ALL AMERICAN® SCOREBOARDS

A product of

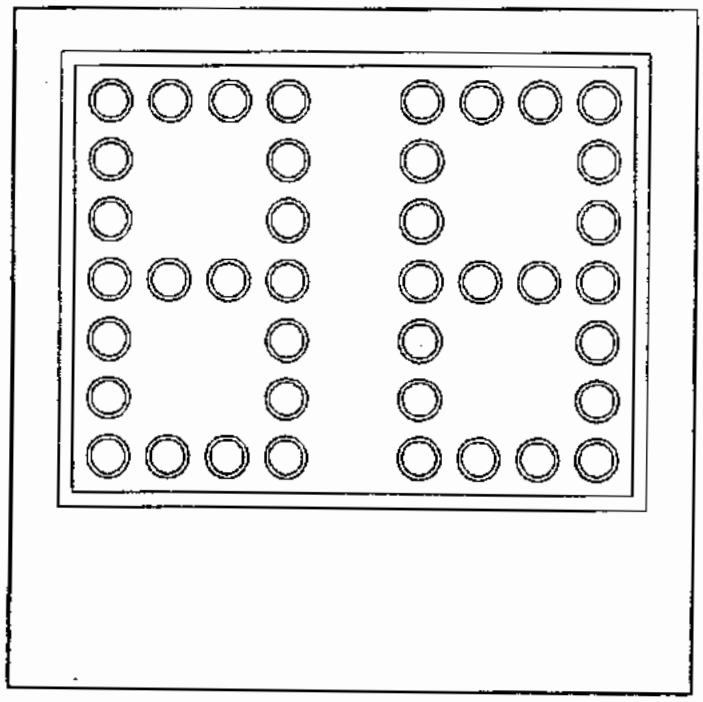
Everbrite

401 S Main St
Pardeeville, WI 53954
(608) 429-2121 / (800) 356-8146

OPERATING INSTRUCTIONS AND SERVICE MANUAL

FOOTBALL DELAY-OF-GAME TIMER

MODEL MP-2499



EFFECTIVE S.N.5066, JAN. 1,1991

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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 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:

2 ea Timer Displays
1 ea Control Console (with ONE 20' cable)
1 ea Service Manual
1 ea Press Junction Box
1 ea Midfield Junction Box (if ordered)
1 ea Floating Time Control with 200' cable (if ordered)
? ft S/S Control Cable (if ordered)

IMPORTANT!
The S/S cable supplied by ALL AMERICAN SCOREBOARDS for use on the Microprocessor based timers is specifically designed for this system. Use of a substitute cable may void the warranty on the scoreboard!

2.2 Mounting

For permanent mounting to uprights, see the enclosed installation drawing in Section 6.

2.3 Data Cable Installation

The S/S 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.

2.4 Electrical connections

The MP-2499 timers require two 120 V. 20 AMP AC circuits.

IMPORTANT !!!
To protect the MP-2000 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 Timer Power

Turn on the branch circuits to the timer displays. Each display will be blank.

3.2 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 (LCD) should show [CODE] .

Enter the four digit code (2499) as in the following example:

Push [CODE] [2] [4] [9] [9] [ENTER] .

When the proper code has been entered, the console display will show "0" and each display will show "0" .

3.3 Console Display

The Liquid Crystal Display (LCD) shows the time.

3.4 Time Setting and Control

The control console can store two preset time periods. One or both of these time periods must be set each time the console is turned on.

To set a 45 second, and a 5 second period, key in the following:

Push [SET 1] [4] [5] [ENTER].

Push [SET 2] [5] [ENTER].

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

Push [RESET 1] or [RESET 2] to reset the time to the previously set value.

The time can be corrected without affecting the preset times by using the [EDIT] key. Push [EDIT] followed by the desired time, then [ENTER].

The [UP/DN] key determines the timer mode. When the LED indicator glows, the timer will count up. The timer will count down when the LED indicator is off.

Push [IN/OUT] to start/stop the timer.

The display can be blanked with the [BLANK] key.

3.5 Dimmer Operation

Push the [DIM] key to alternately dim and brighten the lamps, for day/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) Timers don'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 timers.
(d) If the timer still doesn't light, check the transformer voltage going to pins 5 & 6 of the data input connector 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 check the voltage again at the control console end of the cable.

If the voltage is less than 8 VAC check the cables and connectors.

If the voltage is between 8-12 VAC see the replacement parts list for a control or transmitter PCB assembly, and contact the Customer Service Department.

(B) Timer 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 timer digits light but the console doesn't work

(a) Check for continuity between the timer 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 blue 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 consult the parts list for a control console and contact the Customer Service Department.

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

(a) Check the voltage between the black and green 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 timer.
(d) If the correct voltage also appears at the timer, see the replacement parts list for a receiver PCB assembly.

(E) The timer 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 timer 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

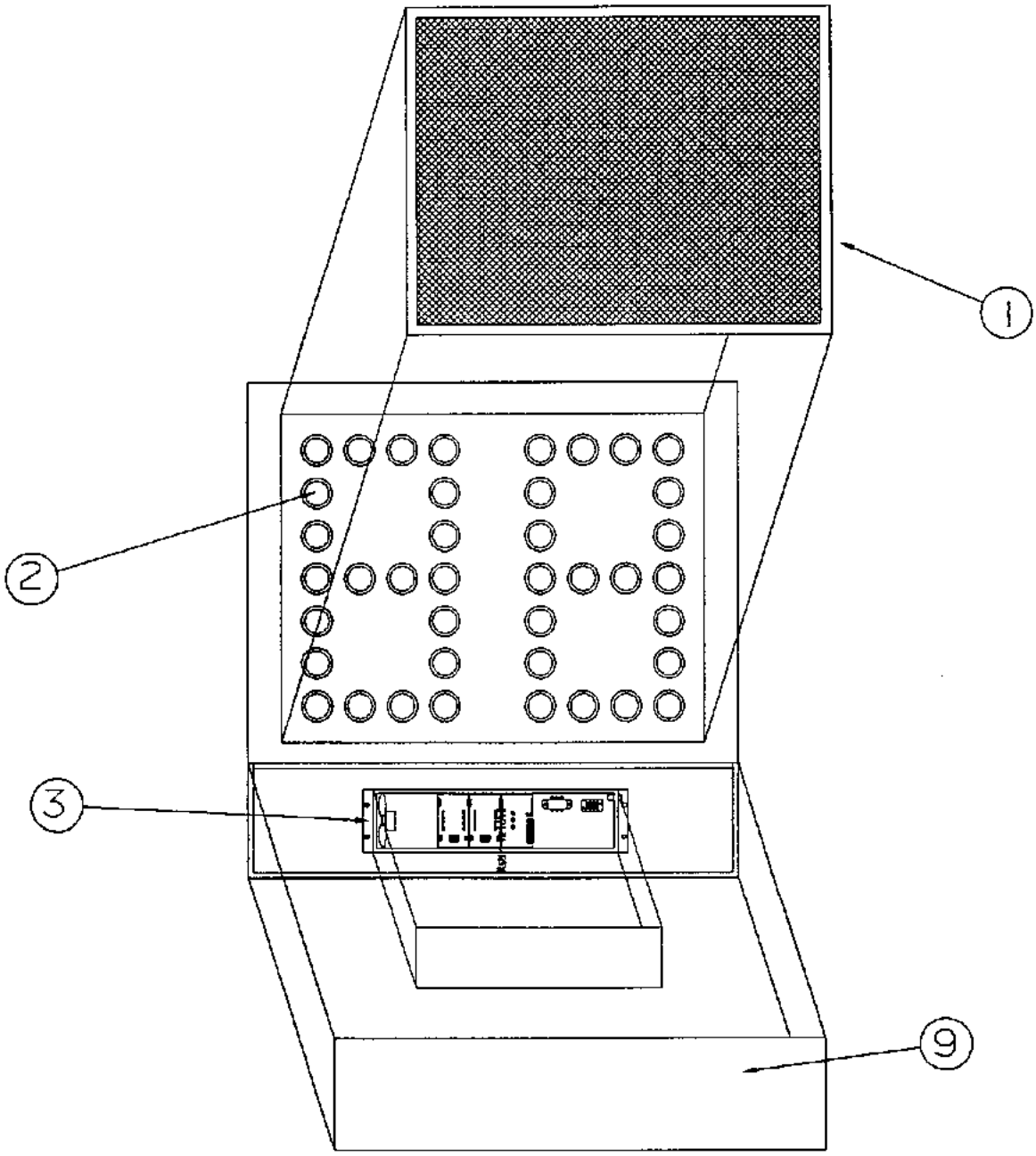


figure 1

DISPLAY ASSEMBLY

REPLACEMENT PARTS LIST (MP-2499 D.O.G.Timer)

fig.& index	MFG PART NUMBER	DESCRIPTION	REF DES	VENDOR PART #
1-	121286	Display Assy, MP-2499		121286
1-1	120174	Screen, Timer		120174
1-2	850027	Lamp, 40W/130V IF		40A19IF
1-3	121296	Controller Assembly, MP-2499	A2	121296
		*****SEE DETAIL FIGURE 2*****		
1-4	700520	Varistor,		ERZ-C20DK201U
1-5	701101	Terminal Block, 3C Kulka	TB1	671-3
1-6	705010	Connector, 3 Pin Female CPC	J2	2060372
1-7	930895	Connector, 6 Pin Female (Hirose)	J1	RM12BRD-6S
1-8	EL044100	Resistor, 2 OHM 30 WATT Wire Wound		HL-24-09Z
1-9	151204	Service Door		151204
	121287	Control, MP-2000 W/Cable		121287
	180198	Control, MP-2000 WO/Cable		180198
	119771	Slipsheet		119771
	180110	Transmitter PCB Assembly	A1	180110
	930895	Connector, 6 Pin Female BM	J1	RM12BRD-6S
	121855	Cable Assy, 20' S/S with 6 Pin Con. each end		121855
	930894	Connector, 6 Pin Male CCT	P1/P2	RM12BPG-6P
	180111	Junction Box, MP-2499 Press Box or Mid-Field		
	930895	Connector, 6 Pin Female BM	J1	RM12BRD-6S
	701137	Terminal Block, 7C		670-7 Kulka
	150507	Cable, S/S Control		8786 Belden
	121288	Cable Assy, 200' S/S with 6 pin Con. each end		121288

REPLACEMENT PARTS LIST (MP-2499 D.O.G.Timer)

fig.& index	MFG PART NUMBER	DESCRIPTION	REF DES	VENDOR PART #
	180111	Junction Box, MP-2499 Press Box or Mid-Field		
	930895	Connector, 6 Pin Female BM	J1	RM12BRD-6S
	701137	Terminal Block, 7C		670-7 Kulka
	150507	Cable, S/S Control		8786 Belden
	121288	Cable Assy, 200' S/S with 6 pin Con. each end		121288
	150012	Floating Time Control W/20' Cable		150012
	702785	Connector, 5 Pin Male CCT	P5	RM12BPG-5P
	150505	Cable, F5 Control		YR7667 Belden
	151184	Floating Time Control W/160' Cable		151184
	702785	Connector, 5 Pin Male CCT	P5	RM12BPG-5P
	150505	Cable, F5 Control		YR7667 Belden
	151002	Mid-Field Junction Box, W/5 Pin Female		151002
	702786	Connector, 5 Pin Female	J1	RM12BRD-5S
	701137	Terminal Block, 7C		670-7 Kulka
	150508	Cable, MP-40 Control		YR21233
	121331	Press Junction Box w/2 Fem.Con.(Flt Time),		121331
	702786	Connector, 5 Pin Female	J4	RM12BRD5S
	930895	Connector, 6 Pin Female BM	J1	RM12BRD-6S
	150507	Cable, S/S Control		8786 Belden
	701137	Terminal Block, 7C		670-7 Kulka
	701102	Terminal Block, 5C		671-5 Kulka

5.2 Scoreboard Controller Assembly Parts

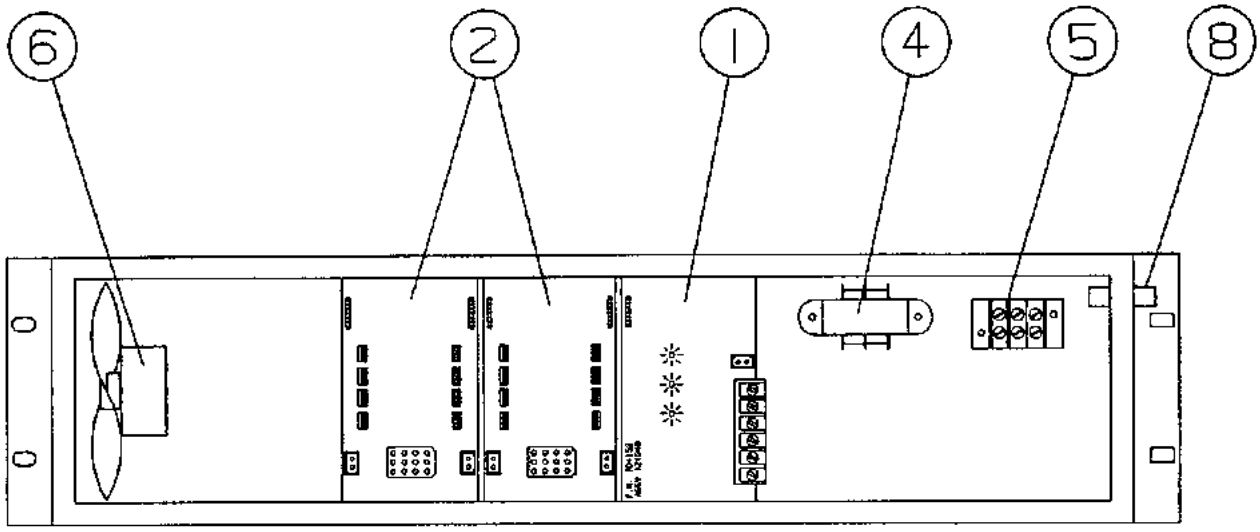


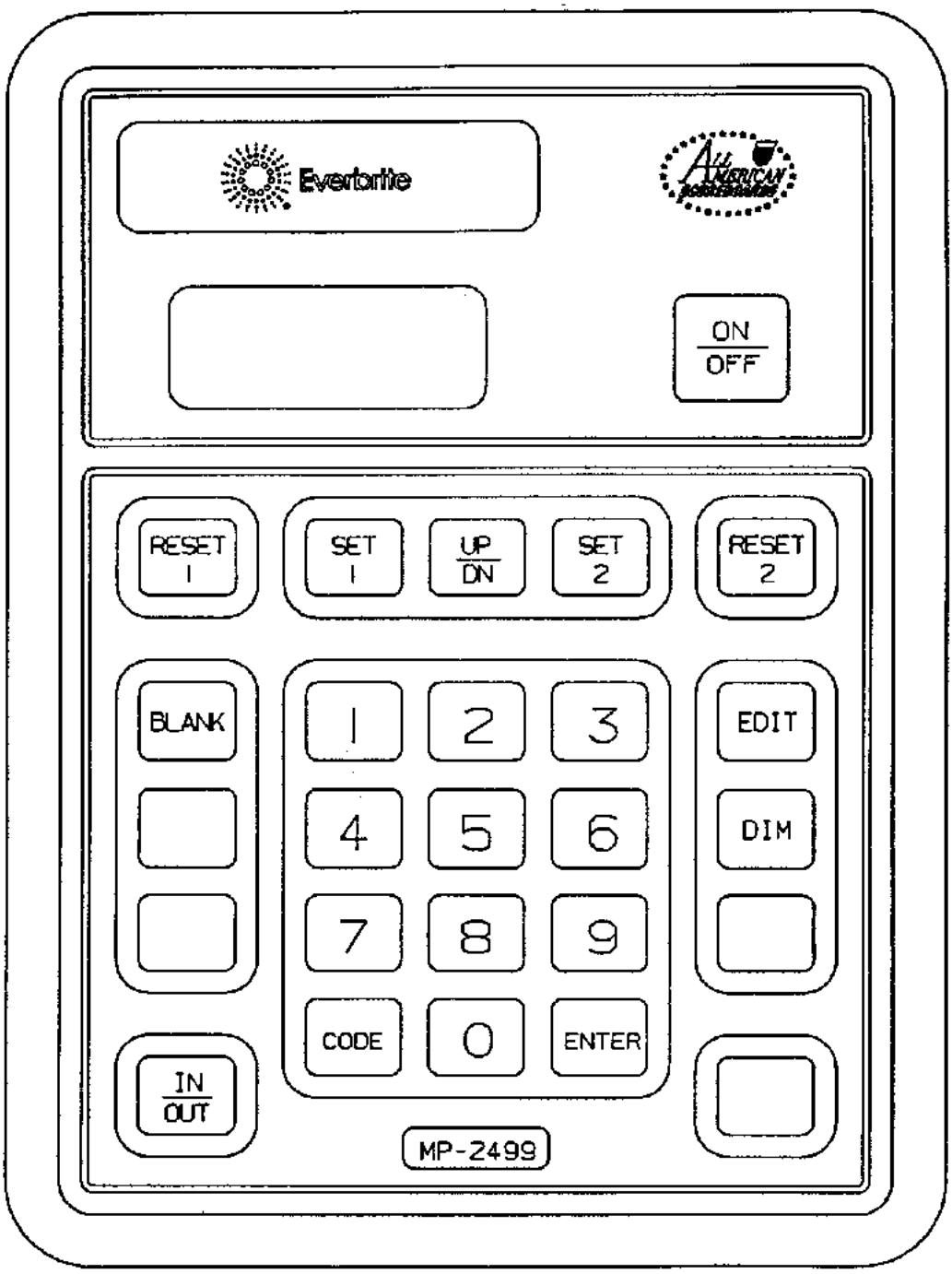
figure 2

CONTROLLER ASSEMBLY

REPLACEMENT PARTS LIST (MP-2499) Controller Assembly				
fig.& index	MFG PART NUMBER	DESCRIPTION	REF DES	VENDOR PART #
2-	121296	Controller Assembly	A2	121296
2-1	121049	Receiver PCB Assembly *** PROGRAM 3MP-CNT-V00***	A3	121049
2-2	121050	Driver PCB Assembly	A4/A5	121050
2-3	930674	Cable Assy, 3" ribbon (Panduit)		CE100F22-7
2-4	703719	Transformer, 8V/18V	T1	CS-697
2-5	701101	Terminal Block, 3C	TB2	671-3
2-6	703647	Fan Assy		614-0460-32334
2-7	180199	Fuse, 20A 250V	F1	3420001A
2-8	701036	Fuseholder, Snap-In (Little Fuse)		342001A
2-9	705009	Connector Assy, 3C Male (AMP)	P7	206036-2

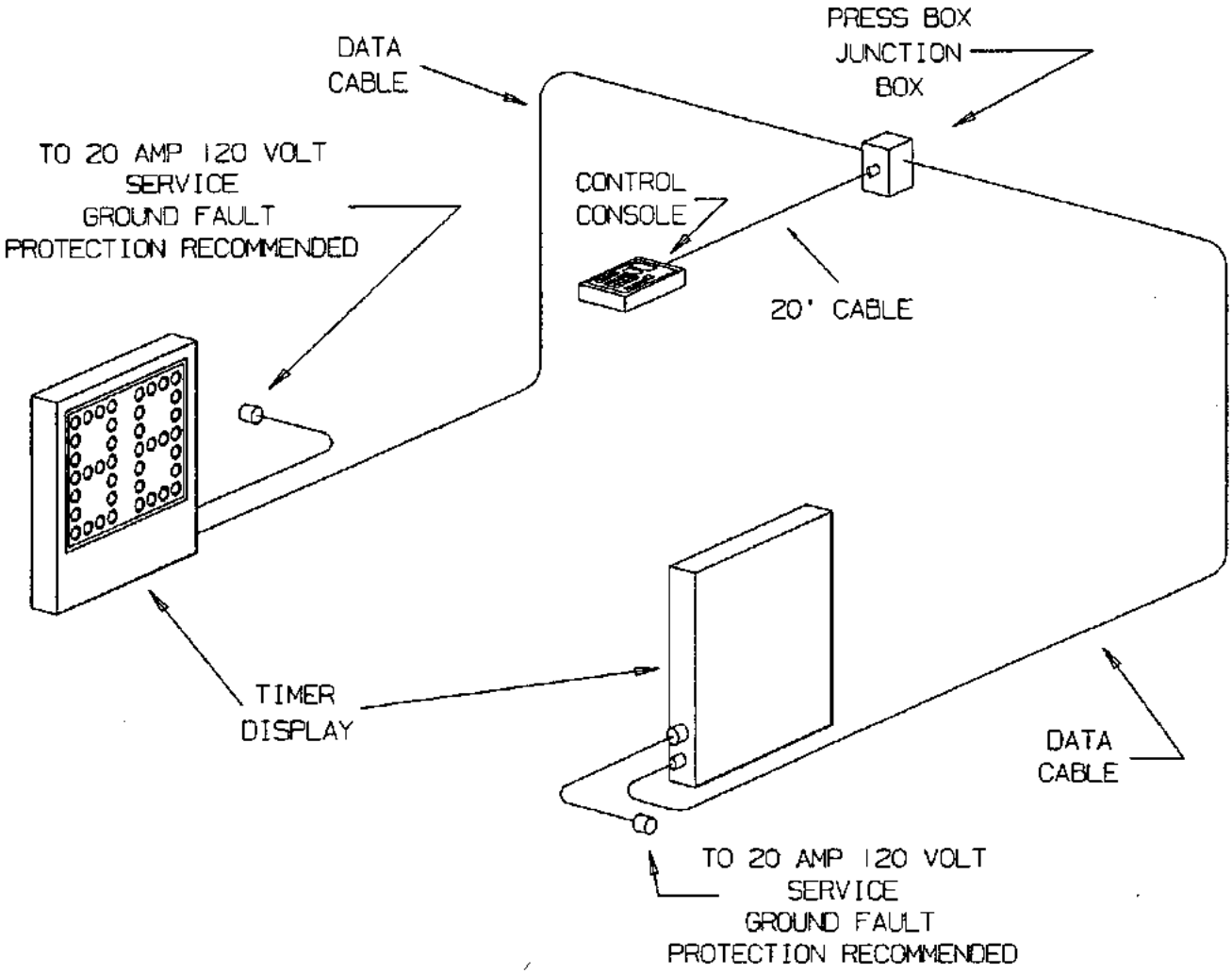
6. DIAGRAMS

6.1 Control Console Keyboard and Slipsheet Layout



CONSOLE KEYBOARD

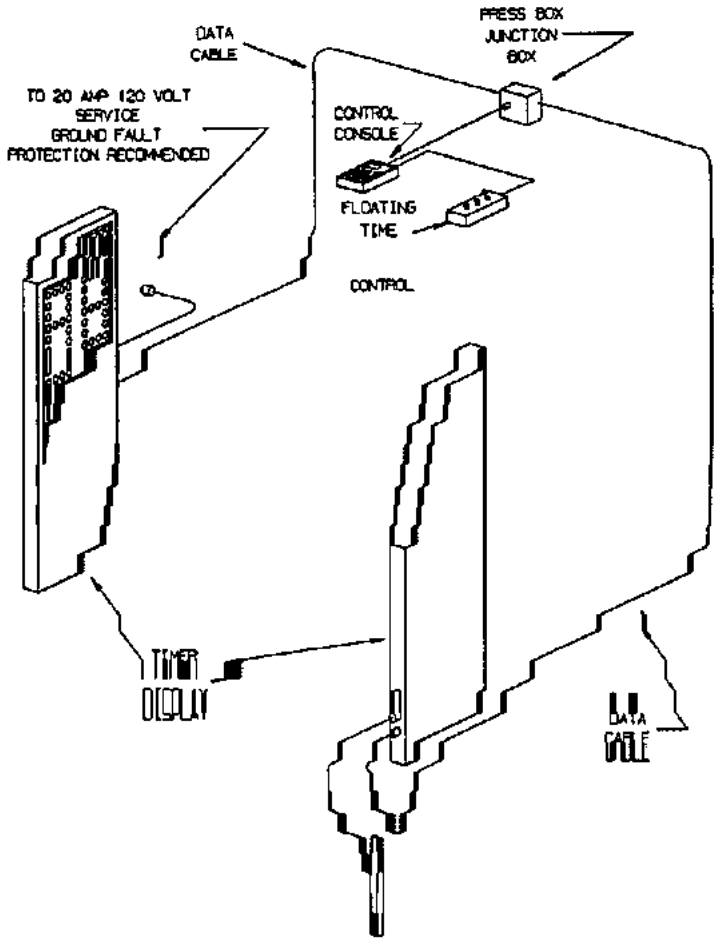
6.2 Scoreboard System Layout

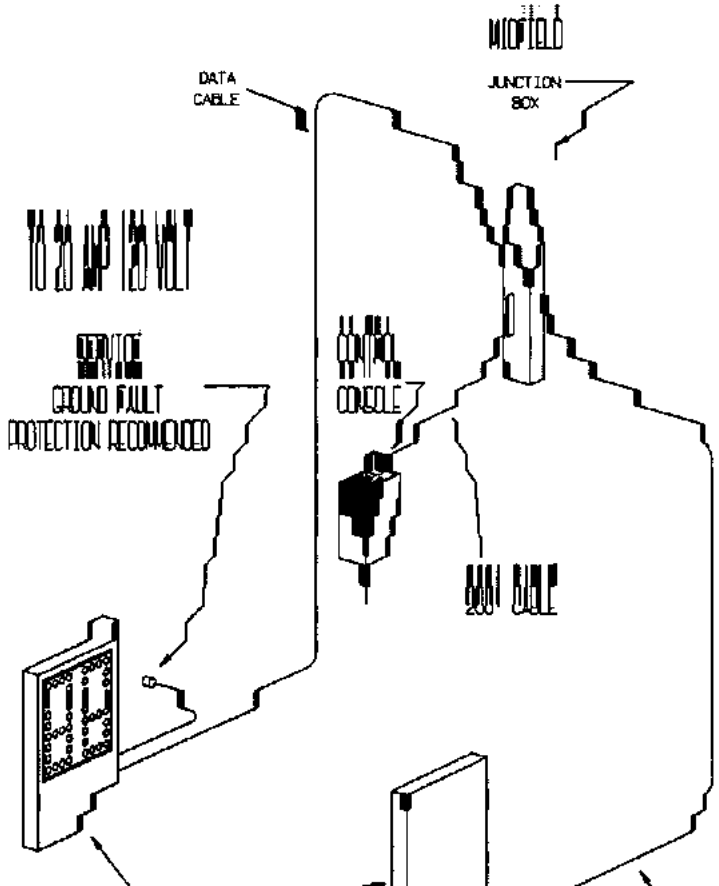


SYSTEM LAYOUT

6.3 Optional Scoreboard System Layouts

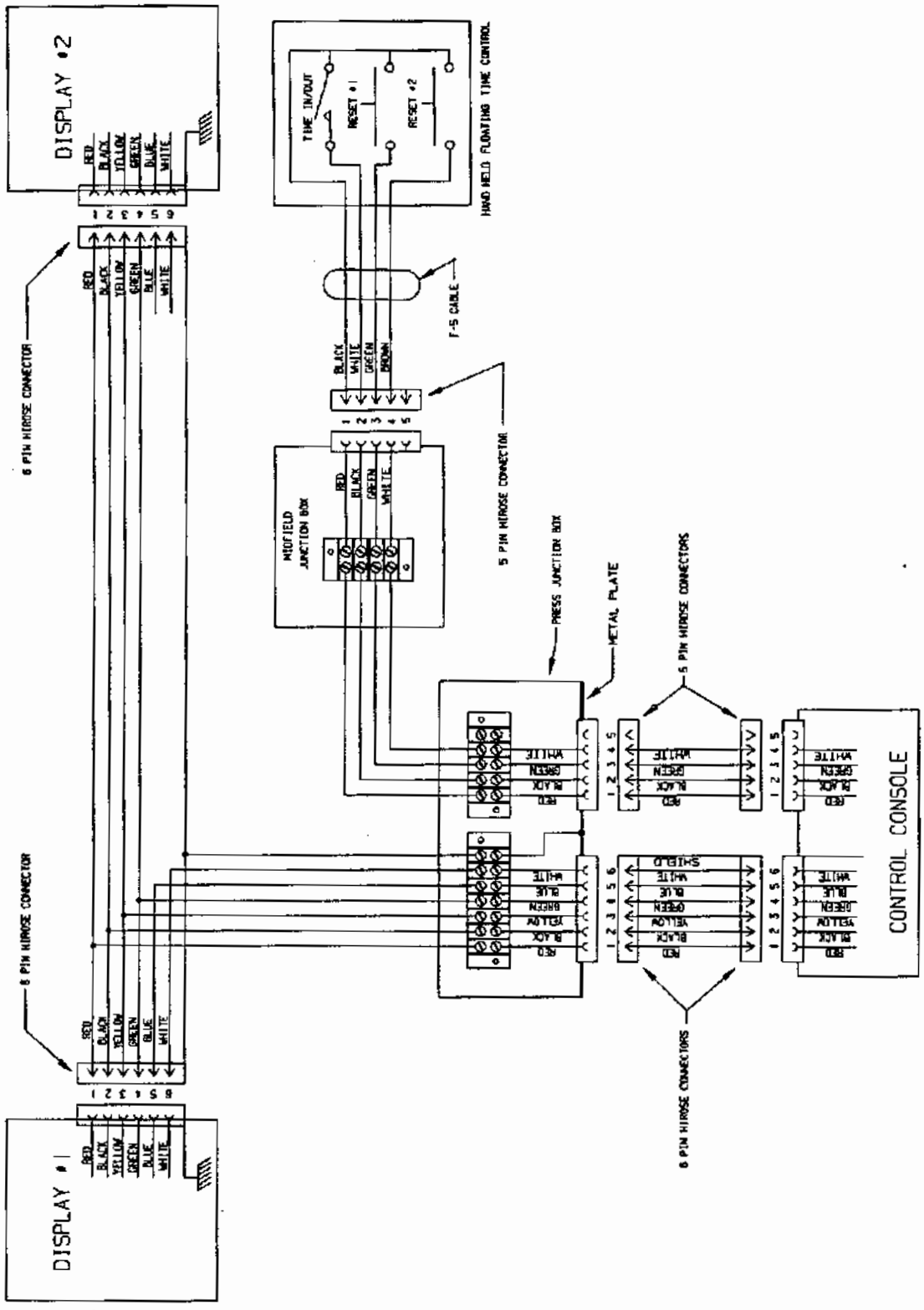
This setup requires an additional 5 Pin connector installed in the control and a hand held control with 10' cable.





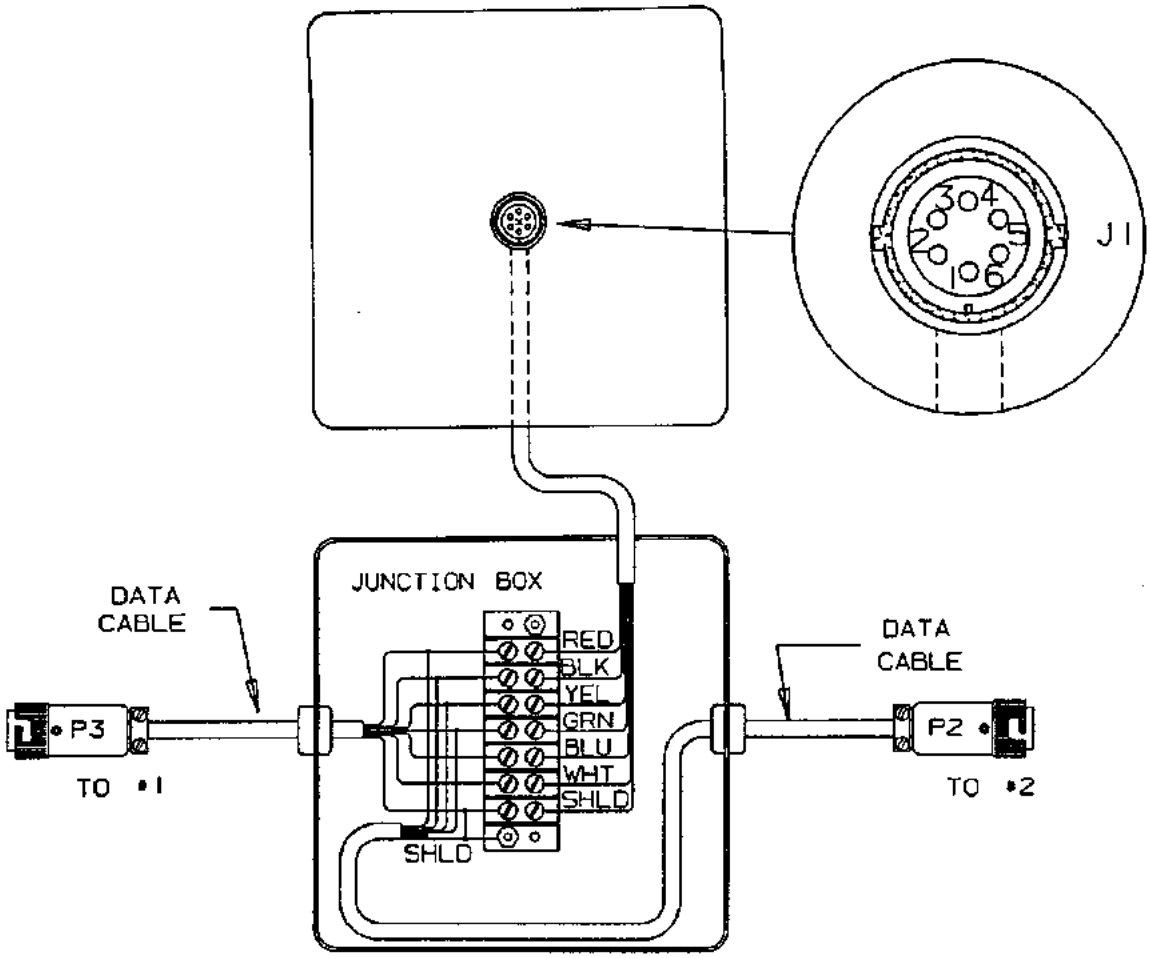
This setup requires a 200' cable installed on the control console.

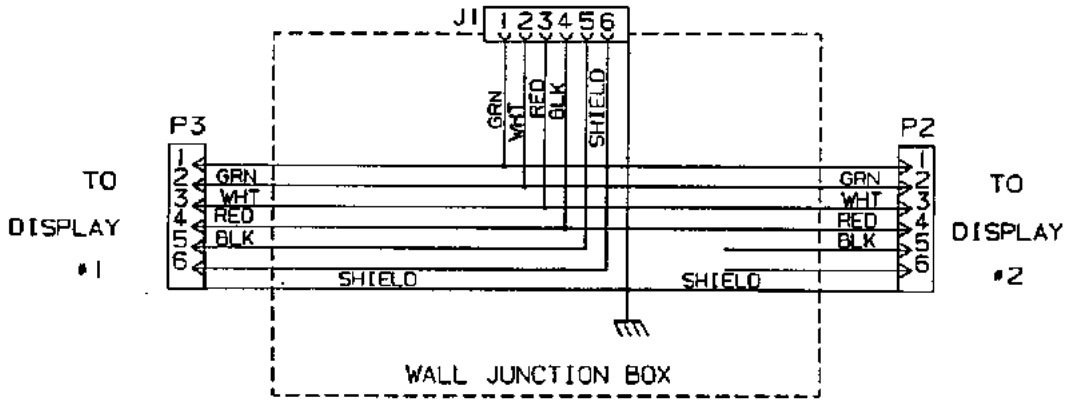
6.4 Data Cable Wiring



CABLE WIRING

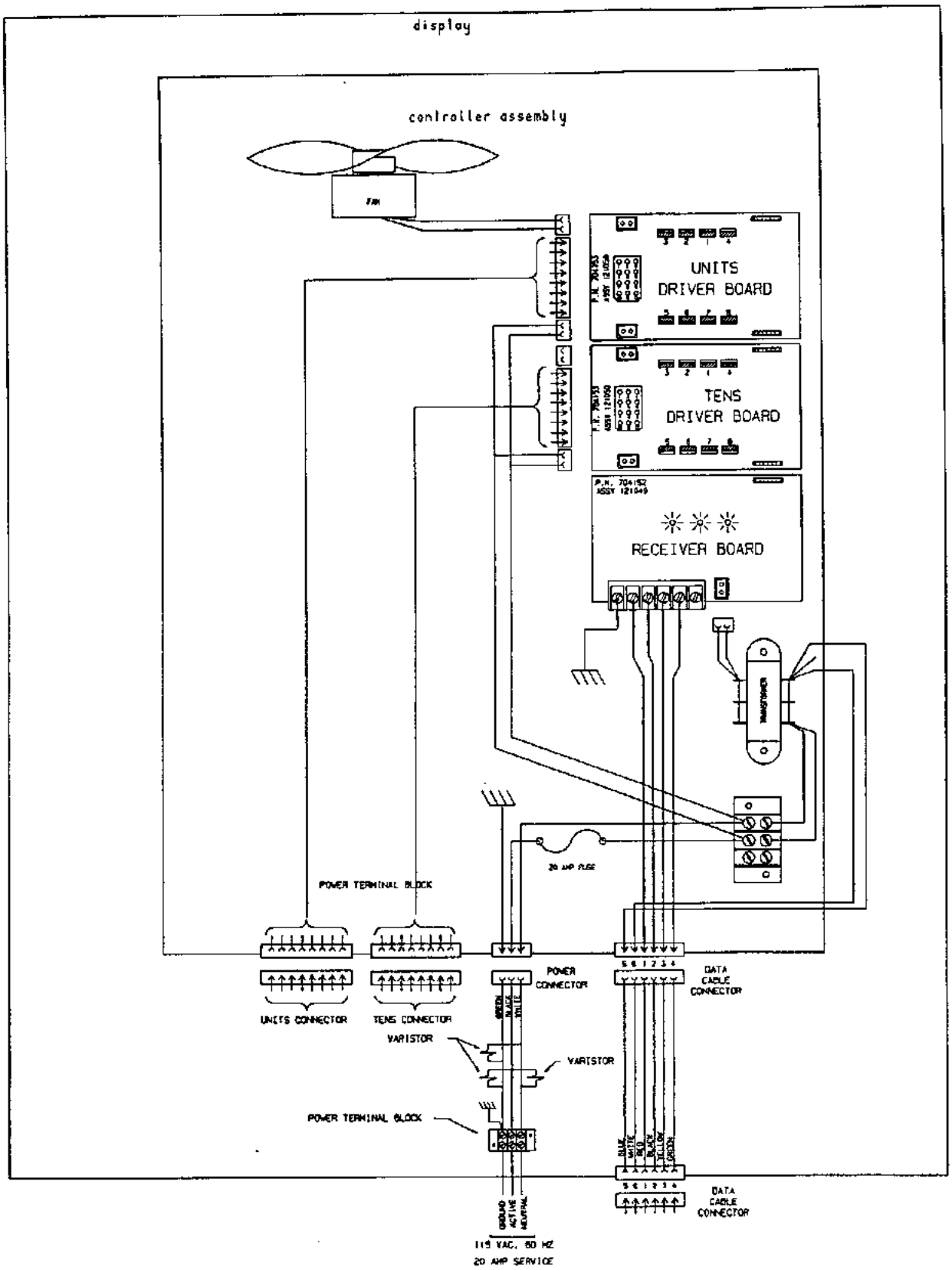
6.5 Single Junction Box Wiring





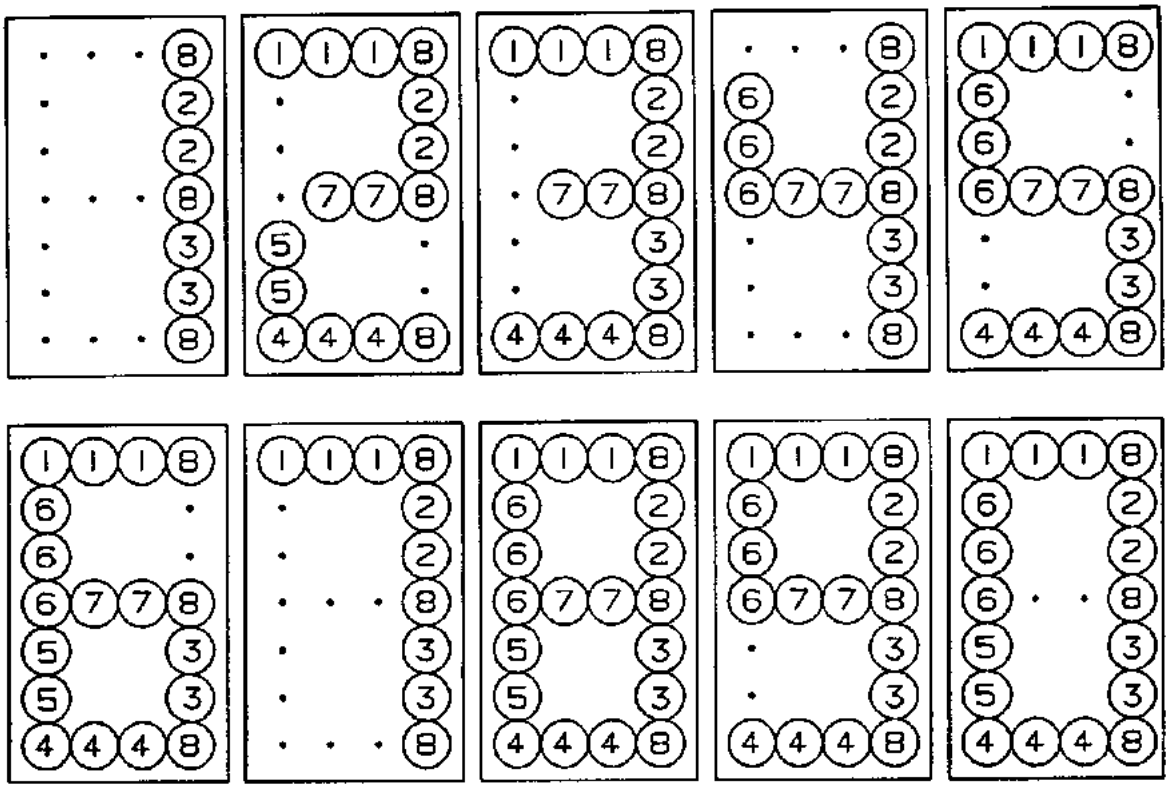
SINGLE JUNCTION BOX WIRING

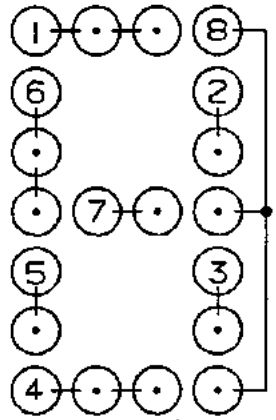
6.6 Display Assembly Wiring



CONTROLLER ASSEMBLY

6.7 Microprocessor 4 X 7 Lamp Pattern

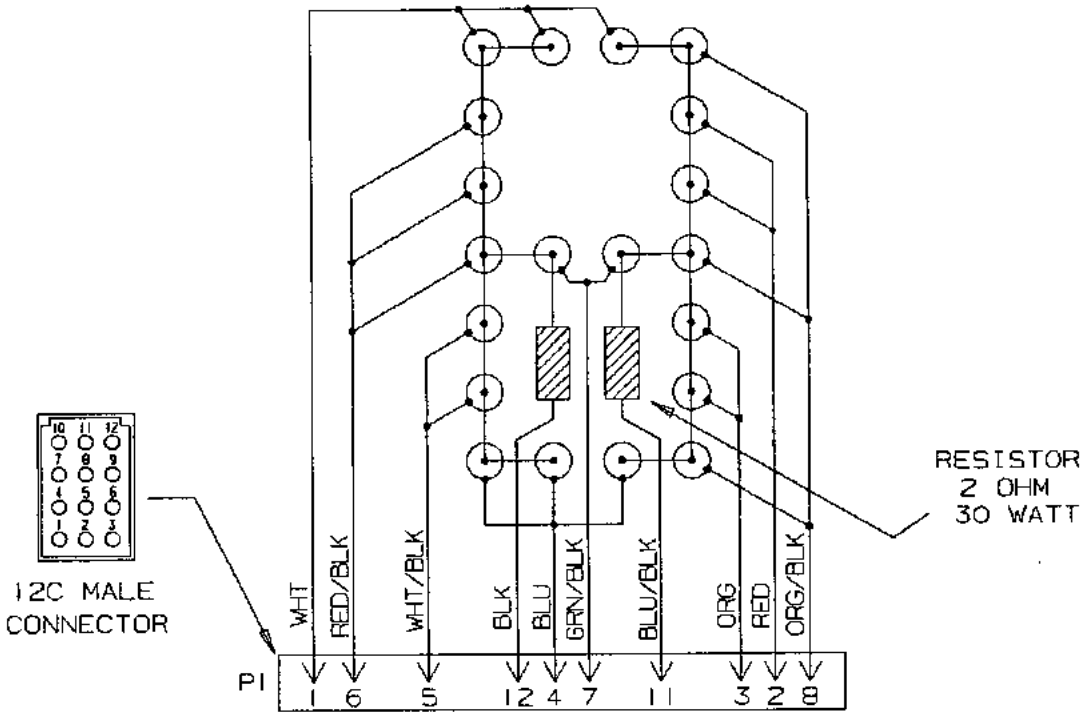




BIT NUMBERS	NUMERALS									
	0	1	2	3	4	5	6	7	8	9
1	0	.	2	3	.	5	6	7	8	9
2	0	1	2	3	4	.	.	7	8	9
3	0	1	.	3	4	5	6	7	8	9
4	0	.	2	3	.	5	6	.	8	9
5	0	.	2	.	.	.	6	.	8	.
6	0	.	.	.	4	5	6	.	8	9
7	.	.	2	3	4	5	6	.	8	9
8	0	1	2	3	4	5	6	7	8	9

MICROPROCESSOR 4 X 7 (8 BIT) LAMP PATTERN

6.8 Figuregram Wiring

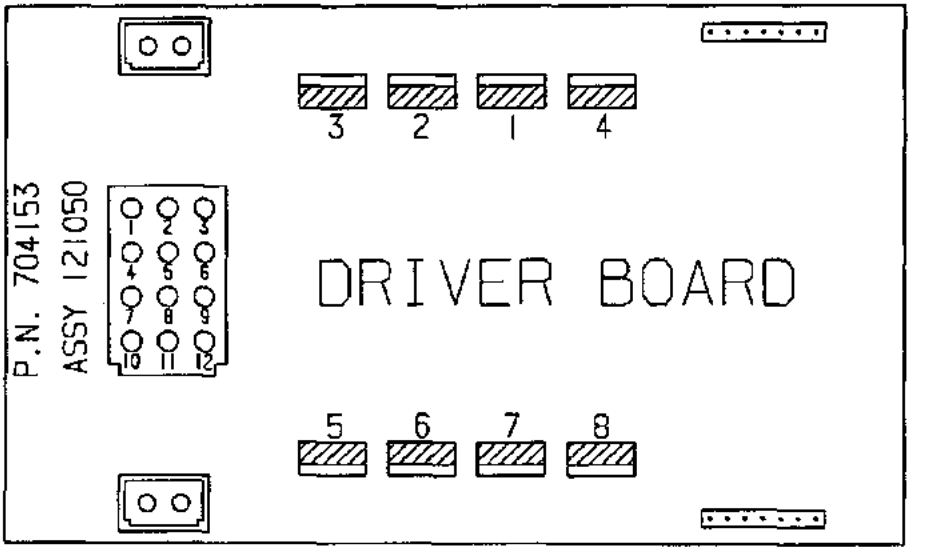


0-9 FIGUREGRAM WIRING

FIGUREGRAM WIRING

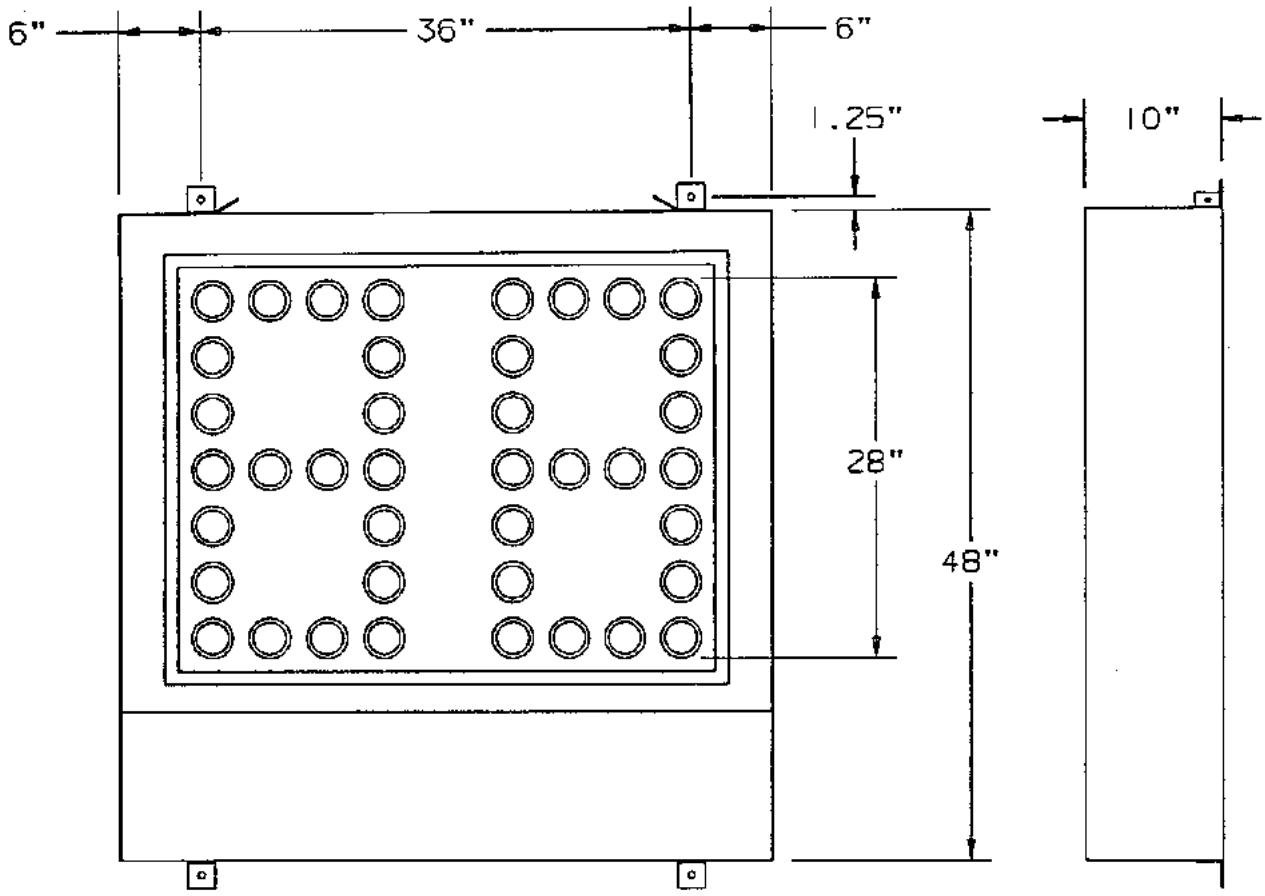
6.9 Triac Placement

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 PLACEMENT

6.10 Installation Drawing



USE 1/2" DIA. HARDWARE (NOT FURNISHED)
FOR MOUNTING THE SCOREBOARD DISPLAY