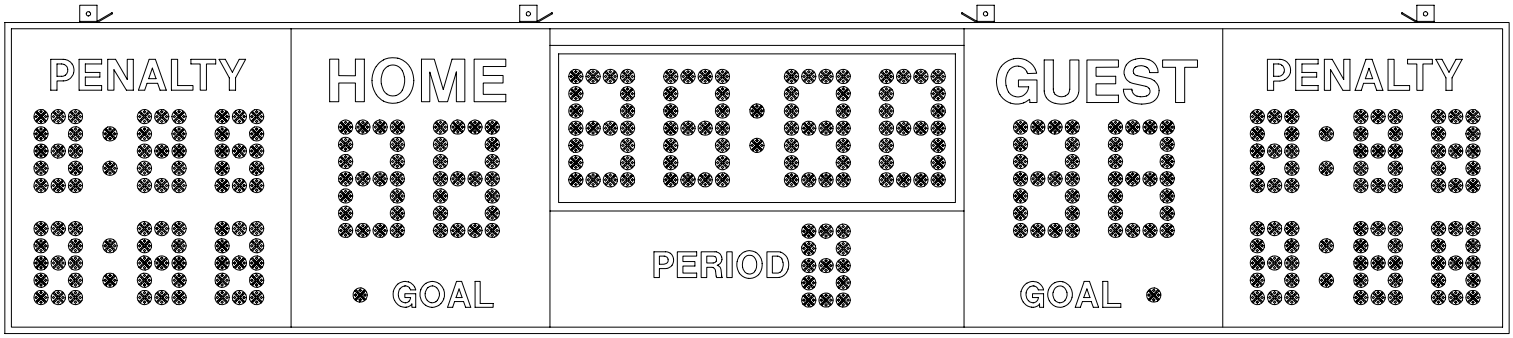
ALL AMERICAN
SCOREBOARDS
A Product of Everbrite 401 S. Main St. Pardeeville, WI 53901 (608)429-2121 / (800)356-8146

OPERATING INSTRUCTIONS AND SERVICE MANUAL

HOCKEY SCOREBOARD

MODEL MP-4529 With MP-4000 Control



EFFECTIVE S.N. 45-XXXX, October 15, 1997

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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 Corporation
P.O. Box 97
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 Corporation
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 or 5 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:

1 ea Hockey Display
1 ea Control Console
1 ea Service Manual
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, and fittings that may have loosened in shipment.

2.3 Pre-Test

Before installing the scoreboard, pre-test all functions.

(A) Connect the scoreboard to a 15 AMP, 120 Volt AC service.
(B) Plug the control console into the top of the scoreboard.
(C) Test operate all functions on the scoreboard according to operating instructions in section 3 of this manual.
(D) When all the functions test out, disconnect the power and the control console before hanging the scoreboard.

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 VAC 15 AMP service for the exclusive use of the scoreboard.

NOTE

To protect the MP-4000 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 **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 circuit to the scoreboard. The scoreboard will cycle through a self test mode where it tests all the LED pixels. During the self test mode the pixels

will be going on and off. After the self test the scoreboard will be blank.

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, Home and Guest Penalty Times, Period, Goal, Auto Horn Enable, and 1/10 Second 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.

```
CLEAR 1=YES 2=NO
```

Push: **1** **ENTER** .

The console display should now show as follows.

```
MULTISPORT CONTROL
MP4000 VER 4.0  1997
```

3.4 To Use Scoreboard

Enter the two digit code (47) shown in the lower right corner of the keyboard as in the following example:

Push **CODE** **4** **7** **ENTER** .

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

```
0        :00      0
         H
```

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 two different ways.

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

(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** .

3.7 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.

3.8 Goal Indicators

Pushing Home or Guest **GOAL** to add 1 point to the score will also illuminate the appropriate goal indicator. A '<G' or 'G>' will be displayed while the goal indicator is illuminated.

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 Timeout Period

An automatic timeout 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 Penalty Time Control

To set a penalty, Push **PEN 1** or PEN 2, followed by the time, as in the following example for a 3 minute penalty.

Push: **PEN 1** **3** **0** **0** **ENTER** .

To enable the penalty timers push **PEN ON** . This will start the penalty timer.

To clear a penalty, Push **PEN 1** or **PEN 2** **0** **ENTER** .

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.

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.

> **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.

4.4 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) 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 10 VAC or greater contact the customer service department.

If the voltage is 0 VAC, plug the control console directly into the top of the scoreboard.

If the control works from the top of the scoreboard, recheck all cable connections and check continuity again.

If the control still does not work, check the cable connections to the receiver board (white and green wires).

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

If the voltage is 8 VAC or higher contact the customer service department.

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

(a) With the main power switch "off"; remove the cover over the power supply, and receiver.
(b) Check all connections.
(c) Turn the main power on.
(d) Turn the control console on and enter the code.

If LED D4 on the receiver board is flashing call the customer service department.

If LED D4 on the receiver board is not flashing, plug the control console directly into the top of the scoreboard.

If LED D4 on the receiver board flashes now check the junction box and data cable for continuity.

If LED D4 on the receiver board still does not flash, call the customer service department.

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

(a) With the main power switch "off"; remove the cover over the power supply, and receiver.
(b) Check all connections.
(c) Turn the main power on.
(d) If the scoreboard still doesn't light, check the voltage between the positive and negative terminal strips on the power supply for 12 VDC with a voltmeter set on the 12 VDC or higher scale.

If the voltage is 12 VDC or greater, go to (e).

If the voltage is less than 12 VDC check the power supply input voltage for 120 VAC and contact the customer service department.

(e) Check if LED D7 on the receiver board is on.

If D7 is on, check if D5 and D6 are flashing and call customer service department.

If D7 is not on, check that the receiver board is plugged into the power supply and call the customer service department.

(E) The scoreboard works, but some digits do not change.

(a) Look at the digit wiring order table.
(b) Find the first digit in the wiring order that is not working.
(c) Check for 12 VDC at the digit between the red wire and the black wire.
(d) Reseat the data in and data out cable connectors.
(e) If the digit still doesn't work call the customer service department.

5. REPLACEMENT PARTS LIST

5.1 Scoreboard Display Parts

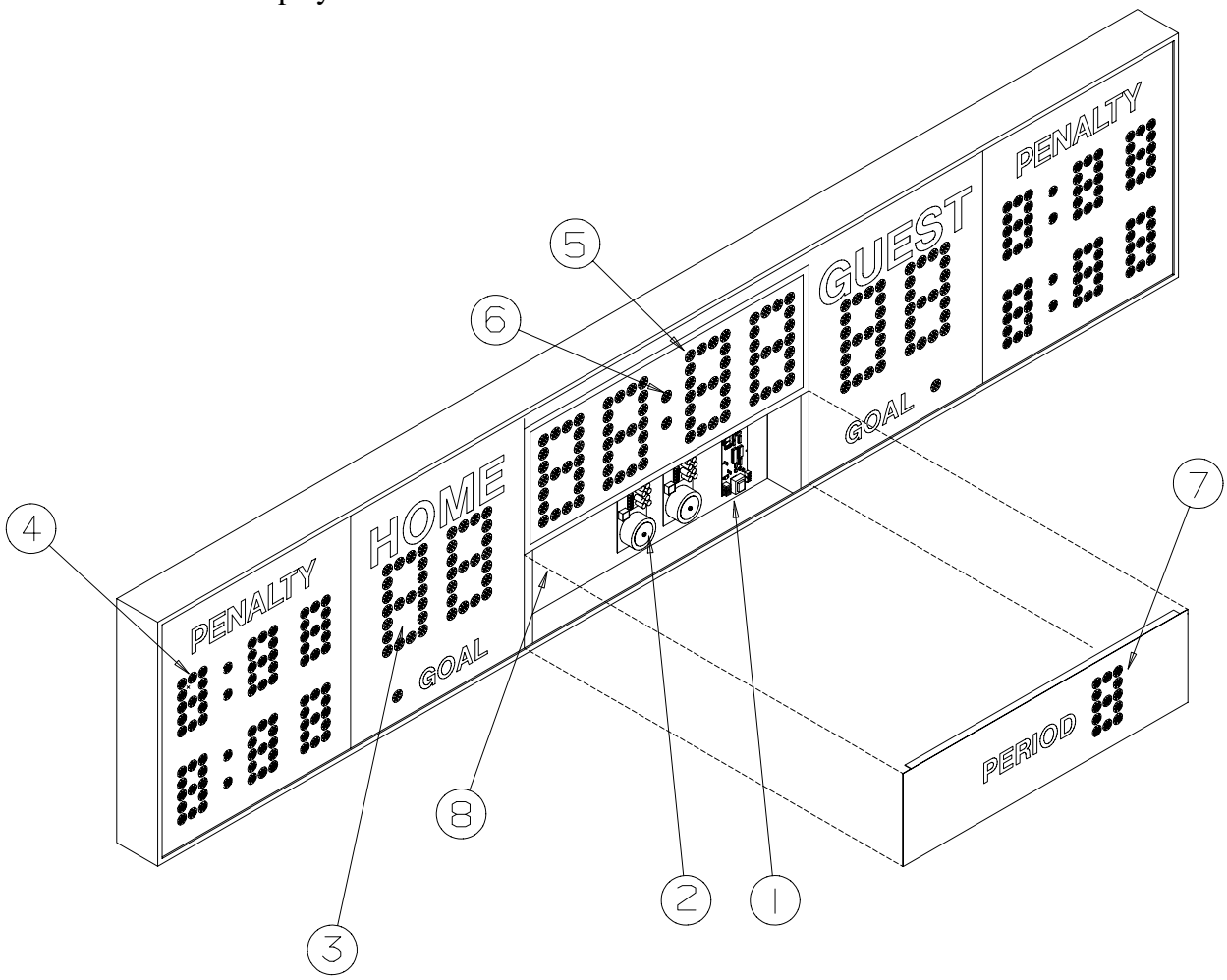


figure 1

DISPLAY ASSEMBLY

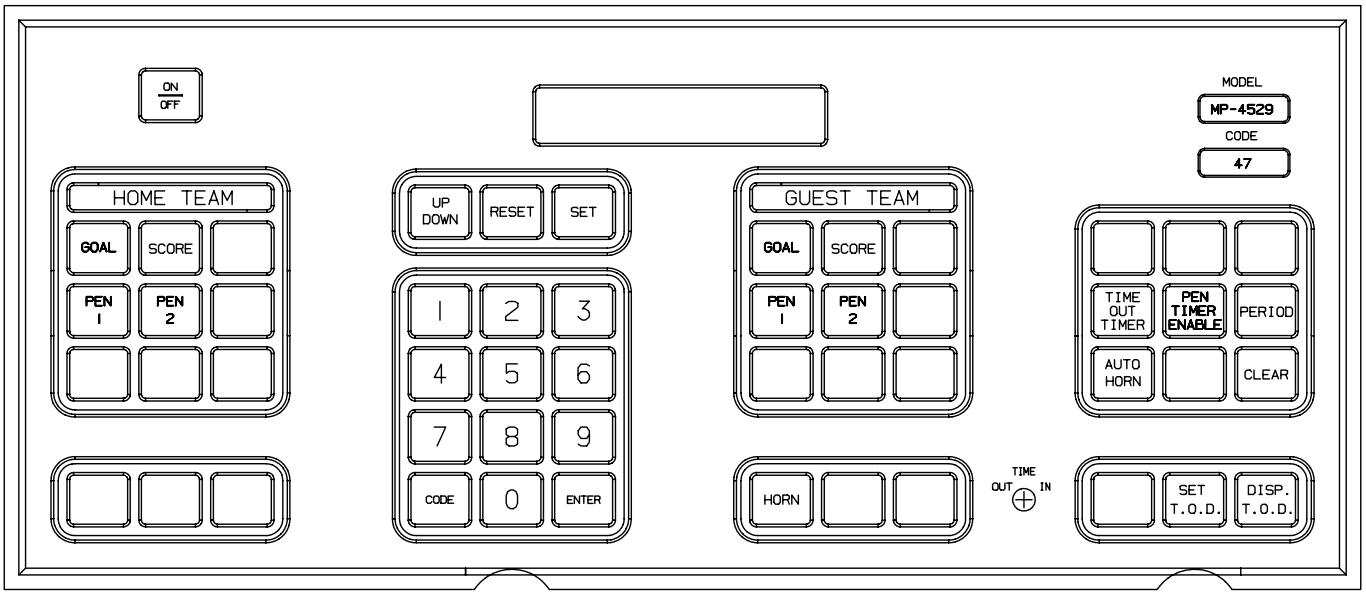
REPLACEMENT PARTS LIST (MP-4529 Hockey)

fig.& index	MFG PART NUMBER	DESCRIPTION	REF DES	VENDOR PART #
1-	150830	Display Assembly		150830
1-1	EL00258P	Receiver Board Assy	A2	1048-9101A
1-1	EL00351P	Receiver Board Assy, with RTC	A2	1048-9102
1-2	BL00027P	Power Supply, 200 Watt (2 ea)	A3	1048-9402
1-3	EL00245P	Digit, 4 X 7 Green		1048-9205GI
1-4	EL00248P	Digit, 3 X 5 Red		1048-9203RI
1-5	EL00244P	Digit, 4 X 7 Red		1048-9205RI
1-6	EL00251P	Digit, 2 X 1 Red		1048-9201RI
1-7	EL00249P	Digit, 3 X 5 Green		1048-9203GI
1-8	119337	Line Filter, Mallory		20VB1
1-9	151627	Cable Assembly, Telehone 24"		151627
1-10	151631	Cable Assembly, Telehone 48"		151631
1-11	702623	Connector, 2C Fem. AB (HORN)	J5	S3302AB
1-12	EL00360P	Switch, DPST Rocker	S2	96F2128
	151680	Control Console		151680
	151684	Slipsheet Pair		151684
	151681	Transmitter PCB Assembly	A1	151681
	SW005100	Toggle Switch,	S1	SW005100
	930894	Connector, 6 Pin Male Cable	P1	RM12BPG6P
	EL057700	LCD Display, 2 Line 20 Character		
	151682	Keyboard Assembly,		151682
	WH009100	Ribbon Cable Assembly, 14C 8"		WH009100
	122763	Enclosure,		
	150994	Wall Junction Box, Single		150994
	930895	Connector, 6 Pin Female	J1	RM12BRD6S
	150500	Cable, MP-41 Control		8723
	150993	Wall Junction Box, Dual		150993

118044	Horn, #55 Trumpet	118044

6. DIAGRAMS

6.1 Control Console Keyboard and Slipsheet Layout



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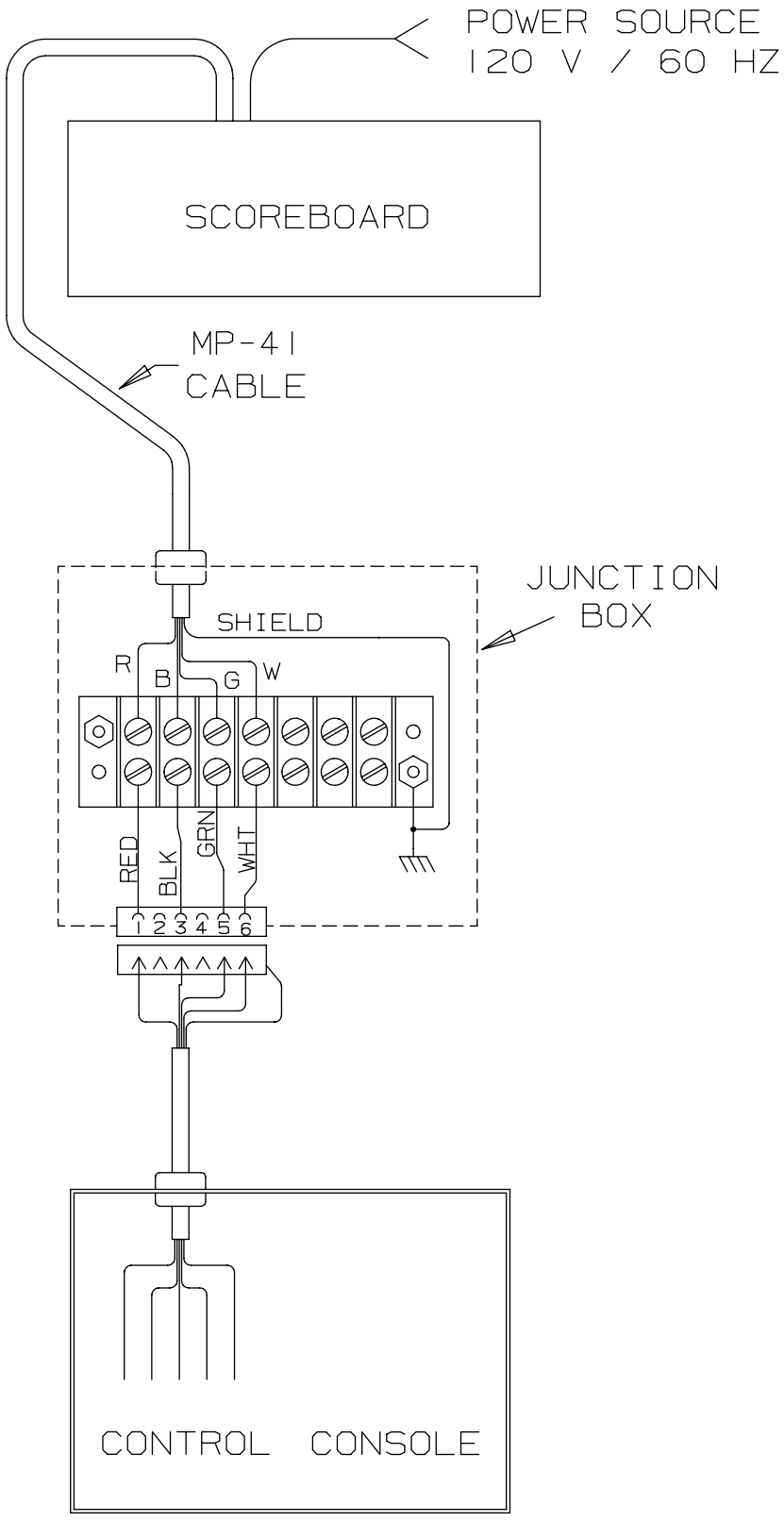
CONSOLE KEYBOARD

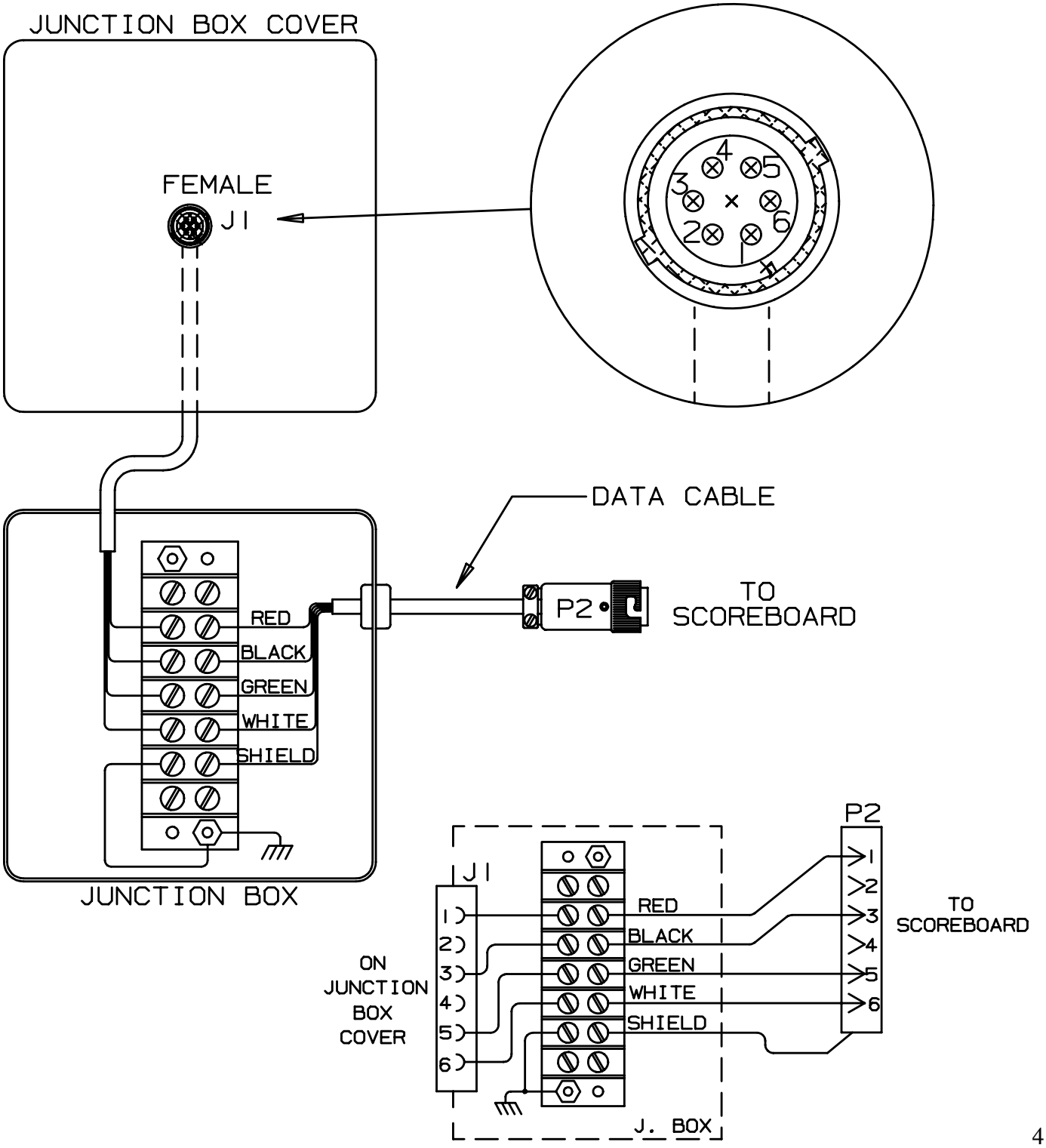
6.2 Scoreboard System Layout



3

SYSTEM LAYOUT

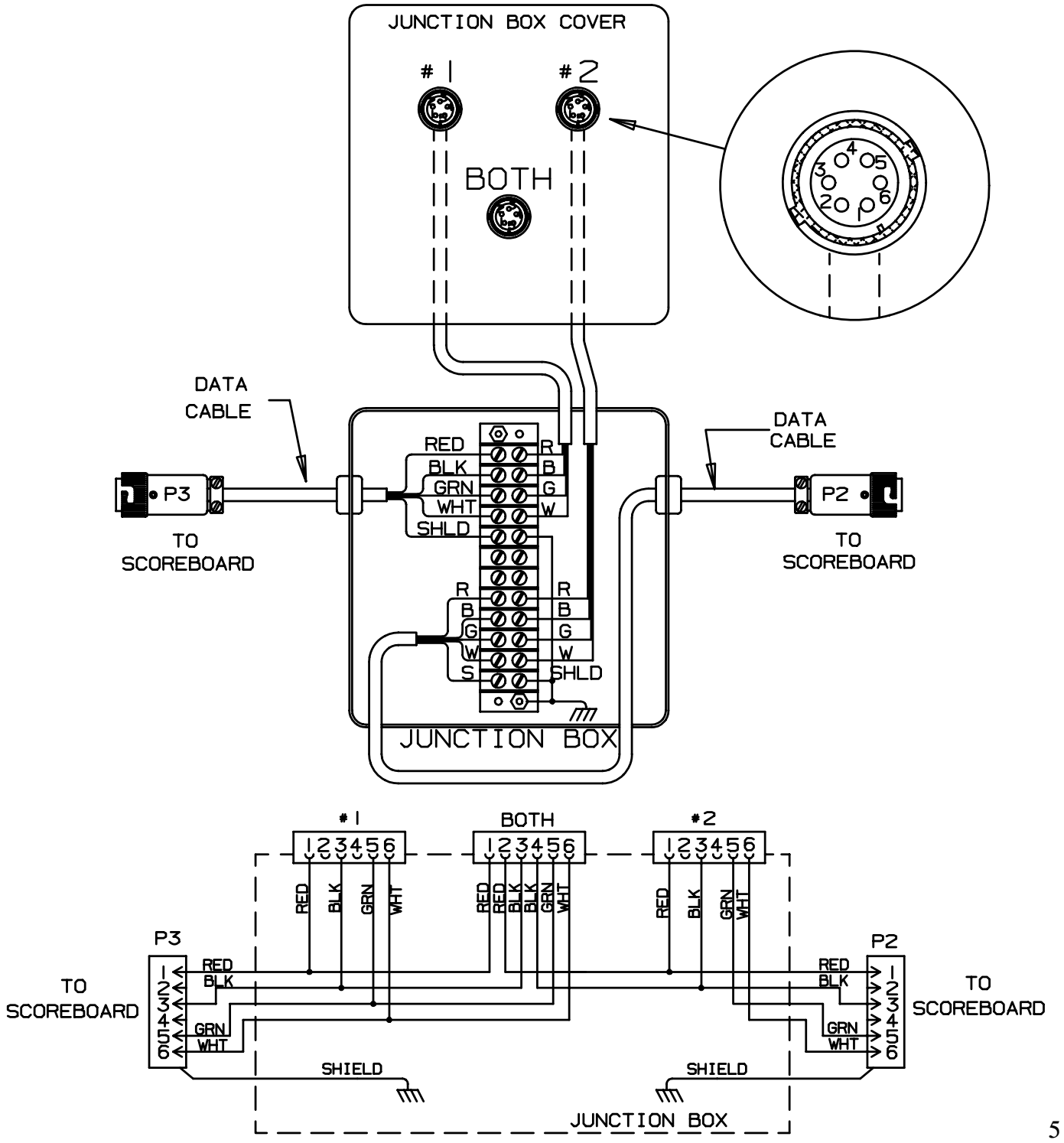
6.3 Single Wall Junction Box Wiring



4

SINGLE JUNCTION BOX WIRING

6.4 Dual Wall Junction Box Wiring



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DUAL JUNCTION BOX WIRING

6.5 Figuregram Wiring Sequence Diagram

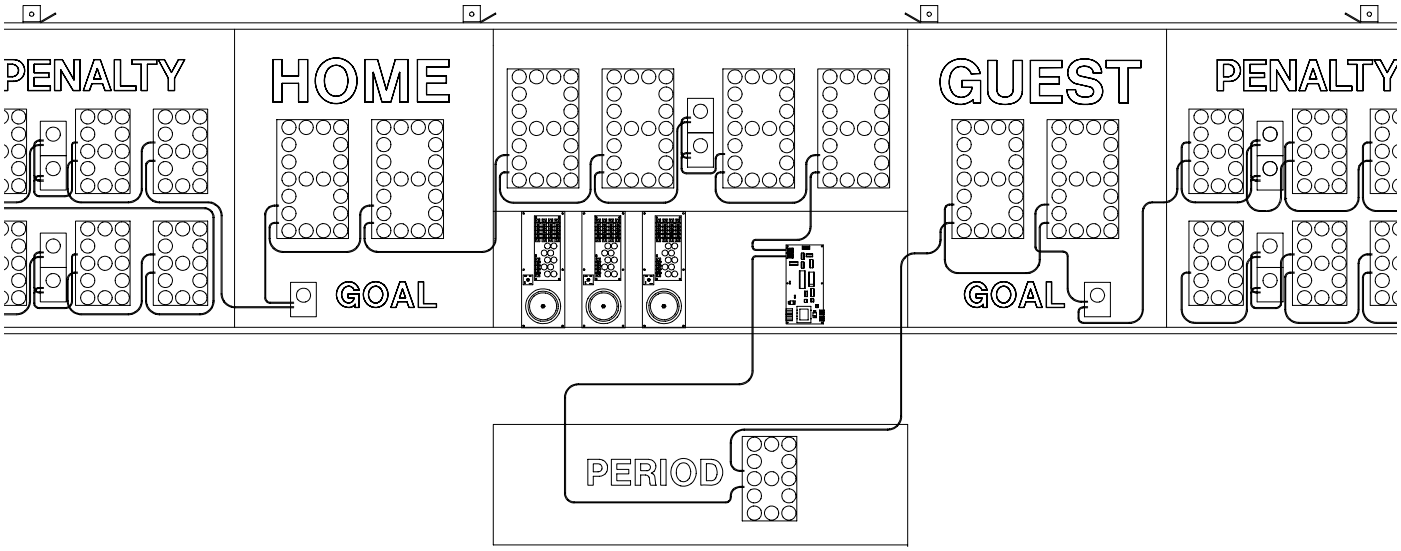
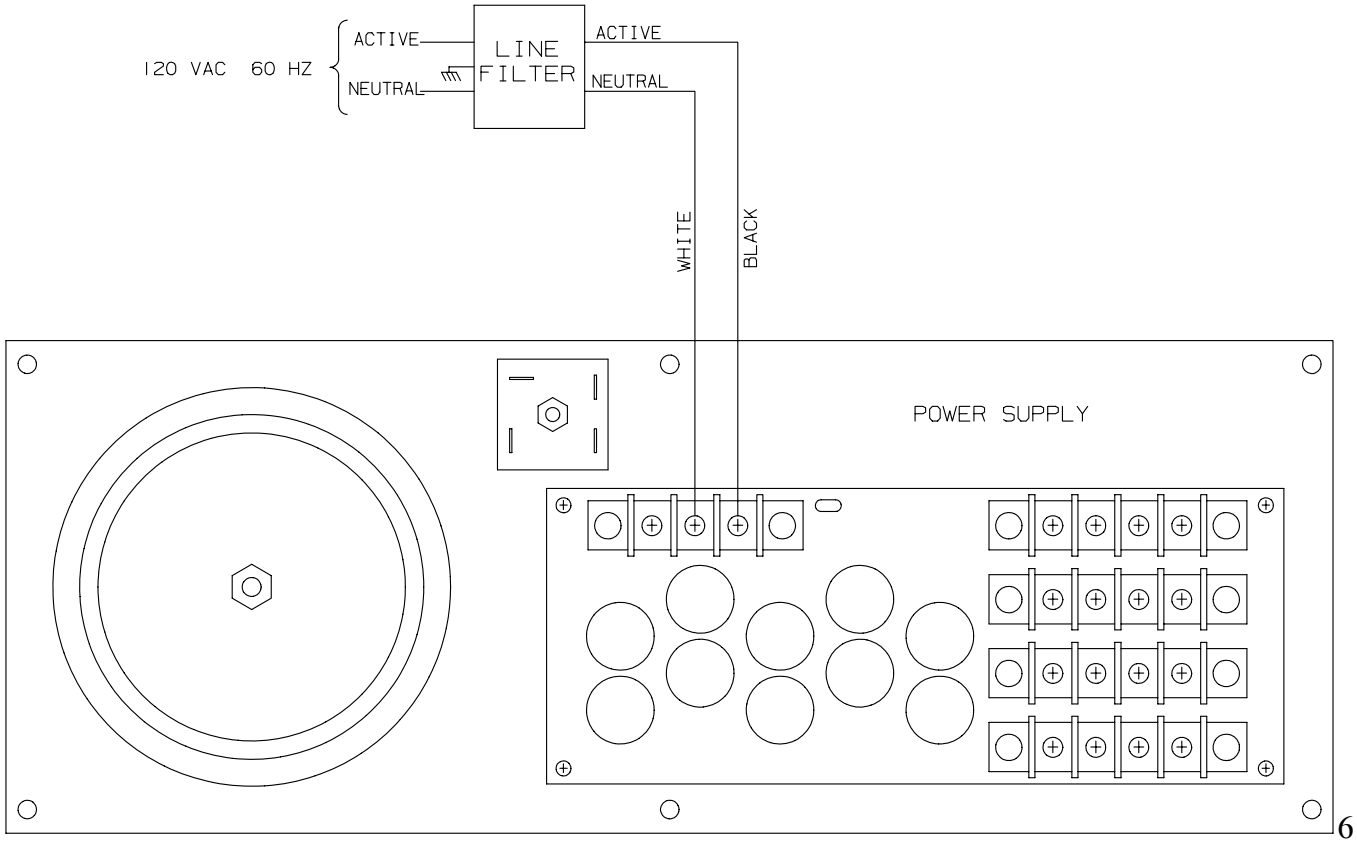


FIGURE WIRING SEQUENCE

6.6 Power Supply Diagram



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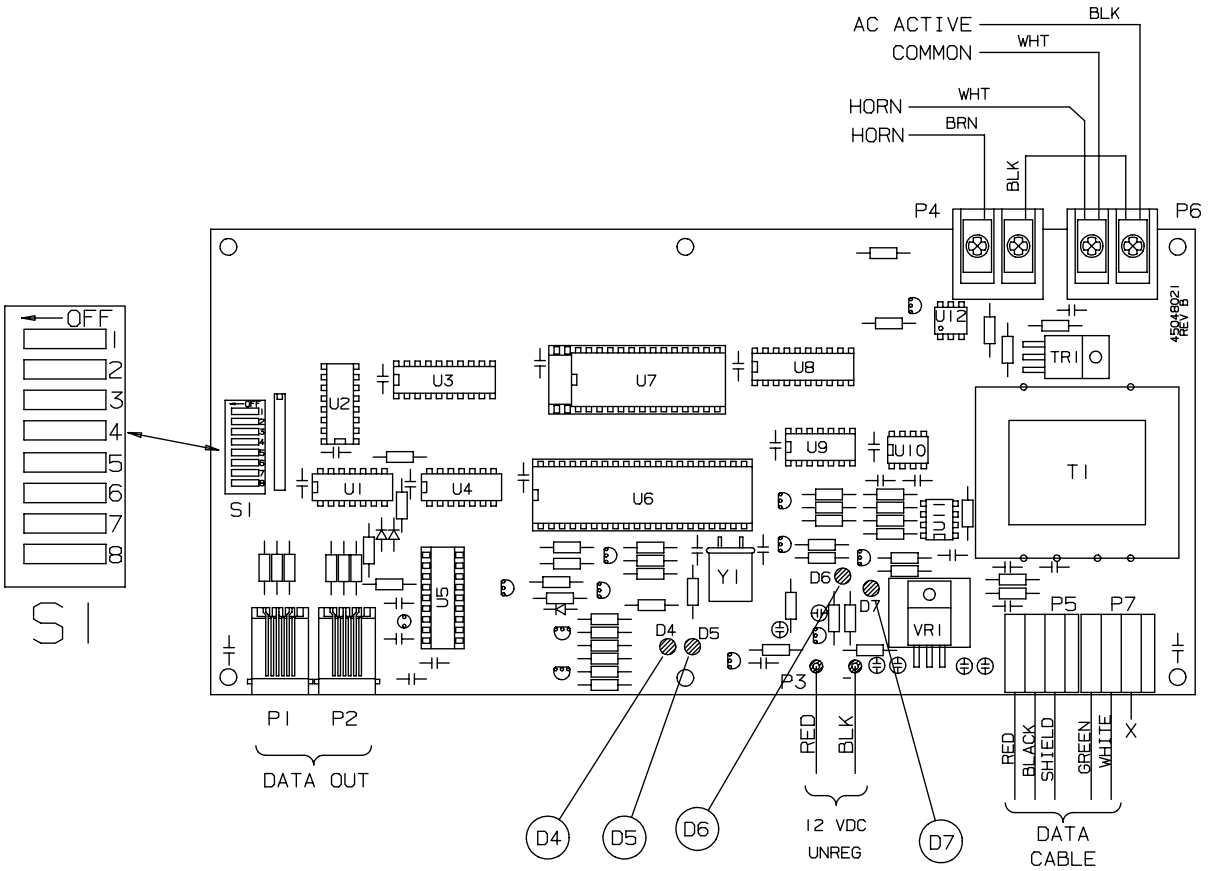
POWER SUPPLY

6.7 Receiver Board Diagram

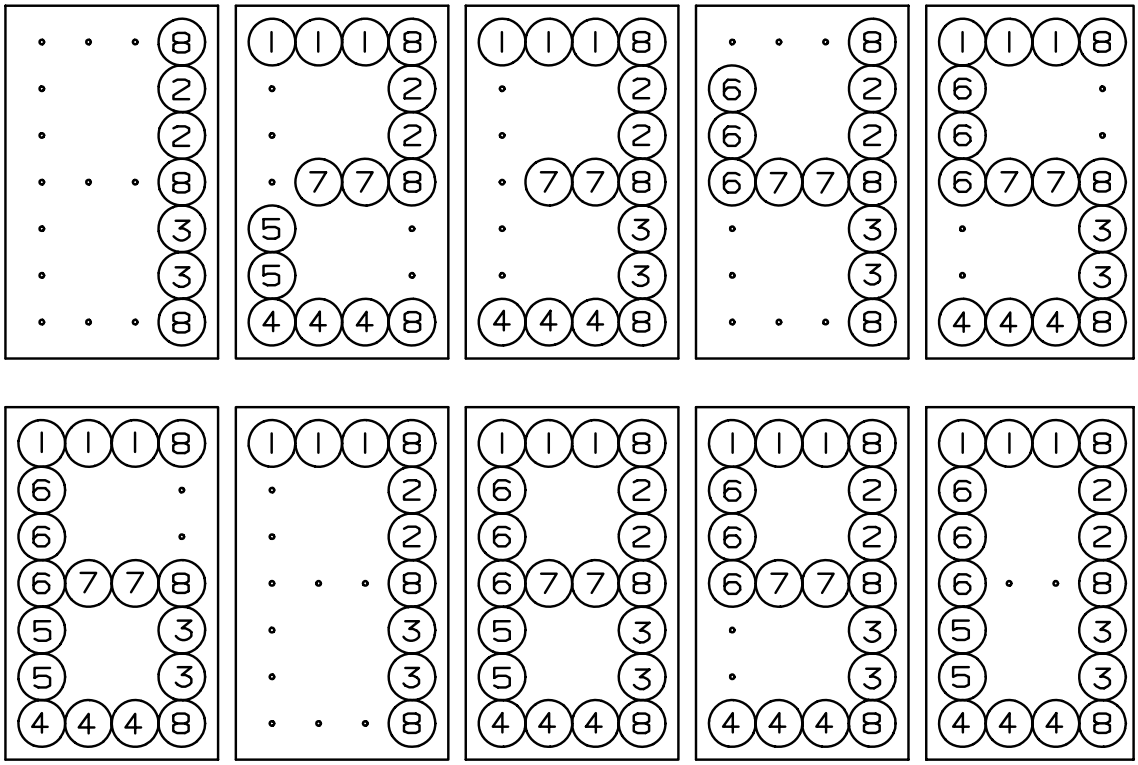


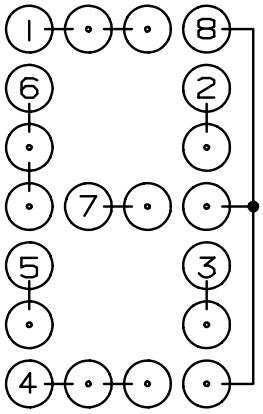
DIP SWITCH SETTINGS:	LED FUNCTIONS:
1 - On only when Rx is in SCBD 2 - On only when Rx is in shotclock 3 - Off (saved for future use) 4 - Off (saved for future use) 5 - Off (saved for future use) 6 - Off (saved for future use) 7 - When on causes number test, then goes to continuous segment test. 8 - When on causes number test, then bit test, then continuous number test	D4 - Flashes very dimly with power up. (Indicates clock output on P1/channel 1.) D5 - Flashes very dimly with power up. (Indicates clock output on P2/channel 2.) D6 - Lights continuously with power up. (Indicates that Rx has power.) D7 - Off until console is coded in. Then it flashes. (Indicates Rx is receiving data from control console.

Standard settings for DIP switches is all off except for 1 and 2.

RECEIVER BOARD

6.8 Microprocessor 4 X 7 LED Pattern (8 Bit)





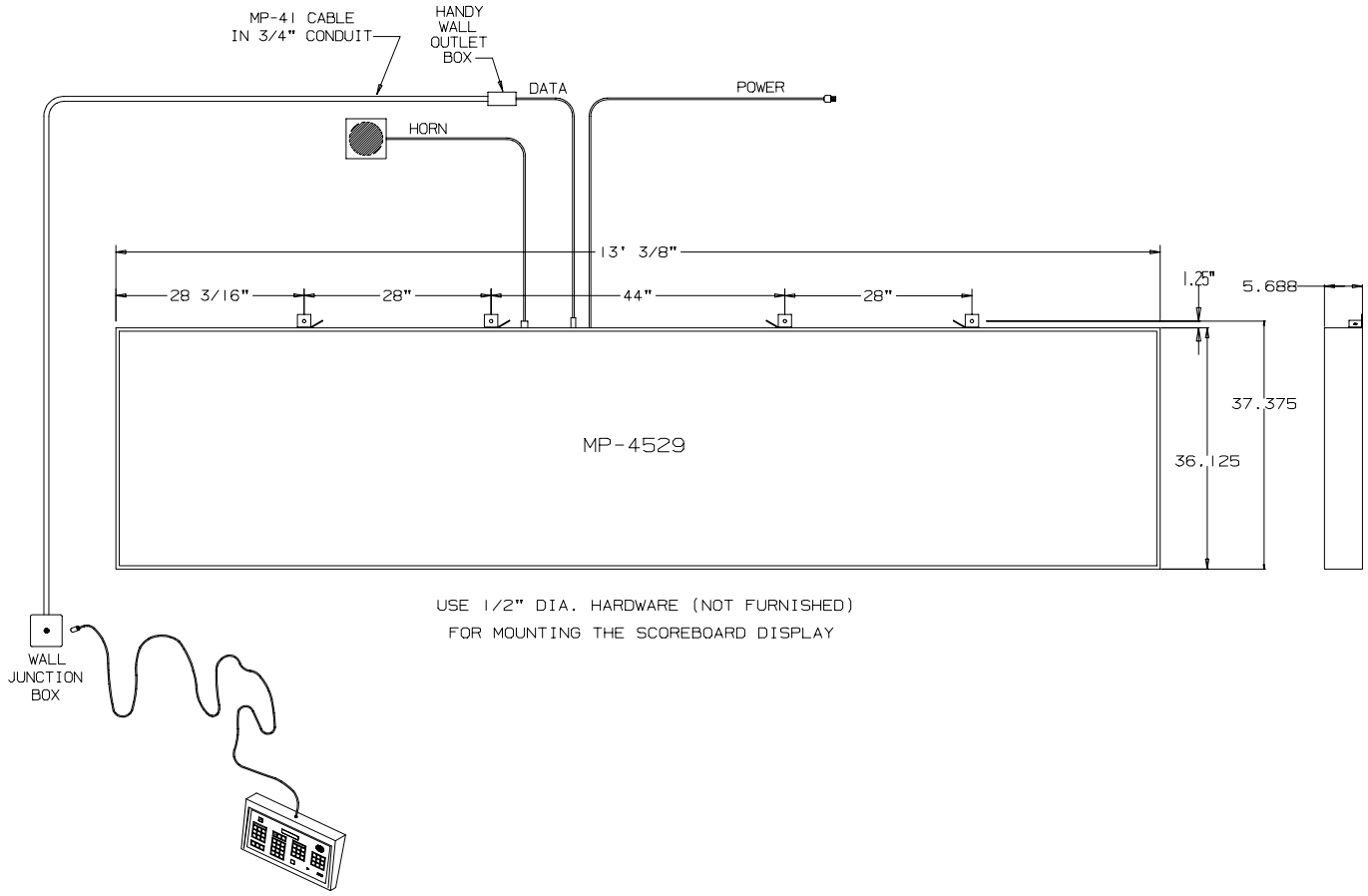
NUMERALS

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

7

MICROPROCESSOR 4 X 7 (8 BIT) LED PATTERN

6.9 Installation Drawing



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INSTALLATION DRAWING