 Troubleshooting Guide	
<b><u>5. Replacement Parts List</u></b> .....	<b>9-11</b>
5.1 Scoreboard Display Parts	
5.2 Scoreboard Controller Assembly Parts	
<b><u>6. Diagrams</u></b> .....	<b>12-22</b>
6.1 Control Console Layout and Slipsheet	
6.2 Scoreboard System Wiring Layout	
6.3 Junction Box Wiring	
6.4 Power Wiring	
6.5 Controller Assembly Layout and Wiring	
6.6 Microprocessor 4x7 Lamp Pattern (8-bit) (A-12497)	
6.7 Figuregram Wiring Diagram	
6.8 Jumper Location on 3-Position System Circuit Boards	
6.9 Triac Placement Diagram	
6.10 Installation Drawings	

## 1. General Information

### 1.1 Included Components

Shipping papers are sent with every scoreboard manufactured by All American Scoreboards.

Check your shipment carefully to see that you have received the following parts:

- A) 1 Hockey Scoreboard (2 pieces)
- B) 1 Control Console (MP-7524 Slipsheet)
- C) 1 Service Manual
- D) 1 Mounting Hardware Package
- E) 1 AC Power Adapter
- F) Horn (if ordered)

### **Note:**

This device is UL 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.

### 1.2 Identification

All American Scoreboards uses a serial number for scoreboard and component identification.

The serial number labels are located on the back of the control console and the back of the scoreboard near the power cable. When contacting the service department, it is very important that the model number and serial number are both available in order to receive the best and most efficient assistance.

### 1.3 Damage

When you receive shipment of your scoreboard, immediately check for any visible damage that may have occurred during shipping. If severe damage is immediately noticed, refuse shipment of the scoreboard and notify All American that shipment was refused for damage. If minor damage is noticed, you may sign for the scoreboard, but make sure to note any damage to the crate or product on the shipping receipt. If damage is noticed after the shipment has been accepted, follow the damage claim procedure (section 1.5). In any case of damage, whether it is noticed before or after receipt of the scoreboard, All American Scoreboards should be notified immediately at 1-800-356-8146 in order to obtain the best possible service.

### 1.4 Damage Claim Procedure

If damage is not immediately noticed, but is noticed after unpacking the scoreboard, contact the delivery company immediately. It is very important that the product is inspected within 24-48 hours of receipt, and if damage is noticed, the carrier must be notified immediately. All American Scoreboards should also be contacted at this time and informed of any replacement parts or repairs necessary.

### 1.5 Description

Your All American scoreboard has been carefully inspected and tested before leaving the factory. Despite our best efforts, however, some components may occasionally become loose during shipping. If this happens to your scoreboard, follow the troubleshooting guide in section 4. If the troubleshooting guide fails to remedy the problem, please contact us immediately at:

Manual for MP-7524 with MP-5000 Control Console  
**All American Service Department**  
**Everbrite, LLC**  
**P.O. Box 100**  
**Pardeeville, WI 53954**  
**Phone: (608) 429-2121**  
**Toll Free: (800) 356-8146**  
**E-mail: score@everbrite.com**

Parts being returned for service should be sent to:

**All American Service Department**  
**Everbrite, LLC**  
**401 S. Main St.**  
**Pardeeville, WI 53954**

#### 1.6 Repair Procedure

For parts needing repair, the following procedure should be followed.

1. Call the All American service department at 1-800-356-8146 for a Return Goods Authorization number.
2. Send the parts to the service department for repair

**All American Service Department**  
**401 S. Main St.**  
**Pardeeville, WI 53954**

3. Please include the RGA number on the outside of the package for ease of identification

## 2. Installation

### 2.1 Inspection

Upon receipt of scoreboard, inspect each unit and tighten all parts that may have become loose during shipping.

### 2.2 Location

It is recommended that the scoreboard be located in the position best suited for visibility by the majority of the spectators. If day games will be played, it is preferred that the scoreboard face east or north to avoid direct sunlight on the face, thereby providing the best visibility.

### 2.3 General Installation Instructions

Your All American MP-7524 scoreboard is shipped in two parts, a top and a bottom. As a result, all cables from the top section will need to be pulled into the bottom cabinet during installation in order to connect them to the controller.

For general installation diagrams, see section 6.

### 2.4 Electrical Connection

Your All American scoreboard requires a dedicated 120 Volt, 20 Amp AC circuit.

### 2.5 Data Cable Installation

The MP-40 data cable carries only low-voltage signals, so it can be installed either with or without conduit. It is strongly recommended, however, that it be installed in conduit to avoid cable damage by skates or other possible sources of damage. Consult section 6 for wiring diagrams to connect the data cable to the scoreboard and junction box.

### **Caution:**

The MP-40 cable supplied by All American Scoreboards is specially designed for use on All American's microprocessor based scoreboards. Use of any other cable may void the warranty.

### 3. Scoreboard Operation

#### Note:

To protect the control console from damage, it is advised that it is disconnected after use and stored in a secure, dry area. A carrying case to protect your investment is available for purchase from All American Scoreboards.

#### 3.1 Scoreboard Power

Turn on the power to the scoreboard. Initial power-up should display “0” in both Home and Guest scores. The timer should also display “:00” on initial power-up.


#### 3.2 Control Console Display

The Liquid Crystal Display (LCD) in the control console displays the scoreboard information entered into the control console. Under normal operation, the following information is displayed on the LCD: Time, Home Score, Guest Score, Shots on Goal, Player Number and Penalty Time, Goal, Period, Time Outs Left, and Auto Horn Enable

#### 3.3 Control Console Operation


##### 3.3.1 Control Console Power

1) Plug the control console into the junction box.

2) Push  once to turn the control console on.

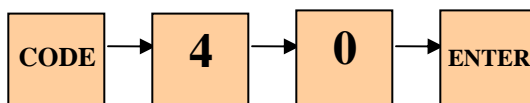
3) On power-up, the control console LCD should display:

Multi-Sport Control MP5000 v 2.33 2006
---

4) Push  a second time to turn the control console off.

##### 3.3.2 Initial Operation


To initialize the control console and enable proper operation of the scoreboard, every time the control console is turned on, the operation code must be entered. To do this, enter the following keys in the order given:





When the code has been entered properly, the scoreboard will have “0” in the Home and Guest scores and “:00” in the time and the control console LCD will display:


0	0:00	0
0	H E	0

##### 3.3.3 Initial Setup

The  key allows you to make several operational changes.

While in Setup, press  to skip to the next setting without making any changes.

If you would like to make changes while in setup, press  or enter numbers on the number pad and press “ENTER”

To exit setup without going through all the options, press  This saves all the settings you have gone through.

The settings, in order, are:

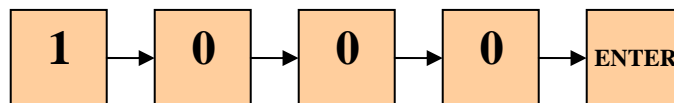
1) Brightness:

To set the brightness of the scoreboard digits, enter a number, 1 (dimmiest)-8 (brightest), then press “ENTER”

2) Period Length:

To set the length of the period, enter the time and press “ENTER”

Example: To set the period length to 10:00, enter:



3) Timeout Length:

To set the length of the timeouts, enter the time and press “ENTER” (This is similar to Period Length entry)

4) Timeouts allowed:

To set the number of timeouts allowed, enter the number of timeouts and press “ENTER”

5) Auto Horn

Press “YES/NO” to enable or disable the horn automatically blowing when time runs out


6) Last Minute Tenths

Press “YES/NO” to enable or disable the clock running tenths of a second in the last minute of a period

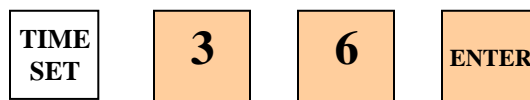
7) Time of Day

To set the time of day, enter the time as shown in Period Length. Time of day will display in the timer of the scoreboard when the scoreboard is turned on, but the control console is off.


Manual for MP-7524 with MP-5000 Control Console  
Even if you set up the period time in the setup menu, you can still set the time at any


point. This is accomplished by using the  button.

Example: The refs ask you to reset the clock to 36 seconds. Press the buttons in the following order:



To reset the period time to the time set in the setup menu, or the first time set,

press  with the clock stopped.


To set the clock to count up or down, press  with the clock stopped

If the timer is set to count up, there is an up arrow (^) next to the time on the control console display. If the timer is set to count down, there is no arrow. The default setting is counting down.

To start and stop the time, use the IN/OUT switch, or the handheld control, if included. On the IN/OUT switch, “OUT” stops the clock and “IN” runs the clock.

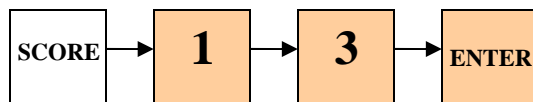
### 3.3.5 Team Score Operation

There are three ways to change the Home and Guest scores:

1) To add one to the current score, push  under the appropriate team.


2) To enter or correct the score, push “SCORE” under the appropriate team, then push the correct number for the score, then push “ENTER”

EXAMPLE: To change the guest score to 13, press:



3) To clear the score, enter “0” for the score.

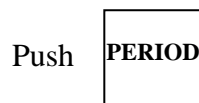
### 3.3.6 Horn Operation

Each time  is pressed, the horn will blow until the button is released.

If “Auto Horn” is set to “YES” in the setup menu, the horn will automatically blow for 2 seconds at the end of each period. If this function is enabled, an “H” will appear in the bottom line of the LCD in the control console.



### 3.3.7 Period Operation



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

### 3.3.8 Dimming Operation

To dim the scoreboard for night time use, use the “DIM” key to cycle through the 4 brightness levels. The console display will show a “D” when the board is dimmed.

### 3.3.9 Timeout Operation

The console has an internal 1 minute timer for timeouts when the game time is not running. With the game time off, press “TIME OUT TIMER” once to start the 1:00 countdown. The console LCD will show “TIME OUT = X:XX” where X:XX is the time remaining in the timeout. When the timer reaches “0” the internal buzzer on the console sounds, and the console display returns to the game display. If you want to return to the game before the timeout has reached “0” press “TIME OUT TIMER” and then “CLEAR” and the console will return to the game display. If the home or guest team calls a timeout, follow the same procedure, but substitute “HOME TIME OUT” or “GUEST TIME OUT” for the “TIME OUT TIMER” button.

### 3.3.10 Penalty Time Operation

Up to 2 penalty timers can be on at any time for both home and guest teams. To set a penalty timer, press “PLAYER NO.” under the respective team, followed by the player number, then “ENTER”. Then enter the penalty time, followed by “ENTER”. To enable the penalty timers, push “PENALTY TIMER ENABLE” and the penalty timers will count down.

### 3.3.11 Time Outs Left Operation

To set the number of timeouts remaining for a team, press the “TIME OUT LEFT” button under the respective team, followed by the number and “ENTER”.

### 3.3.12 Shots on Goal Operation

To add 1 to the shots on goal, press “S.O.G. +1” under the respective team.

To manually enter the shots on goal, press “EDIT S.O.G.” followed by the number of shots, then “ENTER”.

### 3.3.13 Stats Operation

To view the home and guest stats, press “HOME STATS” or “GUEST STATS”. To return to the game display, press “GAME DISP.”

## 4. Maintenance and Troubleshooting

### **WARNING**

120 volt AC wires are exposed any time the cover over the controller assembly is removed from the scoreboard. Use extreme caution during troubleshooting or repair. To avoid possible damage to equipment or personal injury, ALWAYS turn off the main power to the scoreboard before removing the cover or replacing lamps.

#### 4.1 Introduction

This section gives some maintenance and troubleshooting information. A troubleshooting guide containing typical scoreboard problems is included. If you still have problems locating the problem after using this guide, please contact the All American service department at 1-800-356-8146.

#### 4.2 Maintenance

The control console should be wiped periodically with a damp cloth

#### 4.3 Troubleshooting Guide

A simple analog or digital voltmeter will be sufficient to diagnose all user-serviceable problems. Any printed circuit boards requiring troubleshooting or repair should be sent to the All American service department following the RGA procedure outlined in section 1.6.

### **Note:**

Follow the troubleshooting guides whenever possible prior to contacting customer service. If the problem you are seeing is not covered in the guide, please contact the customer service department as soon as possible. Refer to the diagrams included in section 6 for assistance in troubleshooting.

Problem 1: Scoreboard does not light up and control console does not work

- a) Check that the power to the scoreboard is on
- b) Check the power connections and verify power to the scoreboard
- c) Check that the green LED is lit on each power supply
- d) Check for 24 VDC at the power supply terminals
- e) Check for 110 VAC on the power connections at the scoreboard
- f) Replace any defective or blown fuses
- g) Check for 12-16 VDC between the red and black wires on the data cable terminal block
- h) Contact customer service

Problem 2: Scoreboard does not light up, but control console works

- a) With power to the scoreboard turned off, remove the cover over the controller
- b) Check all connections on the controller plate
- c) Turn power to the scoreboard on
- d) If the scoreboard still does not light up, check the steps in problem 1
- e) Check LED D1 on the receiver board. If it is not lit, check that the receiver board is plugged into the power supply, then contact customer service
- f) Check that the LEDs on the driver boards are flashing. If they are not, check the data cable connections (orange and gray wires) from the receiver to the drivers, and check the power supply connections to the driver boards.

Problem 3: The scoreboard lights up, but the control console doesn't work

- a) Check for 12-16 VDC between the red and black wires in the junction box
- b) Turn on the control console and code it in, even though it may not appear to be working. Listen for beeps when you press the keys, and check to see if the scoreboard responds at all.
- c) If the voltage in step a is 0, check the voltage between the red and black wires in the scoreboard. If the voltage is still 0, call customer service. If the voltage is not 0, check the cable between the scoreboard and junction box for continuity.

Problem 4: The scoreboard digits light and the control console works, but there is no control of the scoreboard

- a) Use a voltmeter to check the voltage between the green and white wires in the junction box with the console on and coded in. The voltage should be 1-4 VAC
- b) Check D1 on the receiver. If it is not lit, check that the receiver is plugged into the power supply
- c) With the control console turned on and coded in, check LED D2 on the receiver board. If it is not flashing, contact customer service
- d) Check the LED on each driver board. If it is not flashing, check the power connections to the board as well as the data cable connections (orange and gray wires)

Problem 5: The scoreboard works, but some digits or parts of a digit are always on

- a) With power to the scoreboard turned off, disconnect and somehow mark the suspected bad digit. Plug a digit that you know is good into that position on the driver. Do NOT plug the suspected bad digit into any other location as that could cause more problems.
- b) Turn the power to the scoreboard back on. If the good digit now shows the same problem, you need a new driver PCB. See the replacement parts list for the part number (make sure you note the number of the driver card (1, 2, etc.)). There may also be a problem with the digit or the cable, so continue with the troubleshooting.
- c) Check the digit and cable assembly for shorts to the scoreboard frame or the power wires
- d) Plug the suspected bad digit into a different output **ON THE SAME DRIVER BOARD** (a bad digit could cause a driver board to fail). If the same lights stay on, replace both the digit and the driver board.

Problem 6: The scoreboard works, but some digits or parts of a digit do not come on

- a) If only part of a digit works, only parts of the digit don't come on, go to step f
- b) If one or more digits are completely blank, check the LED on the driver board for those digits
- c) If the LED is blinking on the driver board, check the power connection on the end of the board opposite the LED for 24 VDC. If the LED is not blinking, check the power and data cable connections
- d) Plug the blank digit into a position on the driver board that you know is good. If the digit is still blank, check for broken wires or a bad connection in the cable. Replace the digit if the cable is ok.
- e) If the digit works after plugging it into a different position, see the replacement parts list for a driver board
- f) Disconnect the suspected bad digit and plug a digit you know is good into that position
- g) If the good digit shows the same problem, see the replacement parts list for a new driver board
- h) If the good digit works, check the cable for the bad digit for a broken wire or bad

Manual for MP-7524 with MP-5000 Control Console  
connection

- i) Contact customer service

#### 4.4 Advanced Troubleshooting Guide

These steps are not intended as permanent solutions to a problem, but as a temporary solution to a problem in an emergency. If these steps are followed they should only be performed by someone with experience using electronics. Whenever possible, consult the All American service department before using the following work-arounds.

Procedure A) The drivers in the 7000 series are interchangeable, but each board has a microcontroller with a specific address programmed into it. The chip from the board being replaced must be put into the new board in order for it to function properly. (Example: Board 1 is bad, and you want to replace it with board 4 while waiting for a replacement board. Take the chip out of board 4 and replace it with the chip from board 1 so it operates as board 1.)

- 1) Turn off power to the scoreboard
- 2) Take the bad driver board out and set it somewhere safe. Put the replacement driver in that spot
- 3) Carefully remove the processor chip from the new driver
- 4) Carefully remove the processor chip from the old driver. Make sure when you install it in the new driver that the notched end (pin 1) goes in the same direction as the previous chip did
- 5) Place the processor from the new board into the old driver (that was replaced) in order to prevent it from getting lost
- 6) Connect power, data, and display cables to the new driver board

Procedure A) The control console can be connected directly to the timer in order to eliminate the possibility of any cable problems, or to ensure the proper operation of the electronics in the timer.

- 1) Open the junction box and disconnect the connector wires at the terminal block
- 2) Take the junction box plate with the connector and wires to the timer. Disconnect the red and black wires going from the timer through the cable to the junction box and connect the red and black wires from the junction plate connector to the corresponding position on the controller
- 3) Mark where the wires are connected to the lightning protection board so they can be reconnected in the same spot when you have the problems fixed
- 4) Disconnect the green and white wires from the lightning protection board and connect the green and white wires from the connector to the same spot the cable was connected
- 5) Test the system. If it works, move the green and white wires to the other connections on the lightning protection board and test the system again
- 6) If the system tests good the second time, the problem is between the timer and junction box. If the system does not check good, the problem is with the lightning protection board.
- 7) If the data cable checks good, but the lightning protection board is bad, the lightning protection board can be bypassed temporarily by connecting both green wires to one terminal and both white wires to one terminal. The board should be replaced as soon as possible, however, as it protects the electronics from other sources of damage besides lightning.

Procedure C) Try to eliminate control console problems

- 1) If you know you are getting the correct power to the control console, but it still won't turn on, check that the keypad cable is correctly plugged into the transmitter board inside the control console.
- 2) If the control console beeps when turned on and pushing buttons, but there is no

display, check the ribbon cable between the transmitter board and LCD module.

- 3) In all cases, check to make sure that all chips are pressed firmly into their sockets.

## 5. REPLACEMENT PARTS LIST

### 5.1 Display Assembly Parts

Figure 1. Display Assembly

## Replacement Parts List for MP-7524 Scoreboard

<i>Figure and Index #</i>	<i>All American Part #</i>	<i>Description</i>
1-X	MP7524	MP-7524 Scoreboard Top
1-X	MP7524	MP-7524 Scoreboard Bottom
1-4	152030	MP-7524 Controller Assembly (See Fig 2 for parts)
1-2C		21" Red LED Digit (2 sections)
	LED5M21AR	21" Red LED Digit, Part A
	LED5M21BR	21" Red LED Digit, Part B
1-2A		21" Red Diffusion Screen (Two Digits)
1-1B	LED5M18R	18" Red LED Digit
1-1A		18" Red Diffusion Screen (One Digit)
1-1C		18" Red Diffusion Screen (Two Digits)
	LED5M14R	14" Red LED Digit
		14" Red Diffusion Screen (One Digit)
		14" Red Diffusion Screen (Two Digits)
		5" Red LED Bullseye
1-7		Service Door
1-6		Rain Shield Cover
Not Labeled		
	151742	5000 Control Console (Program MP2CSLV45)
		Slipsheet Pair
	151785	Transmitter PCB Assembly
		2x20 LCD Assembly



## 5.2 Scoreboard Controller Assembly Parts

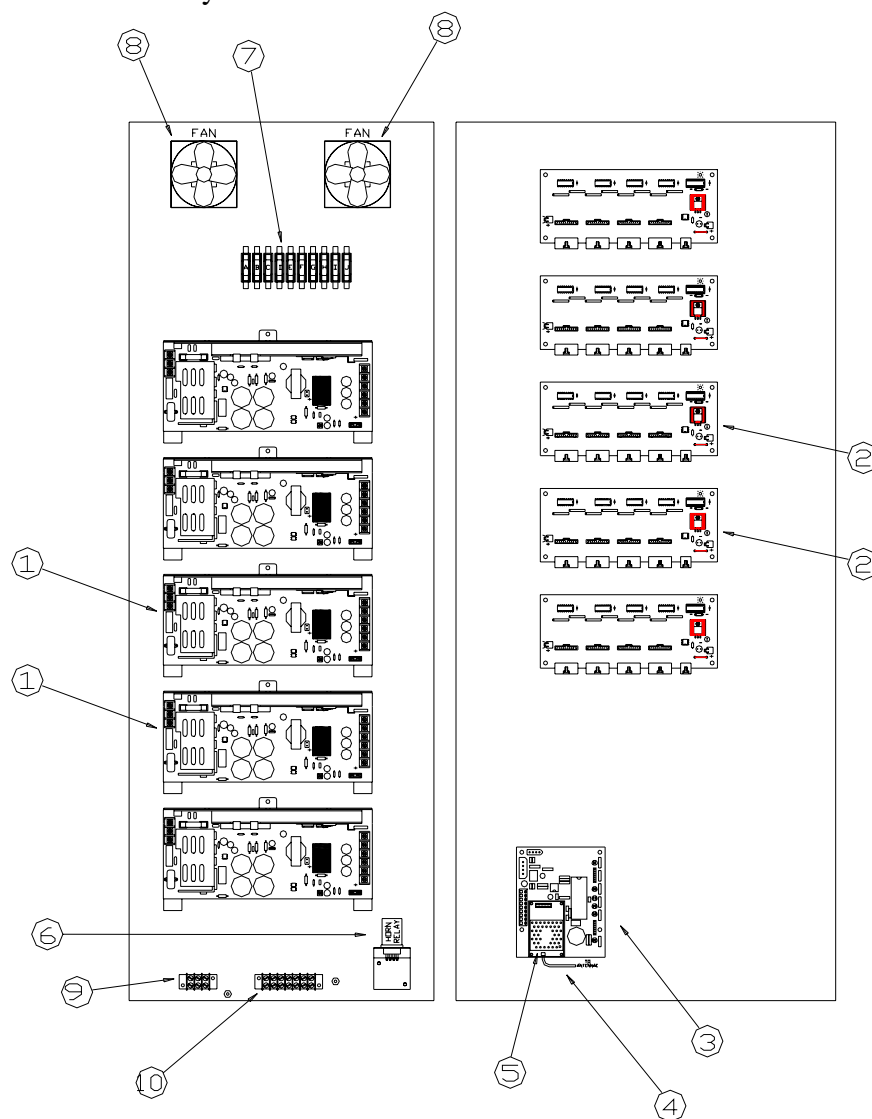


Figure 2. Controller Assembly

<b>Replacement Parts List for MP-7524 Scoreboard</b>		
<i>Figure and Index #</i>	<i>All American Part #</i>	<i>Description</i>
2	152030	MP-7524 Controller Assembly
2-1		24V, 300W Power Supply
2-2		MP-7000 Driver Board
2-3	EL00863P	Receiver PCB Assembly (Program 3MPCNTV17)
2-6	EL00525P	Horn Relay
2-7		250V, 5A Fuse
2-8		24V, 40CFM, 3" fan
2-9		3C Terminal Block
2-10		7C Terminal Block
Not Labeled		
		Cover
		PCB Standoff

## 6. DIAGRAMS

### 6.1 Control Console Keyboard and Slipsheet Layout

FOOTBALL

TRACK

Figure 3. Control Console Keypad Layouts

### 6.3 Controller Assembly Wiring

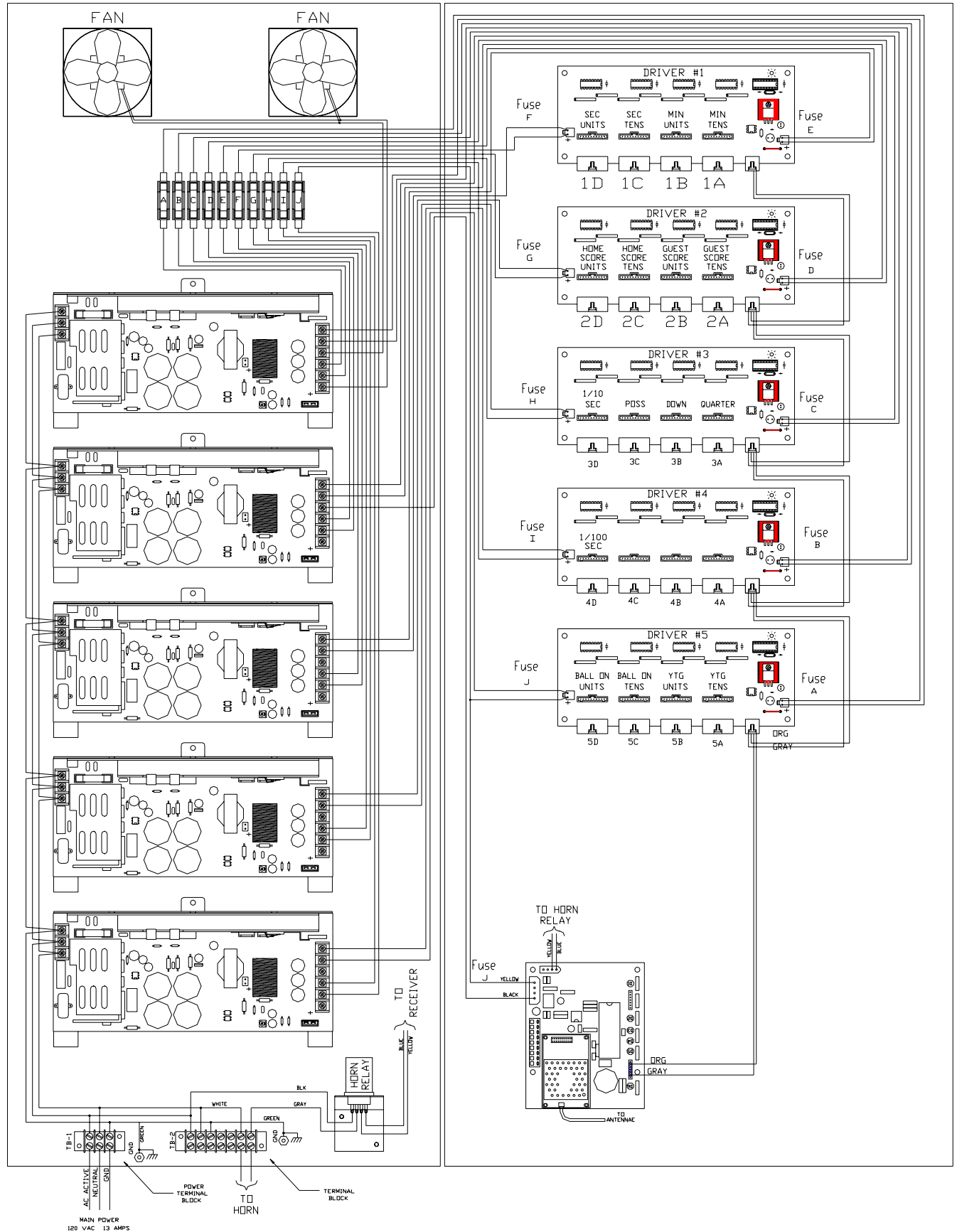
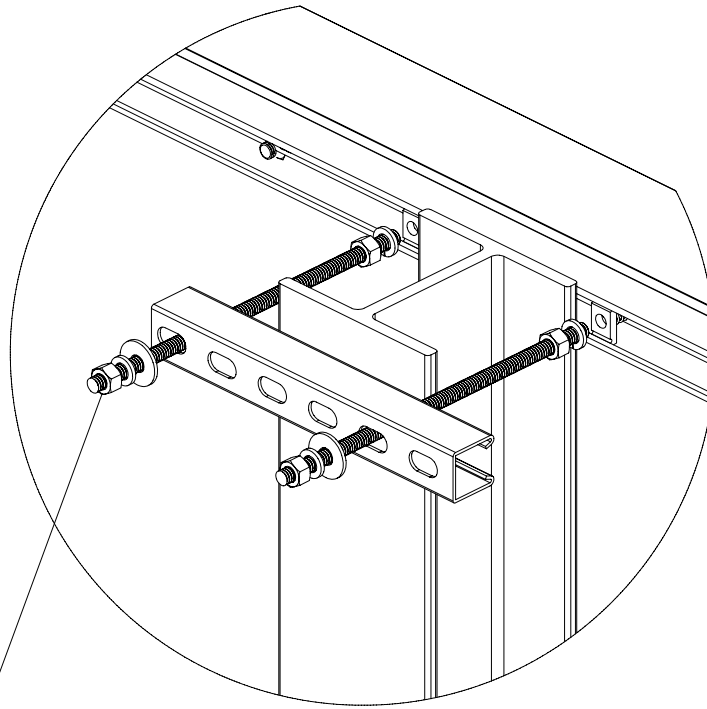


Figure 4. Controller Assembly Wiring







- (1) 1/2-13 X 12" THREADED ROD
- (2) 1/2-13 HEX NUT
- (2) 1/2 LOCK WASHER
- (2) 1/2 FLAT WASHER
- (1) SPRING UNISTRUT NUT
- (16) SETS OF HARDWARE REQUIRED
- STAINLESS STEEL