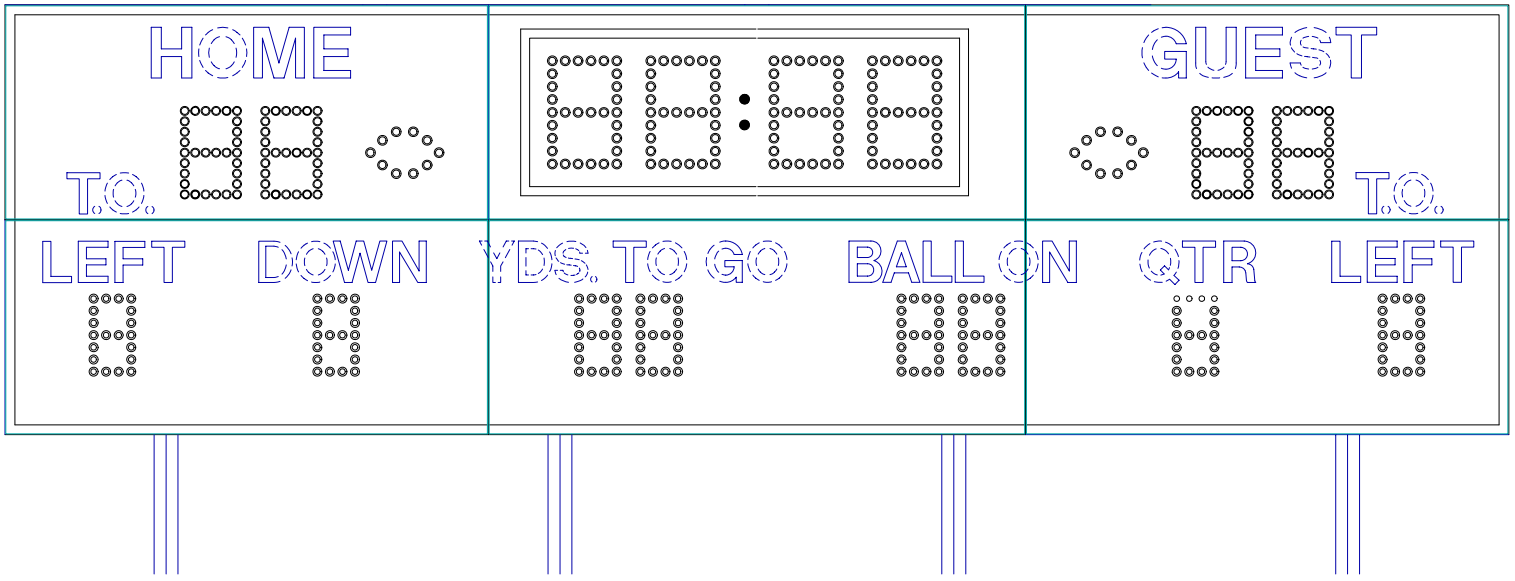
ALL AMERICAN SCOREBOARDS

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

# OPERATING INSTRUCTIONS AND SERVICE MANUAL

## FOOTBALL SCOREBOARD

## MODEL MP-3442 WITH MP-3000 CONTROL




EFFECTIVE S.N.XXXX, AUGUST 1, 1999

# TABLE OF CONTENTS

# 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 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 numbers 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 Football Display (2 Crates)
1 ea Control Console
1 ea Service Manual
1 ea Mounting Hardware Package
1 ea Press Box Junction Box
? ft Control Cable (if ordered)
1 ea Horn (if ordered)

IMPORTANT!

The MP-40 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 Installation

Select the location best suited for visibility by the majority of spectators. Preferred position is facing east or north to avoid direct sunlight on the face of the scoreboard, if day games are played.

For Permanent mounting to uprights, see the enclosed installation drawing in section 6, and follow the following instructions.

Remove rear access door from all bottom sections.

Bolt pole mounting clips, furnished, to mounting clips on back of scoreboard sections.

Lift center bottom section in place, level, and weld or bolt clips to scoreboard mounting poles.

NOTE: Cover cables protruding from top section so they don't get burned when welding the clips.

Next, lift the lower right hand section into place, level, and bolt ends of the two sections together, through the access holes, with the bolts furnished, then weld or bolt clips to the scoreboard mounting poles.

Lift lower left hand section in place, level, and bolt the ends of the two sections together with the bolts furnished, then weld or bolt the clips to the scoreboard mounting poles.

Lift the upper right hand section in place. Before lowering it onto the top of the bottom right hand section, feed the figuregram cables from the bottom section into the top section through the hole in the bottom of that section. It is suggested that you seal the cable access hole with silicone rubber caulking to stop water from leaking into the bottom section. After cables are out of the way, lower the section onto the top of the bottom section and weld clips in place.

Follow the same procedure as above for mounting the upper center section and the upper left hand panel into place.

After feeding the figuregram cables and the power cables to their proper location, (see cable routing drawing) plug them into the scoreboard controller assembly.

Connect the proper power to the scoreboard load center (see cable routing diagram).

Run the control cable from the control room to the scoreboard. Connect it to the controller plate as shown on the controller drawing.

The MP-40 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.

2.3 Electrical connections

The MP-3442 scoreboard requires two 120 V. 100 AMP AC circuits. This can be accomplished by a single phase 3 wire 125 amp service.

IMPORTANT !!!
To protect the MP-3000 control from damage, it is advisable to 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, Yards To Go, Ball On, Down, Quarter, Time Outs Left, and Auto Horn Enable.

### 3.3 Console Power

Plug the control console cable into the Press Box junction box.

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

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

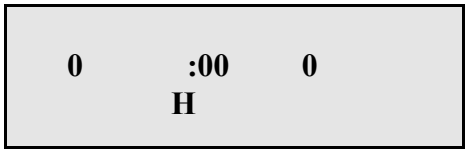
When first turned on; the console display should show as follows:


3.4 Initializing Scoreboard

Enter the two digit code (61) shown in the lower left corner of the keyboard as in the following example:

Push **CODE** **6** **1** **ENTER**

When the proper code has been entered, the console display will show as follows.




The scoreboard display will now show :00 in the time section.

3.5 Time Setting and Control

To set a 15 minute period, key in the following:

**SET** **1** **5** **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 five different ways.

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

(B) To add 6 to the existing score: Push **+6** .

(C) To add 3 to the existing score: Push **+3** .

(D) 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** .

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

3.7 Horn (Optional)

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 Yards To Go, Ball On, Down, Quarter, and Time Outs Left

Entries to the above functions are made in the same manner as the direct entry method for Team Scores.

3.9 Dimmer

Push **DIMMER** to dim the lamps during night use.

WARNING

110 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 to equipment or personal injury, always turn off the main power before removing the cover or replacing assemblies, or replacing lamps.

# 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.

## 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.

**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.

(a) Check for burned out 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-3442)

| fig.& index | MFG PART NUMBER | DESCRIPTION | REF DES | VENDOR PART # |
|---|---|---|---|---|
| 1- | 000000 | Display Set | | 000000 |
| 1-1 | 930677 | Lamp, 30W/130V Clear | | 30A15IF |
| 1-2 | 000000 | Controller Assembly, MP-3442 | A2 | 000000 |
| | | *****SEE FIGURE 2 SECTION 5.2***** | | |
| 1-4 | 122325 | Load Center, 1 PH/16 CKT/125 A. | | QO16L125RB |
| 1-5 | 700908 | Circuit Breaker, 1 Pole/ 20 A. | | QO120 |
| 1-7 | EL044100 | Resistor, 2 OHM 30 WATT Wire Wound | | HL-24-09Z |
| 1-8 | 705917 | Screen, Timer (QTY 2) | | 705917 |
| 1-9 | 705906 | Screen, Poss. (QTY 2) | | 705906 |
| 1-10 | 705920 | Screen, Ball On, Y.T.G. (QTY 2) | | 705920 |
| 1-11 | 000000 | Screen, T.O.L., Down, and Qtr. (QTY 4) | | 000000 |
| 1-12 | 705918 | Screen, Score (QTY 2) | | 705918 |
| 1-13 | 121443 | Fuse, 15A Plug | | 121443 |
| | SU4450 | Control Console | | SU4450 |
| | HB005500 | Slipsheet Pair | | HB005500 |
| | HB002300 | Transmitter PCB Assembly | A1 | HB002300 |
| | | ***** PROGRAM MSUCSL.V00 ***** | | |
| | SW005100 | Toggle Switch, | S1 | SW005100 |
| | 702785 | Connector, 5 Pin Male Cable | P1 | RM12BPG5P |
| | EL053000 | LCD Display, 2 Line 20 Character | | |
| | HB002400 | Keyboard Assembly, | | HB002400 |
| | WH009100 | Ribbon Cable Assembly, 14C 8" | | WH009100 |
| | 122763 | Enclosure, | | |
| | 151002 | Press Box Junction Box, | | 151002 |
| | 702786 | Connector, 5 Pin Female | J1 | RM12BRD5S |
| | 150508 | Cable, MP-40 Control | | YR21233 |
| | SU476500 | Floating Time Control (W/6' pendant) | | SU476500 |
| | 151184 | Floating Time Control (W/160' Cable) | | 151184 |

5.2 Scoreboard Controller Assembly Parts

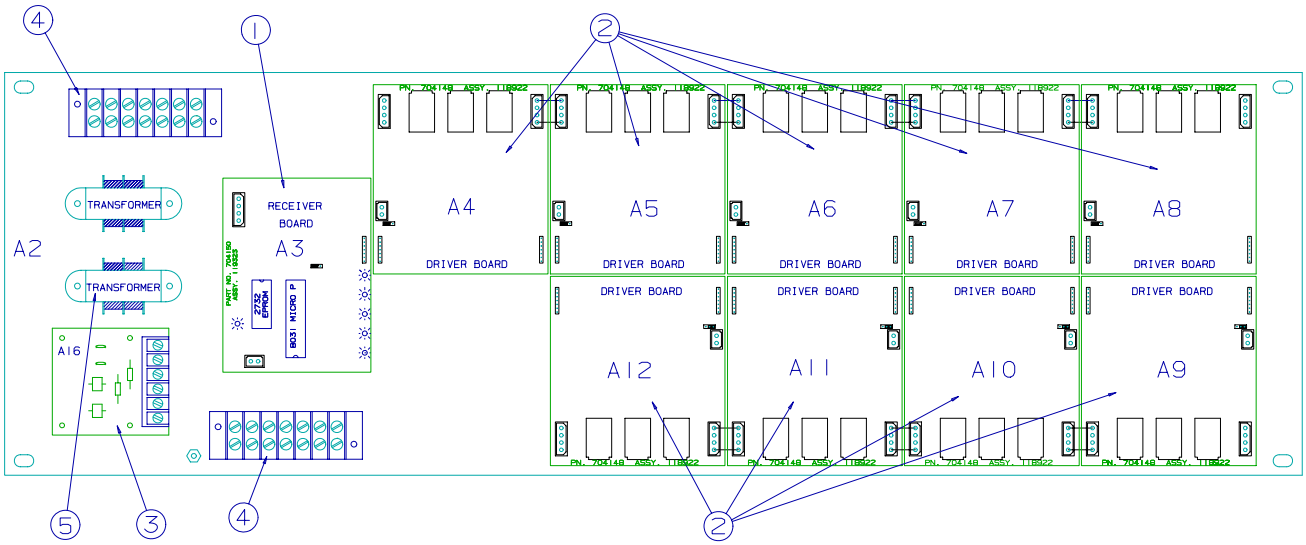



figure 2

CONTROLLER ASSEMBLY

REPLACEMENT PARTS LIST (MP-3442) Controller Assembly

| fig.& index | MFG PART NUMBER | DESCRIPTION | REF DES | VENDOR PART # |
|---|---|---|---|---|
| 2- | 000000 | Controller Assembly | A2 | 000000 |
| 2-1 | 119323 | Receiver PCB Assembly<br>***** PROGRAM MP 3442.CNT ***** | A3 | 119323 |
| 2-2 | 118922 | Driver PCB Assembly, 3 Position | A4-A12 | 118922 |
| 2-3 | 118522 | Transient Suppressor PCB Assembly | A14 | 118522 |
| 2-4 | 701137 | Terminal Block, 7C | TB1&2 | 670-7 |
| 2-5 | 703719 | Transformer, 8V/18V | T1/T2 | CS-697 |
| 2-6 | 700520 | Varistor, | | ERZ-C20DK201U |
| 2-7 | 705723 | Spacer, P.C.Board | | LCBS-6-01 |

# 6. DIAGRAMS

## 6.1 Control Console Keyboard and Slipsheet Layout

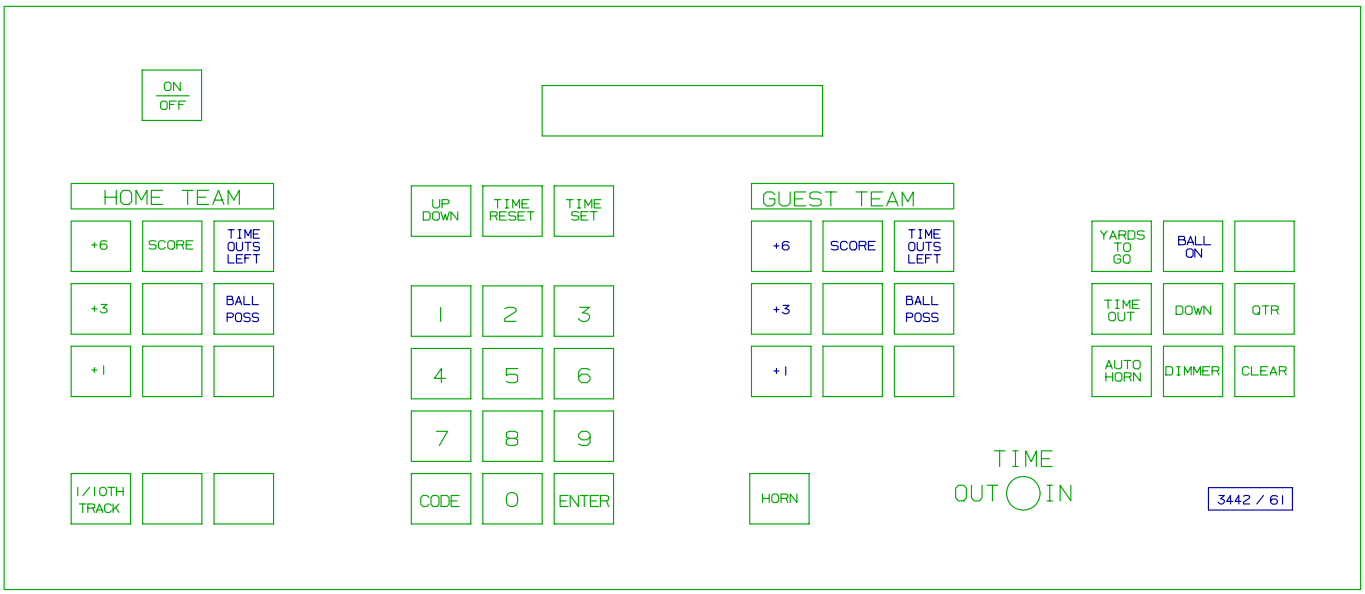
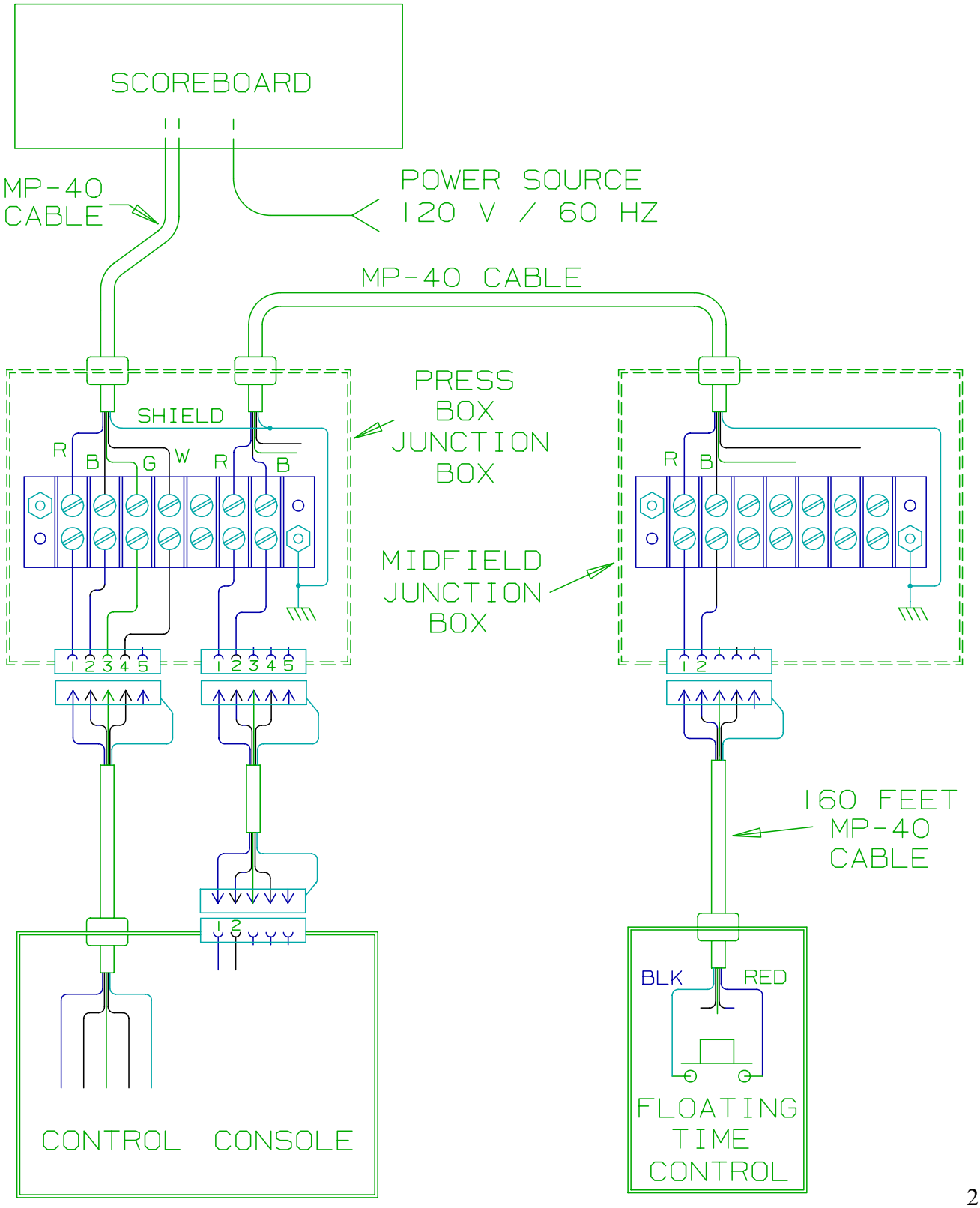



figure 3
KEYBOARD LAYOUT

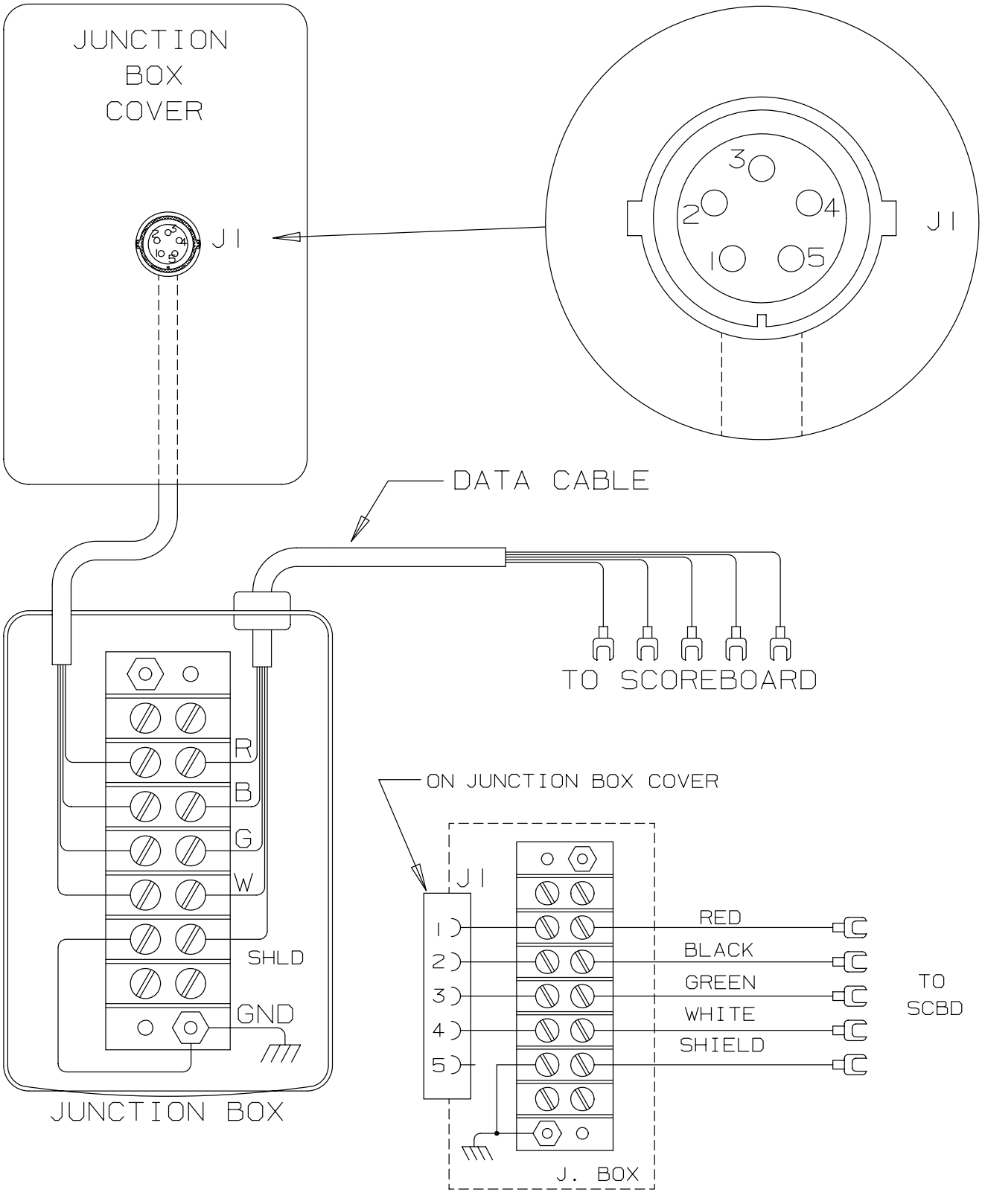
6.2 Scoreboard System Layout




2

figure 4
SYSTEM LAYOUT

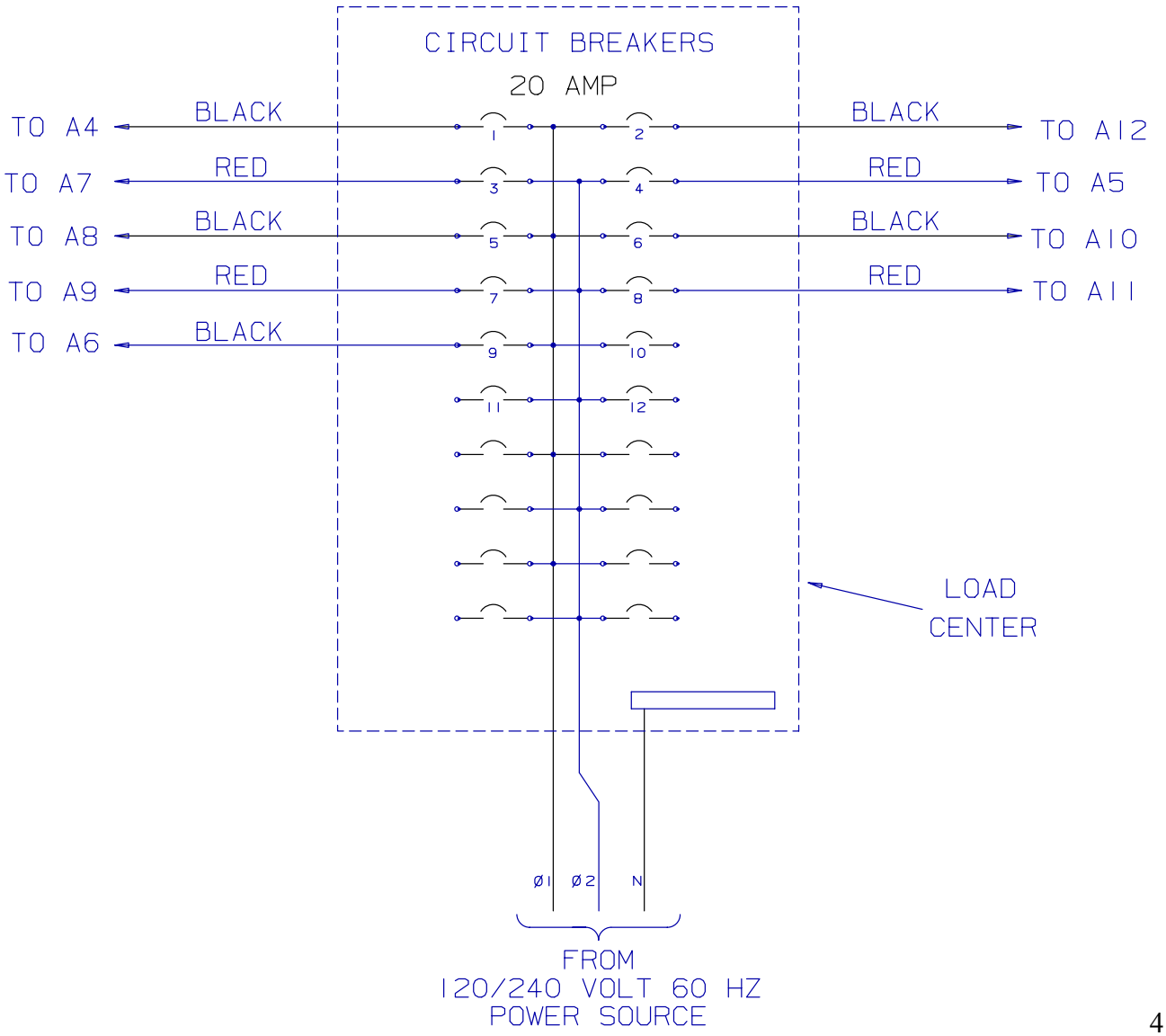
6.3 Single Junction Box Wiring




3

SINGLE JUNCTION BOX WIRING

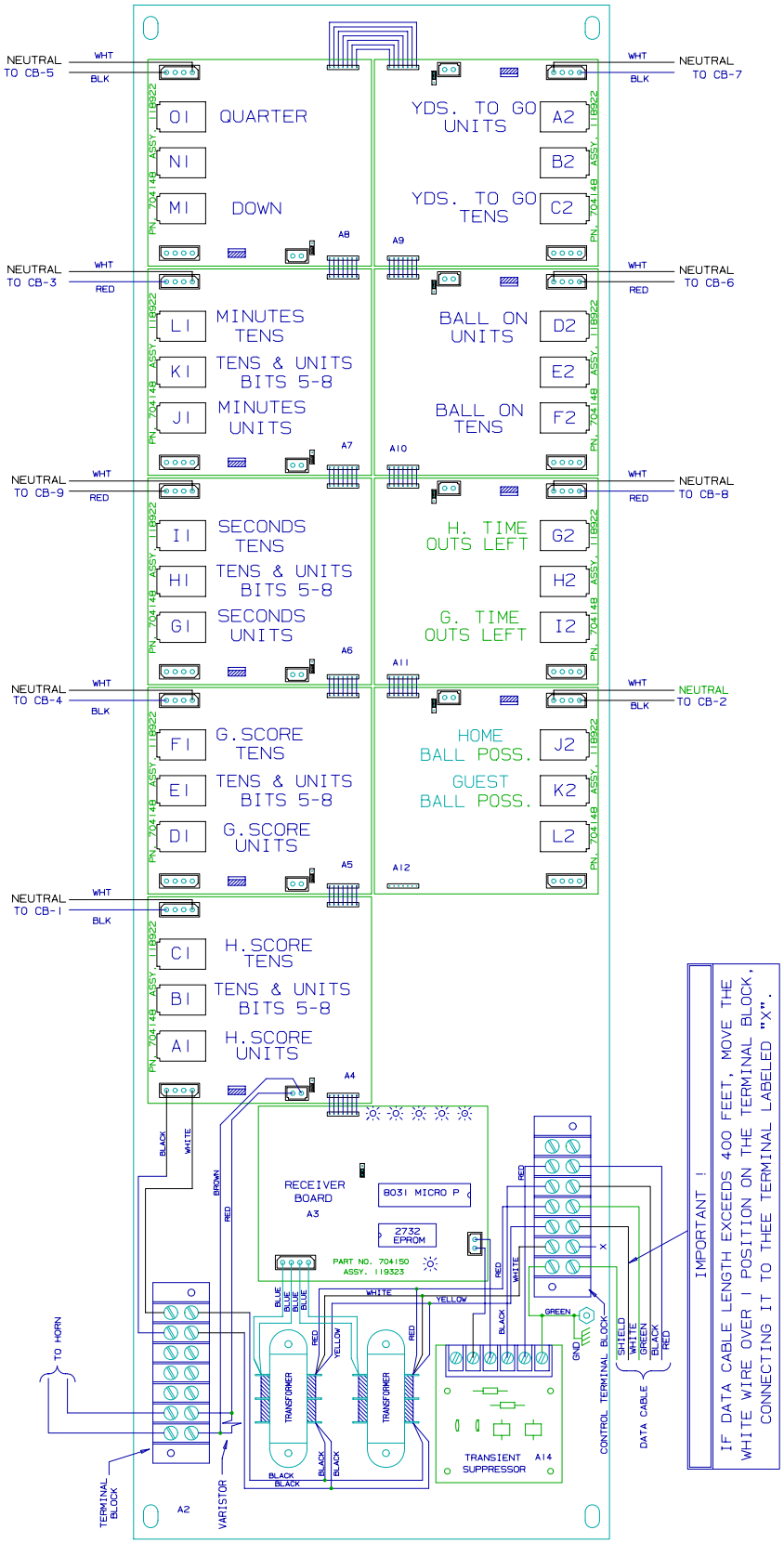
6.4 Power Wiring




4

POWER WIRING

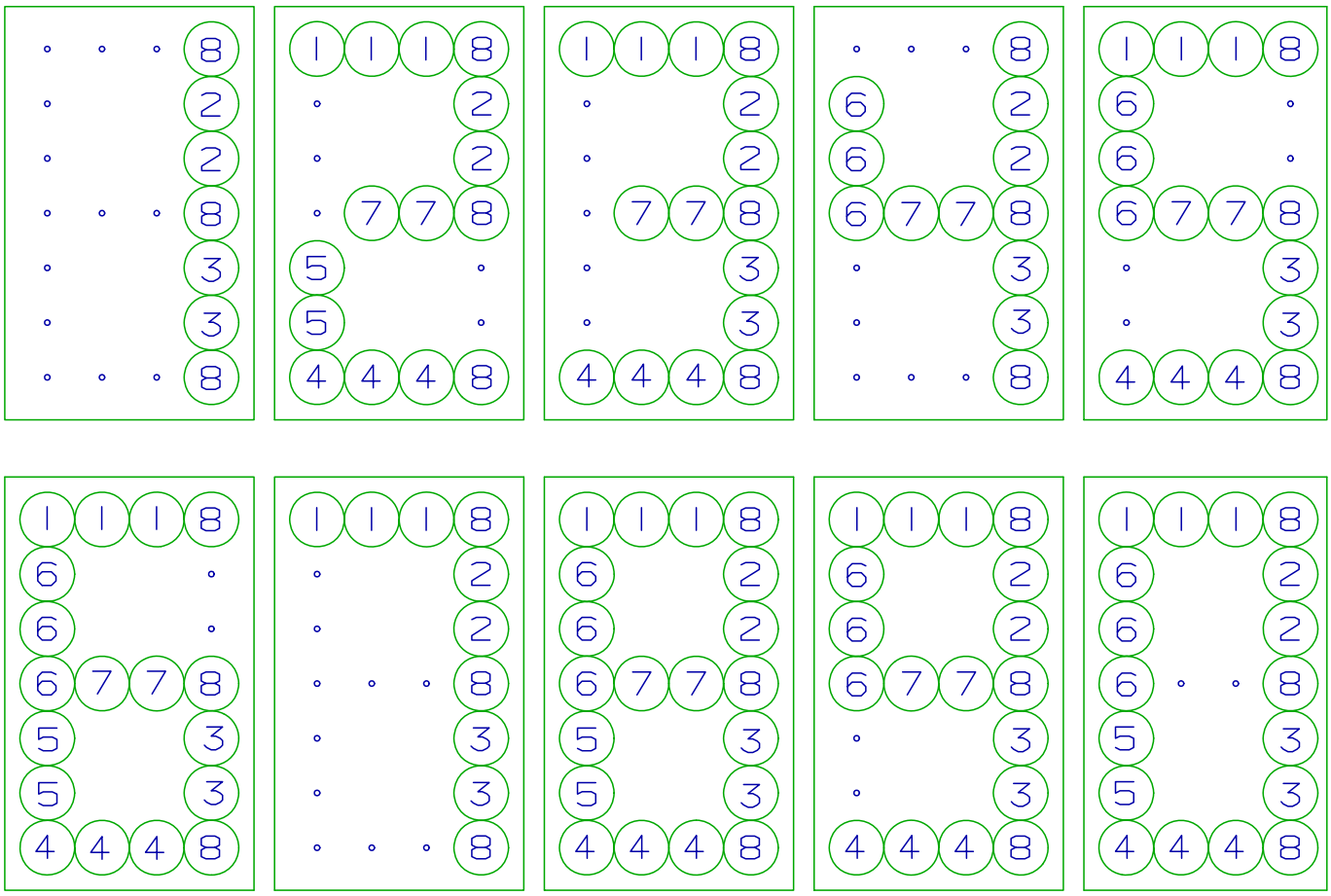
## 6.5 Controller Assembly Wiring

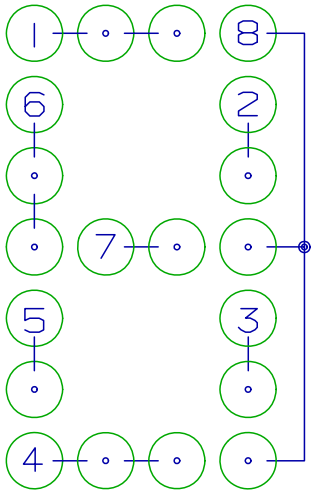



5

CONTROLLER ASSEMBLY

6.6 Microprocessor 4 X 7 Lamp Pattern (8 Bit)





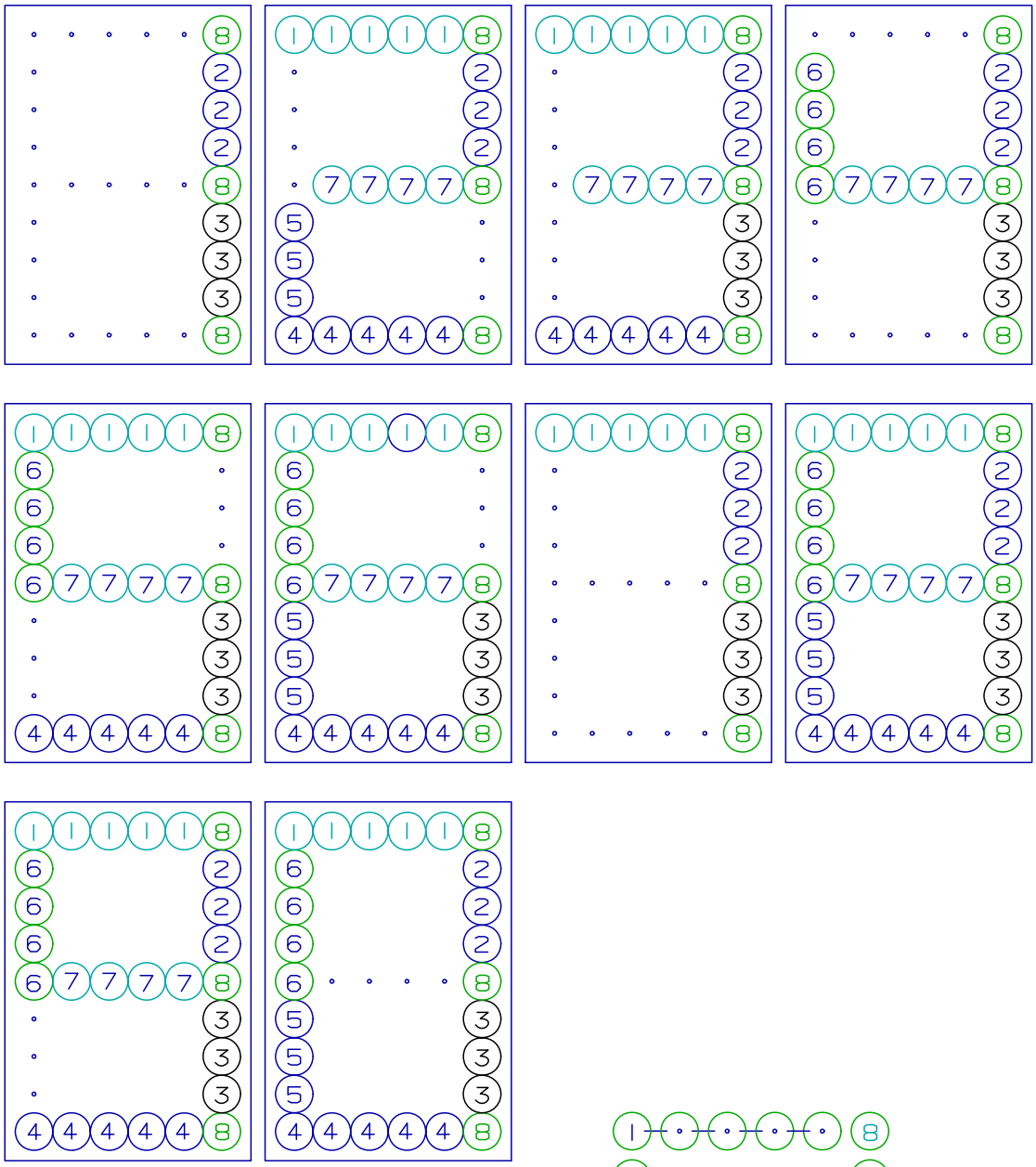
NUMERALS

| 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 |

6

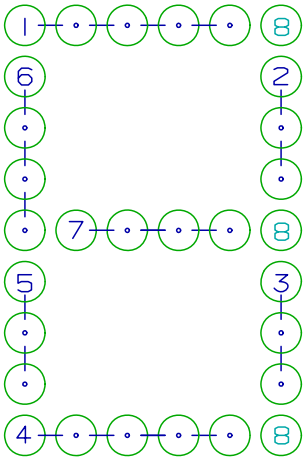
MICROPROCESSOR 4 X 7 (8 BIT) LAMP PATTERN

6.7 Microprocessor 6 X 9 Lamp Pattern (8 Bit)



NUMERALS

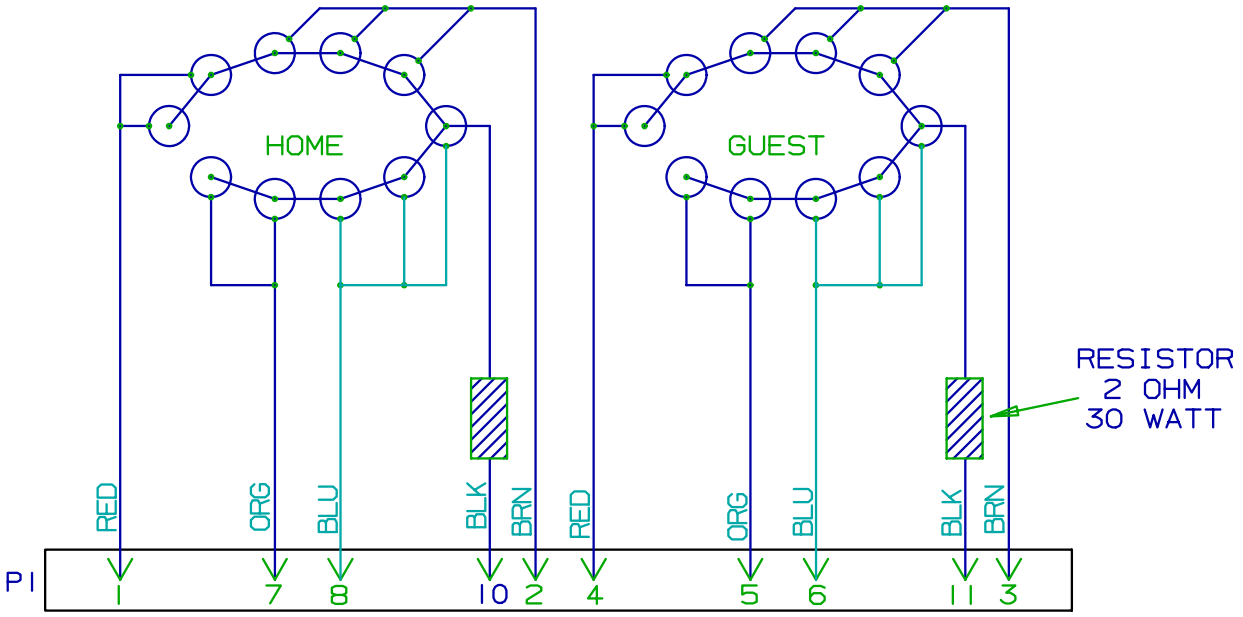
| BIT NUMBERS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | . | 2 | 3 | . | 5 | 6 | 7 | 8 | 9 |
| 2 | 0 | 1 | 2 | 3 | 4 | . | . | 7 | 8 | 9 |
| 3 | 0 | 1 | . | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 4 | 0 | . | 2 | 3 | . | 5 | 6 | . | 8 | 9 |
| 5 | 0 | . | 2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



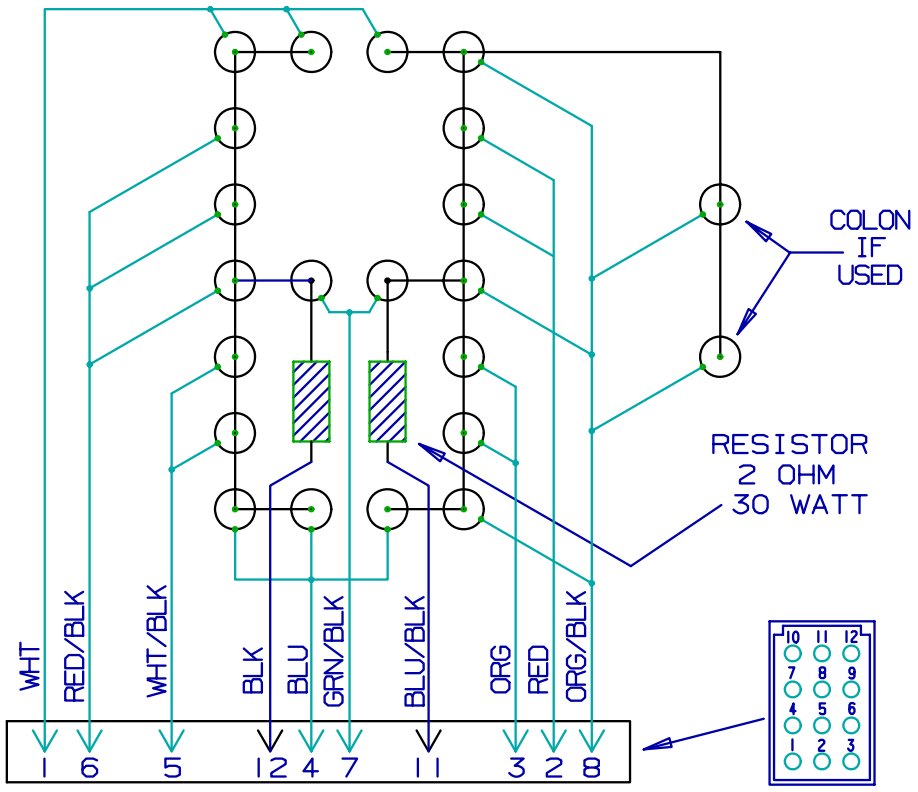
7

MICROPROCESSOR 4 X 7 (8 BIT) LAMP PATTERN

6.8 Figuregram Wiring




POSSESSION WIRING



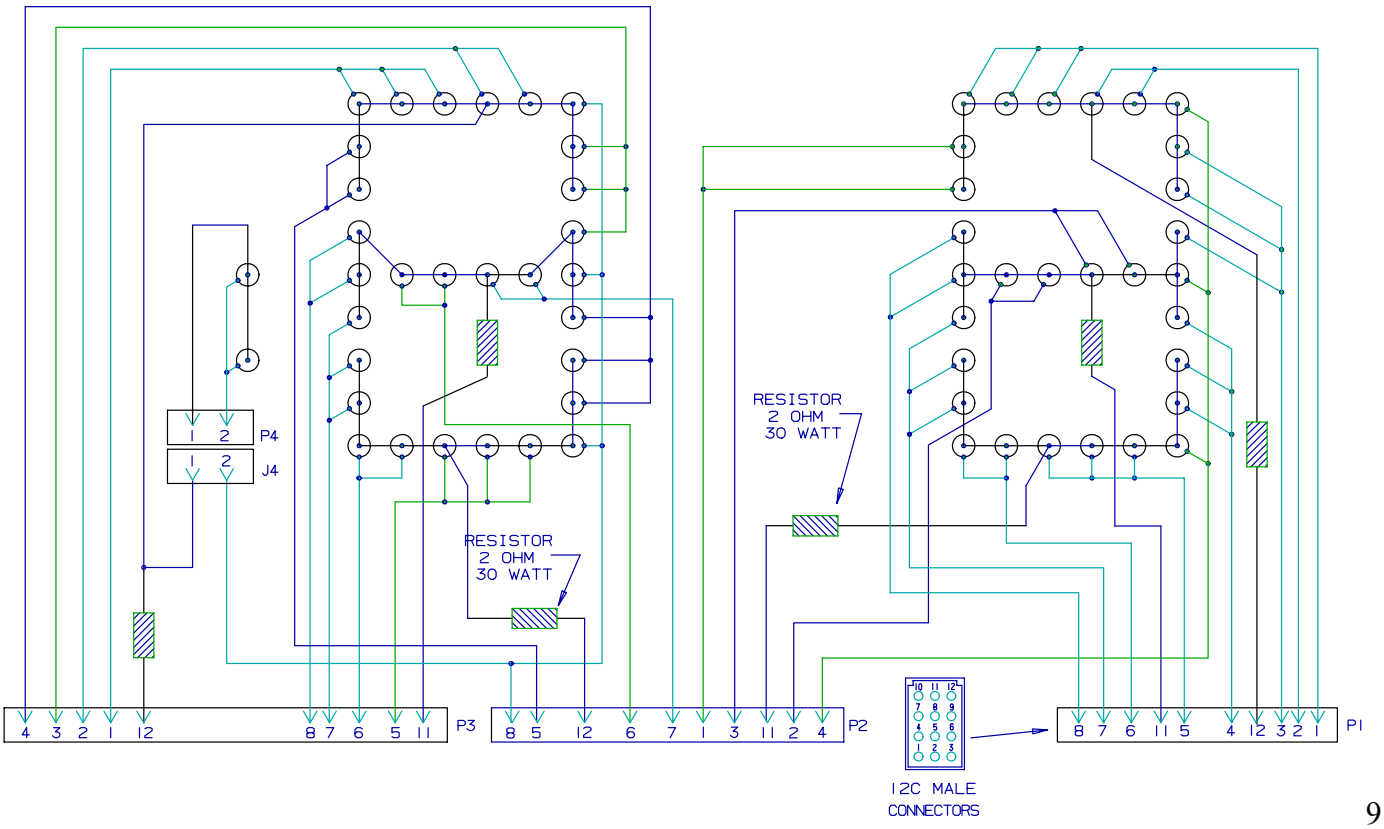

0-9 FIGUREGRAM WIRING

12C MALE
CONNECTOR

8

4 X 7 FIGUREGRAM WIRING

6.8 Figuregram Wiring (cont.)




9

6 X 9 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 11); 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 10); Jumper pins 1 & 2 for use of a horn. Jumper pins 2 & 3 for all others.

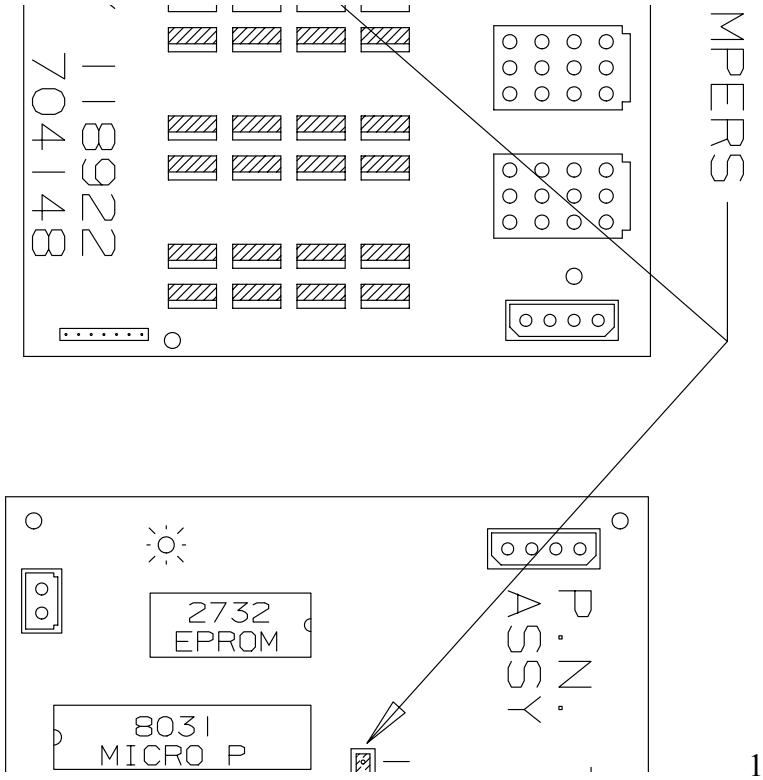



figure 10

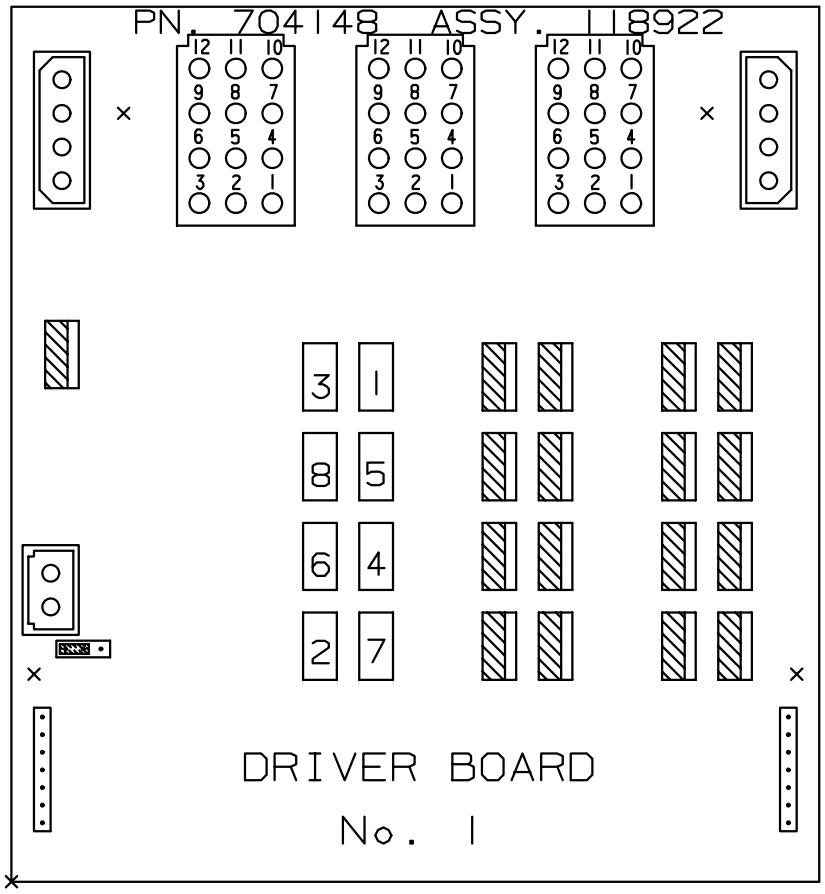


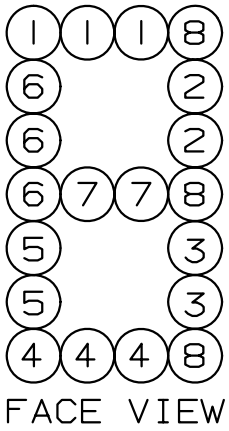

figure 11

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.




11

MP TRIAC PLACEMENT

6.11 Installation Drawing

SEE BLUEPRINT D-13810