

All Sport Indoor Basketball LED Scoreboards

Basketball and Shot Clocks Installation/Maintenance Manual (-9 Models)

ED-10718

All Sport is a registered trademark of Daktronics, Inc. Model Numbers:

Baske		
BB-87-9	BB-2025-9	BB-
BB-1113-9	FP-15-9	BB-
BB-1813-9	FP-257-9	BB-
BB-2021-9		BB-

Shot Clock: 3-2014-9 BB-2029-9 3-2015-9 3-2023-9 3-2026-9

Note: For specific information on your Daktronics scoreboard, refer to the Appendix located in the back of this manual. Please fill in the information lines below for your display to use as a reference when calling Daktronics for assistance.

Scoreboard Serial #	_
Scoreboard Model #	
Date Installed	

ED-10718

Product#1152 Rev. 7 - 14 Oct 99 Copyright 8 1998 Daktronics, Inc.

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1.1 How To Use This Manual

This manual explains the installation and maintenance of Daktronics indoor LED scoreboards. For questions regarding the safety, installation, operation or service of this system, please refer to the telephone numbers listed on the cover page of this manual.

Important Safeguards:

- 1. Read and understand these instructions before installing.
- 2. Do not drop the control console or allow it to get wet.
- 3. Disconnect power when not using the scoreboard.
- 4. Disconnect power when servicing the scoreboard.
- 5. Do not modify the scoreboard structure or attach any panels or coverings to the scoreboard without the express written consent of Daktronics, Inc.

Daktronics identifies manuals by an ED number located on the cover page of each manual. Any reference manuals called out in this manual will be identified by its ED number. For example, this manual is referred to as **ED-10718**.

The box below illustrates Daktronics drawing numbering system. Daktronics identifies individual drawing by drawing number (7087-P08A-69945, below), located in the lower right corner of the drawing. The manual refers to drawings by listing the last five digits and the letter preceding them. In the example, the drawing would be referred to as **Drawing A-69945**. All drawings reference drawings are inserted at the end of each section.

		DAKTRONICS, IN	C. I	BROOKINGS, SD 5700	8
PR0J:					
TITLE:					
DES. BY:	_	DRAV	₩N BY:	DOK	DATE: 04-20-95
	APPR. BY:				60045
	SCALE:	1=80		7087-P08A	-09940

This manual covers a wide range of models which are constructed using the same components. The sections covering installation and maintenance apply to all of the models in general. The appendices contain lists of reference drawings, which offer more specific installation and maintenance information for each individual model. Carefully read the installation and maintenance sections, and review the model-specific drawings, before proceeding with the installation or maintenance of any display.

1.2 Scoreboard Overview

This Daktronics scoreboard is one of a family of display systems designed to offer simple installation, easy readability, and reliability. Microprocessor control assures consistent operation and accuracy.

This manual covers All Sport⁷ Indoor LED scoreboard models. These display configurations contain 5", 7", 10", and 13" LED digits. The reference drawings list dimensions and weight of each display. Scoreboard model number and electrical requirements are found on a label to the left of the period digit on the front of the scoreboard.

Please note the scoreboard model number, serial number, and installation date on the front page of this manual for future reference.

2.1 Product Safety Approval

Daktronics Indoor LED Scoreboards are ETL listed, tested to CSA standards, and CE labeled for indoor use. Contact Daktronics with any questions regarding the testing procedures

2.2 Mounting Details

The scoreboard frame comes equipped with lift eyes for installing the display and holes for attaching the display to the wall.

Due to the variety of wall materials used in sports facilities, Daktronics cannot anticipate a users individual installation needs or provide mounting hardware suitable for every installation. The required mounting hardware may be purchased at a local hardware store. Bolts with expansion or toggle anchors are available for a variety of wall materials. Choose a method of installation adequate to safely support the weight of the display. Refer to model-specific information in the appendices for mounting locations and model weights.

Use the lifting angles on the top of the frame to lift the display. Secure the display to the wall with the holes in the back. Use the holes at the bottom of the display to secure the bottom of the display to the wall in a similar manner. Refer to the appendices for model-specific information.

Note: Contact Daktronics about installations which involve suspending the scoreboard. Do not use scoreboard lift eyes as permanent installation support.

2.3 Electrical Installation

Electrical installation involves routing power and control signal wiring through separate conduit or wire ways. Control signal cable and some junction boxes, as listed in the reference drawings, are not provided as part of this system and can be purchased locally or from Daktronics.

2.3.1 Power

Reference Drawing: Schematic, LED Drawing A-92112

Each scoreboard has a 120 VAC, 3-prong plug. Install a grounded receptacle near the equipment so that it is easily accessible to plug in the power cord. The reference drawings located in the appendix list maximum power consumption for each scoreboard model.

The control console requires a 120 VAC receptacle and uses less than one amp of power. 230 VAC displays are available. They come equipped with a universal power plug. 230 VAC should be routed to the display in a similar manner as 120 VAC. Refer to **Drawing A-92112** for more information.

2.3.2 Grounding

Connect the scoreboard to earth-ground. Proper grounding assures reliable equipment operation and protects the equipment against damaging electrical disturbances and lightning. The grounding connection on the three-prong plug power cord connects to the shell of the scoreboard.

Note: The customer must properly ground the 120VAC outlet. Failure to ground the 120VAC outlet connection voids the warranty for the scoreboard.

2.3.3 Signal

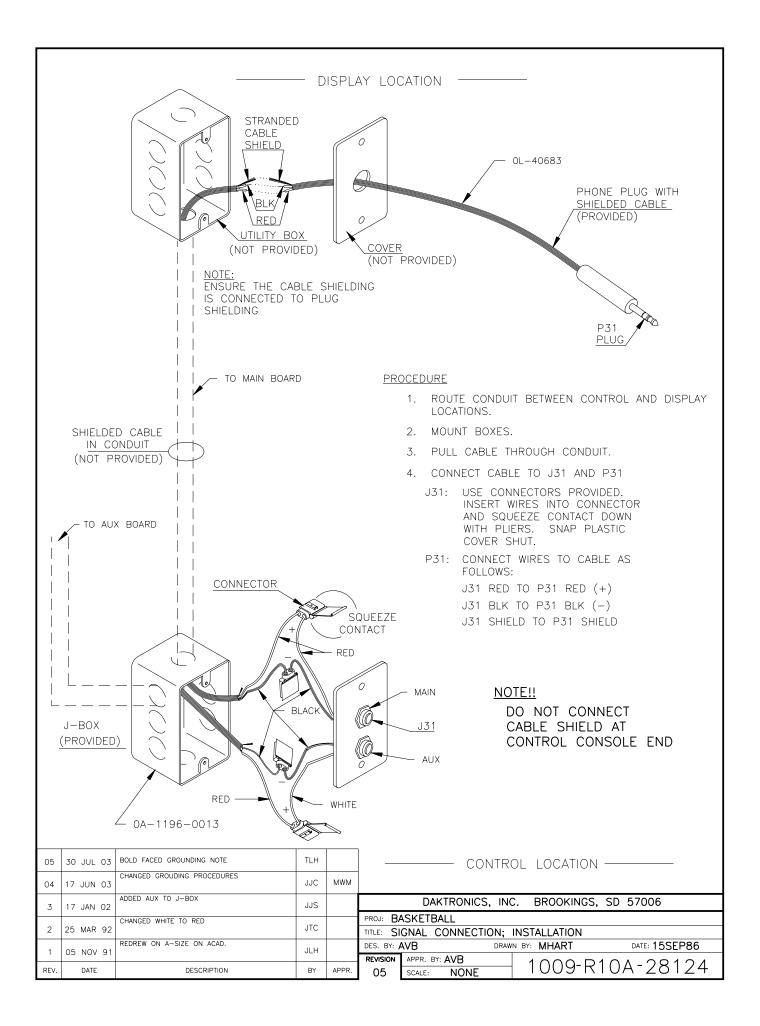
Reference Drawings:	Signal Connection, Installation	Drawing A-28124
-	Signal Connection	Drawing A-40734
	Signal Connection, 16-pin	Drawing A-81347

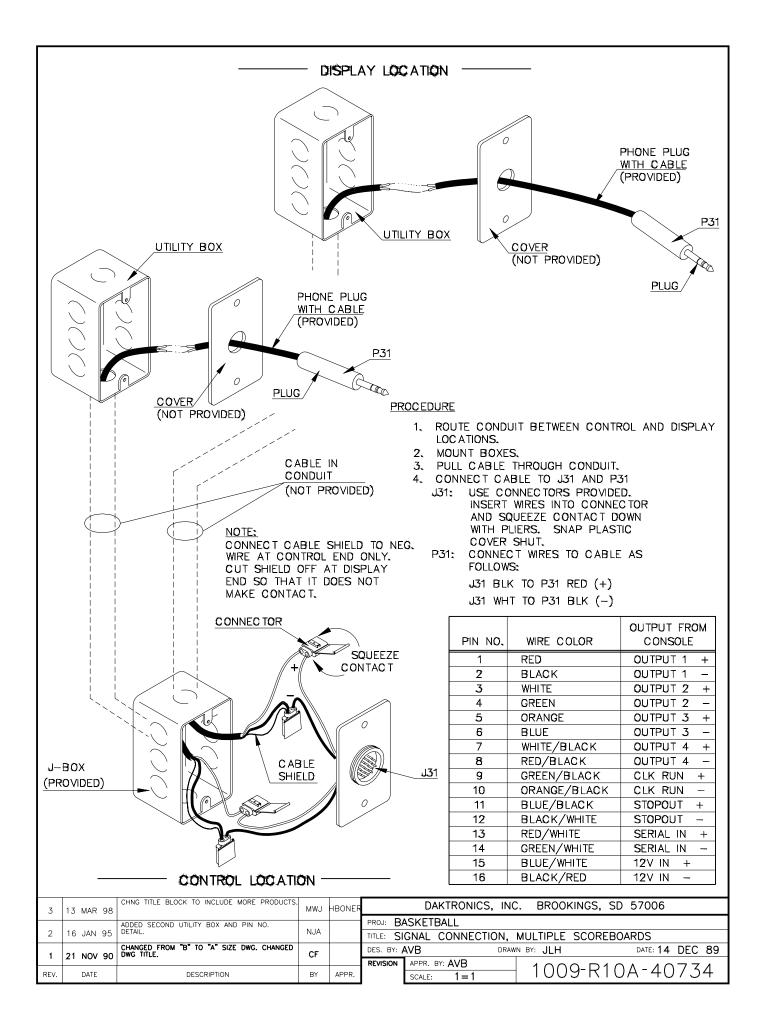
If running 4 or fewer scoreboards (simultaneously or independently), route conduit and cable between scoreboard location(s) and the control location. Use paired cable, 24 AWG, minimum shielded, and connect the cable to the junction box at the control end. Install the phone plug provided to the scoreboard end of the cable. Insert plug (P31) into the jack, located on the top or side of the scoreboard.

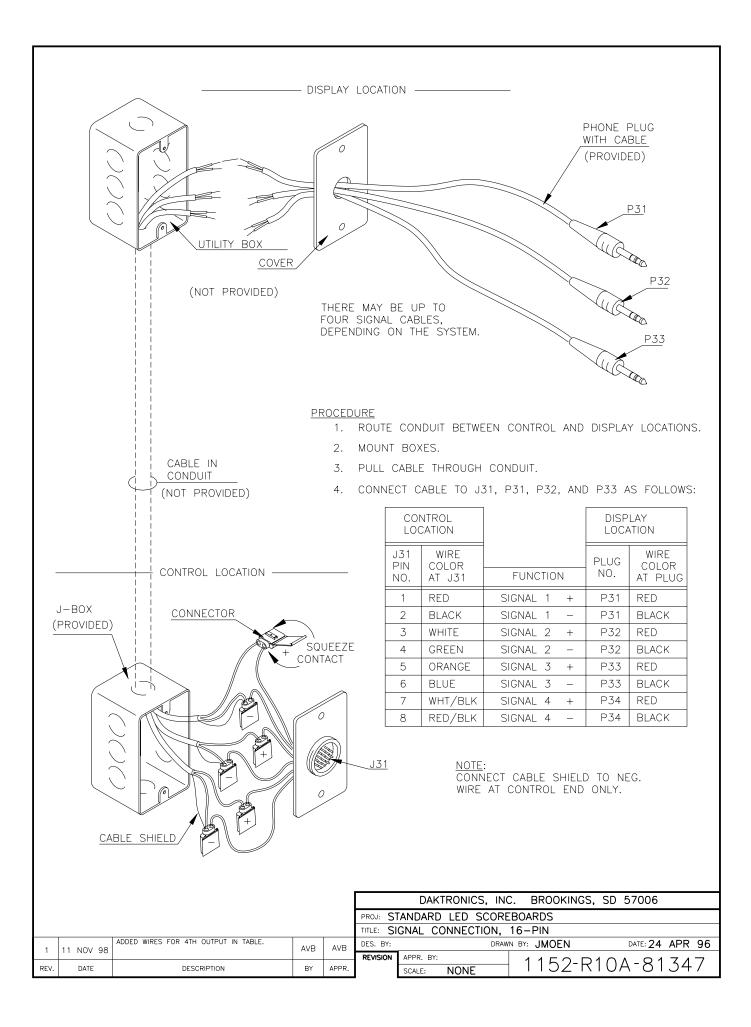
Refer to appropriate scoreboard appendix for wiring instructions. Also refer to **Drawings A-28124, A-40734,** and **A-81347** for more information.

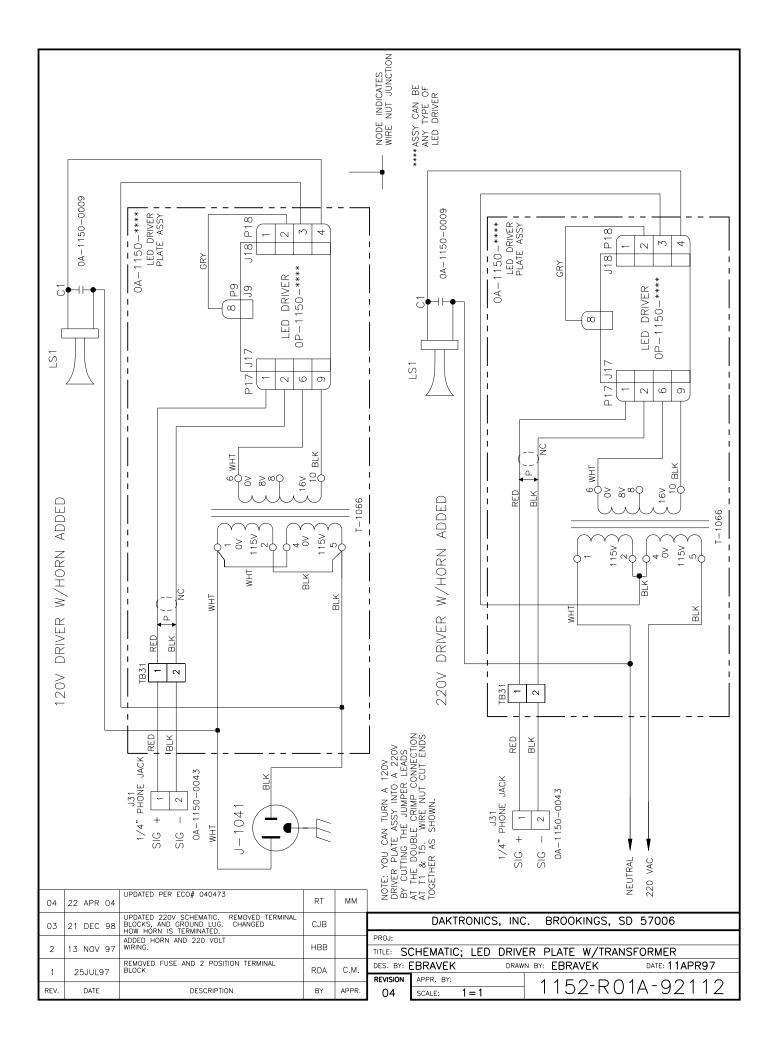
2.4 Scoreboard Operating Codes

Refer to the display reference drawings in the appendix and the All Sport⁷ controller manual for display operating codes.











Important Notes:

- 1. Disconnect power before any repair or maintenance work is done on the scoreboard!
- 2. Any access to internal scoreboard electronics must be made by qualified service personnel.
- 3. Disconnect power when the scoreboard is not in use.

3.1 LED Driver

Reference Drawings:	LED Driver	Drawing A-87407
_	4-Column Driver Reference	Drawing A-91380

The LED driver (refer to **Drawing A-87407**)performs the task of switching LEDs on and off. Each driver has 19 connectors providing power and signal inputs/outputs to digits and indicators. The following table shows the function of these connectors.

Connec tor No.	Function	
1-16	Output to digits and indicators	
17	Control signal and power input	
18	Control for horn	
19	Address (not used in these models)	

Output connectors 1 through 16 each have 9 pins. Pin 7 provides power to the digit or indicators wired to that connector. The other 8 pins provide switching connections. Refer to **Drawing A-91380** for smaller LED driver function. Refer to the reference drawings for digit driver designation.

3.2 Component Location, Access and Schematic

Reference Drawings:	Cable, 25-Pin to 16-Pin, 16 Cond	Drawing A-31020
_	Segmentation, 7 Segment Bar Digit	Drawing A-38532
	Schematic, Digits	Drawing A-77213
	Rear View, All Sport 4000	Drawing A-87150
	Wiring Diagram, LED Shot Clock	Drawing A-90746

The LED driver is located behind a panel, as indicated in the drawings. Release the fasteners securing the panel to gain access.

Refer to the drawings listed above for power and signal connection information and for component location.

Disconnect power before servicing display and when not using the scoreboard! Leaving the power on may shorten the life of some electronic components.

3.3 Adjusting the Horn Volume

A **Caution:** The horn is a 120VAC device. Turn off the power to the scoreboard before adjusting the horn!

The horn is adjusted at the factory for maximum volume. If it is too loud for your facility, the volume can be turned down. To decrease the horn's volume:

- **1.** Remove the panel from the portion of the scoreboard containing the horn.
- 2. The back of the horn has a 3^{D} hex head screw that tightens against a spring. Tighten this screw to reduce the distance between the horn's magnet and the diaphragm, reducing the horn volume. Adjust the volume using small adjustments.
- **3.** Test the sound of the horn between adjustments from the control console.
- 4. When the horn sounds at the desired level, reinstall the panel.
- Four-sided scoreboards have a horn in each of the four sides (faces).

Alf the horn is not loud enough for your facility, a trumpet horn may be purchased. On a foursided scoreboard, a single trumpet horn may be mounted behind one of the scoreboard faces, pointing down at the court. Contact Daktronics for more information and pricing.

3.4 Troubleshooting

The following table provides a list of possible problems that could occur to the scoreboard and corrective actions to take. Refer to the scoreboard specification sheets to obtain the correct replacement part number for any damaged components. For assistance with any troubleshooting and to order replacement components, *contact your service provider first*. Your service provider may have spare equipment on hand and may provide same day service in the event of an emergency. Your service provider may direct you to call Daktronics. A service provider may not be applicable to your facility. In this event, feel free to call Daktronics. For faster service, please note the make of your scoreboard and any possible assembly numbers, as noted on the scoreboard spec sheet. If you need to order replacement components, it would be helpful to have a Purchase Order number or any other purchase information available at the time you call.

Symptom/Condition	Possible Cause	Corrective Action
Scoreboard will not light.	Console not connected or poor connection.	Check signal cable.
	No power to control console.	• Check power to console
	No power to the scoreboard.	Check power to scoreboard
	 Wrong code entered into All Sport/ Main Fuse blown (if applicable). 	Verify code to console
Garbled display.	Internal driver logic malfunction.	Check power.
	Control console malfunction.	Verify code to console
Digit will not light.	Black wire to digit broken/ Poor contact at driver connection.	 Verify power harness in display.
Segment will not light.	Broken LED or connection	Replace digit.

	 Driver shift register failure. Broken wire between LED driver and digit/ Poor contact at driver connector. 	Replace driver.Secure pins tightly in plugs
Segment stays lit.	 Driver shift register failure/ Short circuit on digit. 	Replace driver.

3.5 Warranty and Maintenance Program

Daktronics recommends that each customer keep an inventory of essential spare parts available in case problems arise. If equipment fails, the customer's local service staff technician can get the equipment operational again with spare parts kept on hand. The failed components are then shipped to Daktronics for quick parts exchange.

To provide parts quickly, Daktronics introduced a Parts Exchange Program over 20 years ago. The program offers a quick and economical way to replenish the customer's inventory if a component fails. Under normal circumstances, Daktronics sends a reconditioned replacement part in a 24-hour period, if possible.

To avoid being billed for the components, the customer must send all failed components to Daktronics *within 15 days of receiving the exchange components from Daktronics*. This saves the customer money and reduces down time. The exchange program complements the spare parts inventory. In urgent situations, Daktronics makes every attempt to ship using the fastest method available.

Contact Daktronics= Help Desk at 1-(800)-843-9879. A Daktronics technician is on-call from Friday evening until Monday morning. A special call-diverting system notifies the on-call technician during the weekend. The call-diverting system asks the customer to leave a message and telephone number, including area code, for the technician to call back. In emergency situations, Daktronics makes every effort to ship replacement equipment if necessary. Again, Daktronics leads the industry with this unique weekend service.

For exact warranty information for the Daktronics Scoreboard, refer to the warranty information sent with the original purchase packet for the scoreboard. Unless specifically stated in the warranty agreement, *the warranty does not cover on site labor*.

3.6 Replacement Parts List

The following parts list includes components for many different types of LED scoreboards. For the exact components needed for your scoreboard, refer to the reference drawings in the back of this manual.

Description	Part No.	Description	Part No.
Main Clock, Start/Stop switch	0A-1166-0003	Cable, 10 Ft Phone	W-1340
Shot Clock, Start/Stop switch	0A-1166-0004	Player foul; red and green LED	0P-1150-0055
Console, All Sport 4000	0A-1166-0001	Colon/decimal; 13", red, LED	0P-1150-0056
Horn, 120VAC	DS-1040	Colon/decimal; 13", amber, LED	0P-1150-0058
Fuse MDL-2	F-1002	Colon; 7" and 10", green, LED	0P-1150-0060
Fuse MDA-6	F-1023	Digit, 7" Red, 7Seg	0P-1150-0036
Fuseholder; panel mount	X-1032	Digit, 7" Grn, 7Seg	0P-1150-0037

Fuse, MDL-1	F-1025	Digit, 7" Amb, 7Seg	0P-1150-0038
Plug; 3@ phone	P-1041	Digit, 7" Red, 2Seg	0P-1150-0039
Transformer, 120P/16S, 63A	T-1066	Digit, 7" Grn, 2Seg	0P-1150-0040
	T-1063		0P-1150-0040
Transformer, 120P/16S, 2A		Digit, 7" Amb, 2Seg	
Junction Box; Phone Jack	0A-1009-0038	Digit, 10"Red, 7Seg	0P-1150-0042
J-Box; 16-pin Circular	0A-1010-0026	Digit, 10"Grn, 7Seg	0P-1150-0043
LED Driver, 16 Column	0P-1150-0017	Digit, 10"Amb, 7Seg	0P-1150-0044
LED Driver,16 Column Coated	0P-1150-0018	Digit, 10"Red, 2Seg	0P-1150-0045
Arrow, 3", Red LED	0P-1150-0003	Digit, 10"Grn, 2Seg	0P-1150-0046
Arrow, 3", Green LED	0P-1150-0035	Digit, 10"Amb, 2Seg	0P-1150-0047
LED Driver, 4 Column	0P-1150-0021	Digit, 13"Red, 7Seg	0P-1150-0048
Cable, 10' 25 pin D to 16 pin Cir	0A-1065-0026	Digit, 13"Grn, 7Seg	0P-1150-0049
Cable, 30', 25 Pin to 16 Pin Cir	0A-1065-0010	Digit, 13"Amb, 7Seg	0P-1150-0050
Cable, 50', 25 Pin to 16 Pin Cir	0A-1065-0011	Digit, 13"Red, 2Seg	0P-1150-0051
Cable, 20' Phone Plug	W-1236	Digit, 13"Grn, 2Seg	0P-1150-0052
Cable, 50' Phone Plug	W-1237	Digit, 13"Amb, 2Seg	0P-1150-0053
Cable, 30' Phone Plug	W-1238	Cable, 20 Ft Phone	W-1236
Cable, 10' Phone Plug	W-1340	Cable, 30 Ft Phone	W-1238
Cable, 10', 25-Pin to 16-Pin	0A-1065-0026	Cable, 50 Ft Phone	W-1237
Cable, 20', 25 Pin to 16 Pin	0A-1065-0102	Colon/decimal; 13", green, LED	0P-1150-0057
Cable, 30', 25 Pin to 16 Pin	0A-1065-0010	Colon; 7" and 10", red, LED	0P-1150-0059
Cable, 50', 25 Pin to 16 Pin	0A-1065-0011	Colon; 7" and 10", amber, LED	0P-1150-0061
Y-Adapter, 16 Pin	0F-1065-0101		

3.7 Daktronics Exchange/Repair & Return Programs

To serve customers' repair and maintenance needs, Daktronics offers both an exchange and a repair and return program. The exchange program reduces down time by providing timely replacement of key components. This service is provided to qualified customers who follow the program guidelines explained below. It is our pleasure to provide this service to ensure you get the most from your Daktronics products. Please call our Help Desk (1-800 / 843-9879) if you have any questions regarding the exchange program or any other Daktronics service.

When you call the Daktronics Help Desk, a trained service technician will work with you to solve the equipment problem. You will work together to diagnose the problem and determine which exchange replacement part to ship. If, after you make the exchange, the equipment still causes problems, please contact our Help Desk immediately.

If the replacement part fixes the problem, package the defective part in the same packaging the replacement part arrived in, fill out and attach the enclosed UPS shipping document and **RETURN THE PART TO DAKTRONICS**. (You may use the same box and packing the exchange part was sent in.) This will speed up the transaction and alleviate confusion when the failed component arrives at Daktronics. (Daktronics expects immediate return of the exchange part if it does not solve the problem.) For most equipment, you will be invoiced for the replacement part at the time it is shipped. This invoice is due when you receive it.

Daktronics reserves the right to refuse equipment that has been damaged due to acts of nature or causes other than normal wear and tear.

If the defective equipment is not shipped to Daktronics within 30 working days from the invoice date, it is assumed you are purchasing the replacement part and you will be invoiced for it. This second invoice represents the difference between the exchange price and the purchase price of the equipment. This amount is due when you receive the second invoice. If you return the exchange equipment after 30 working days from invoice date, you will be credited for the amount on the second invoice minus a restocking fee.

≅To avoid a restocking charge, please return the defective equipment within 30 days from the invoice date.

Daktronics also offers a Repair and Return program for items not subject to exchange.

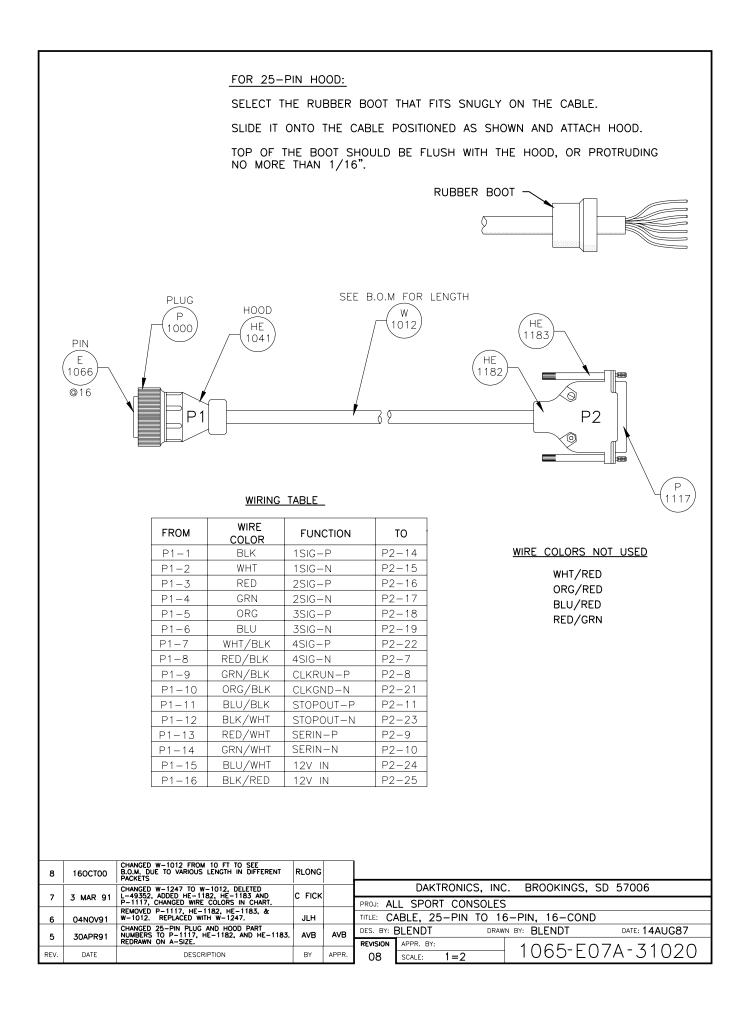
Where to Send: To return parts for service, contact your local representative prior to shipment to acquire a Return Material Authorization Number (RMA#). If you have no local representative, call the Daktronics Help Desk for the RMA#. This will expedite the receiving process.

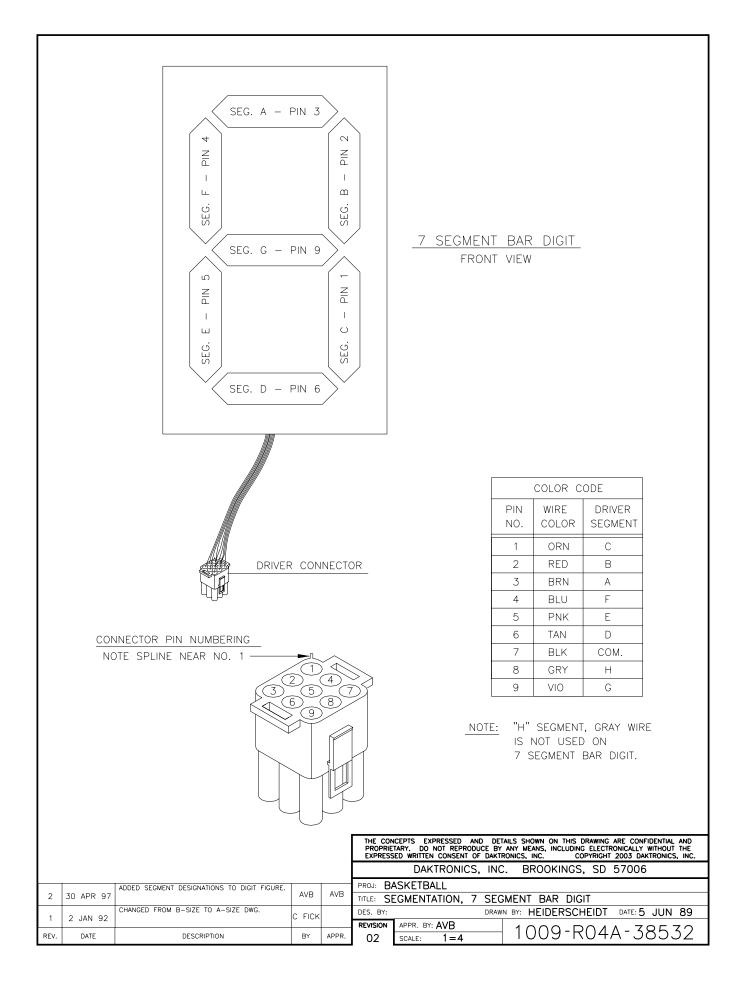
Packaging for Return: Package and pad the item well so that it will not be damaged in shipment. Electronic components such as printed circuit boards should either be installed in an enclosure or should be put in an anti-static bag before boxing. Please enclose your name, address, phone number and a clear description of symptoms.

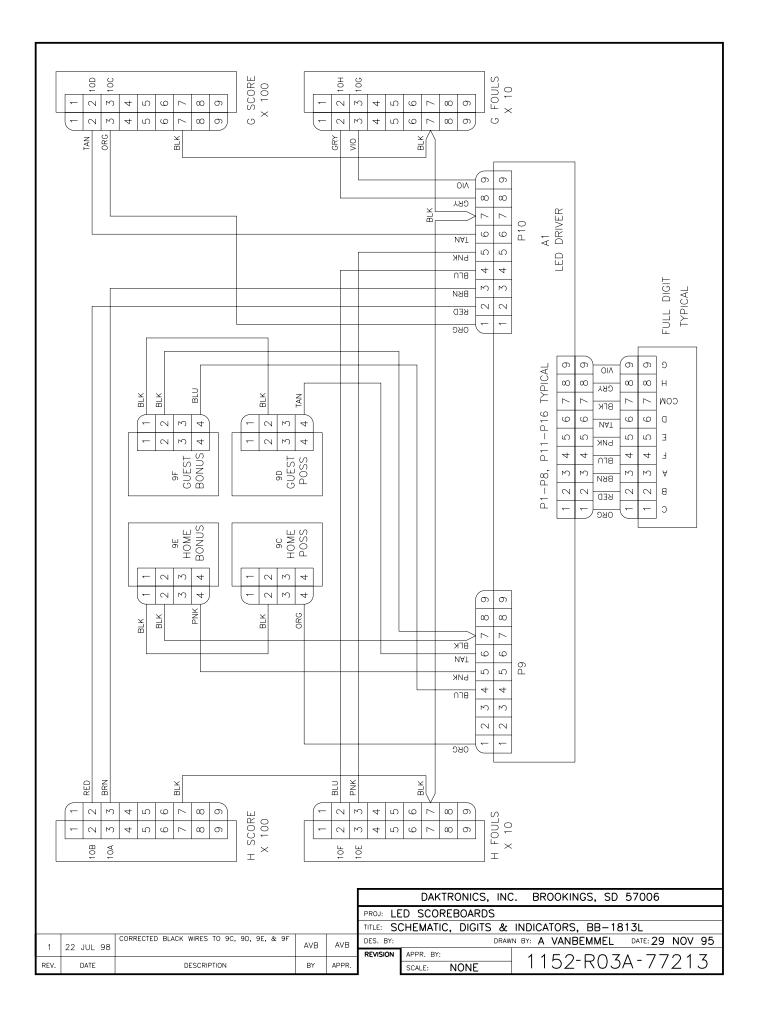
- Mail: Daktronics, Inc., Customer Service PO Box 5128 331 32nd Avenue Brookings, SD 57006
- **Phone:** Daktronics Help Desk: 1-800/843-9879 or 1-605/697-4400

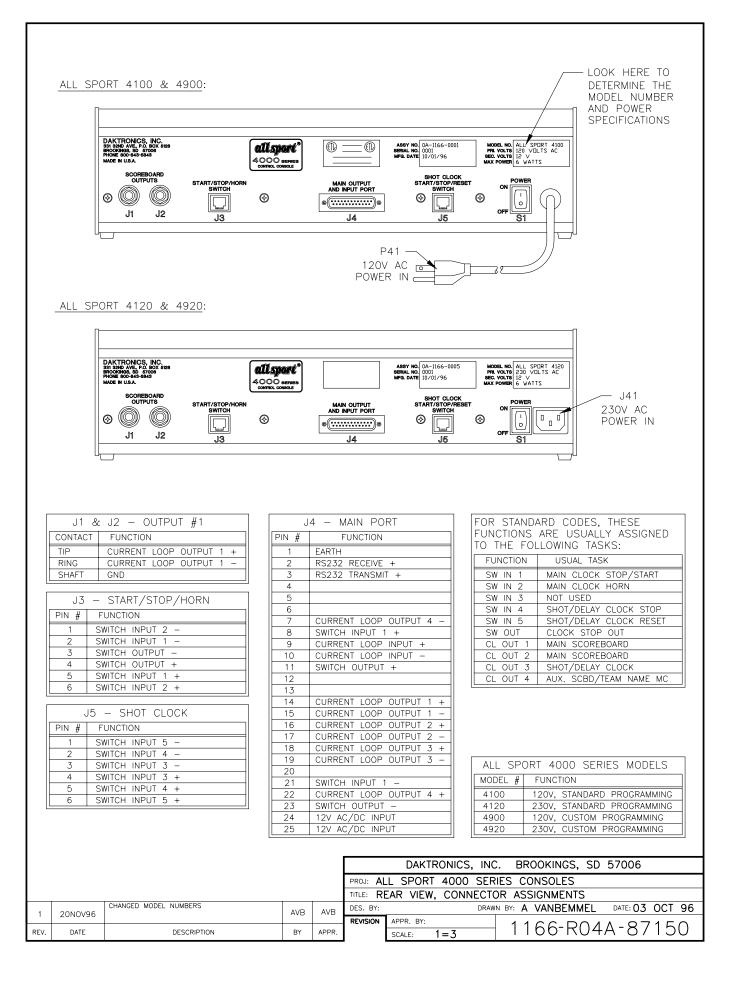
Customer Service Fax: 1-605-697-4444

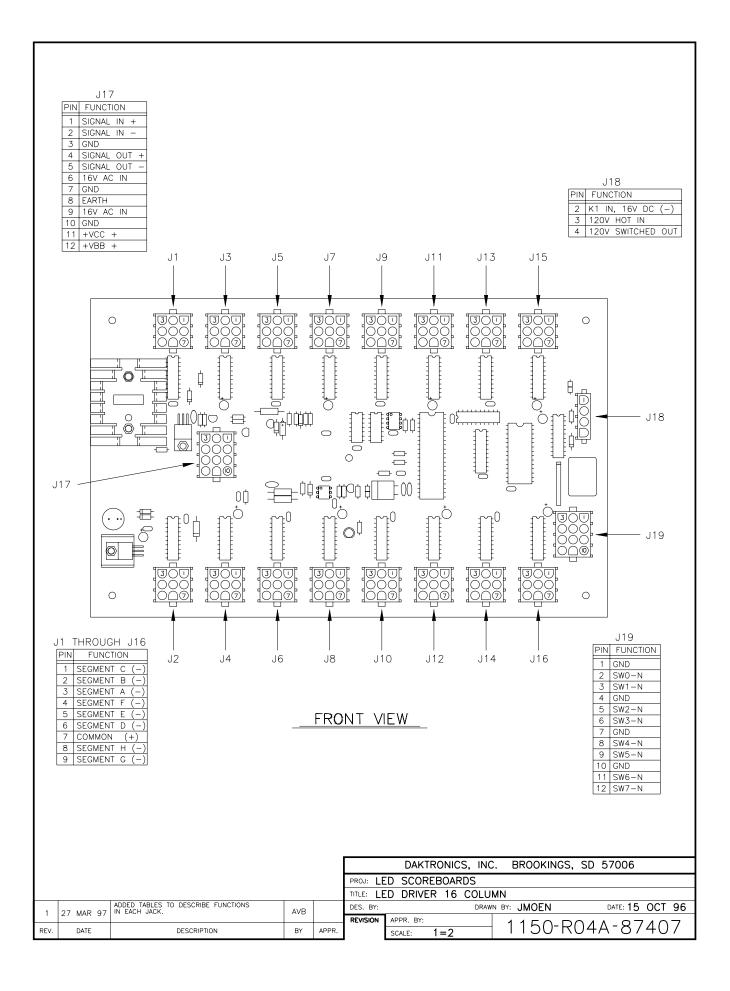
e-mail: helpdesk@daktronics.com

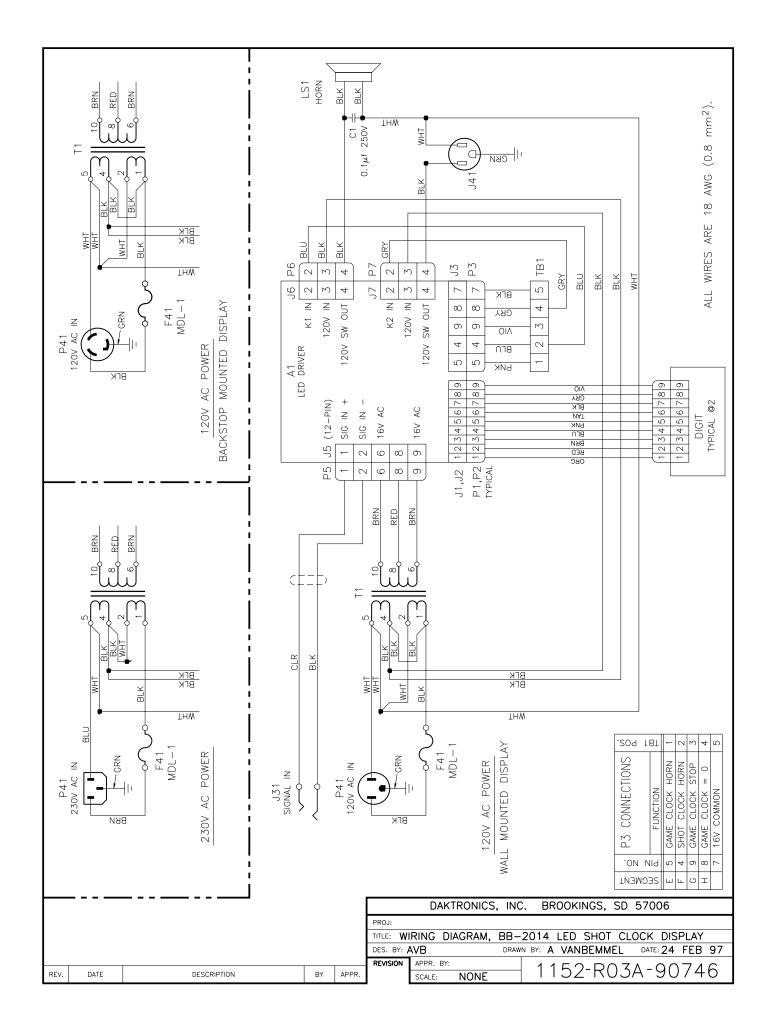


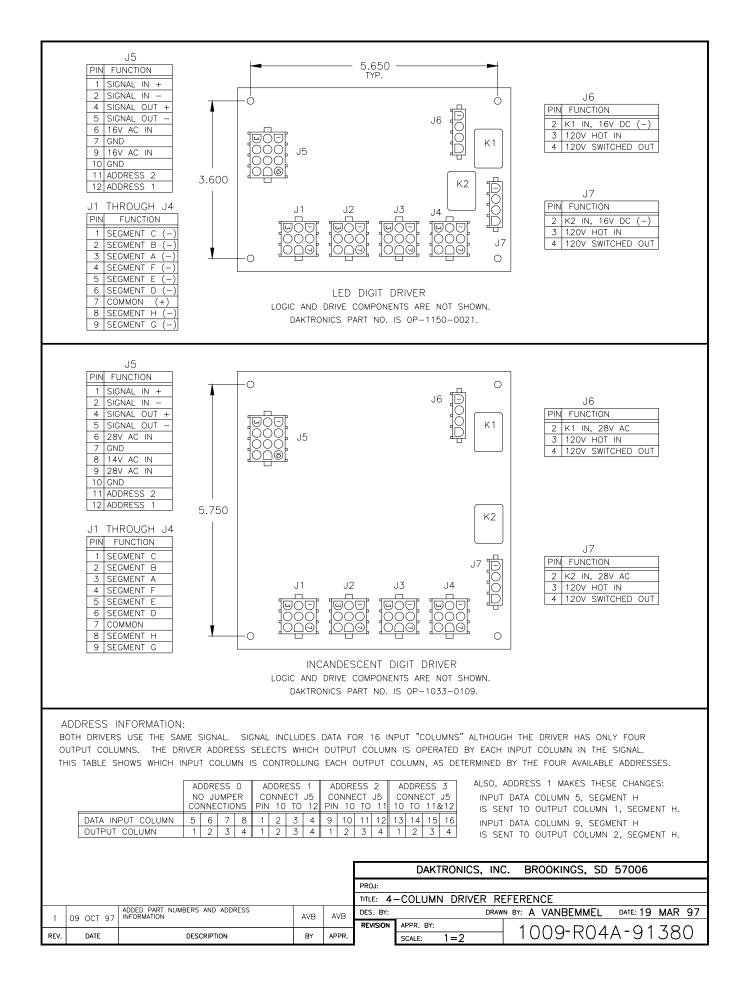




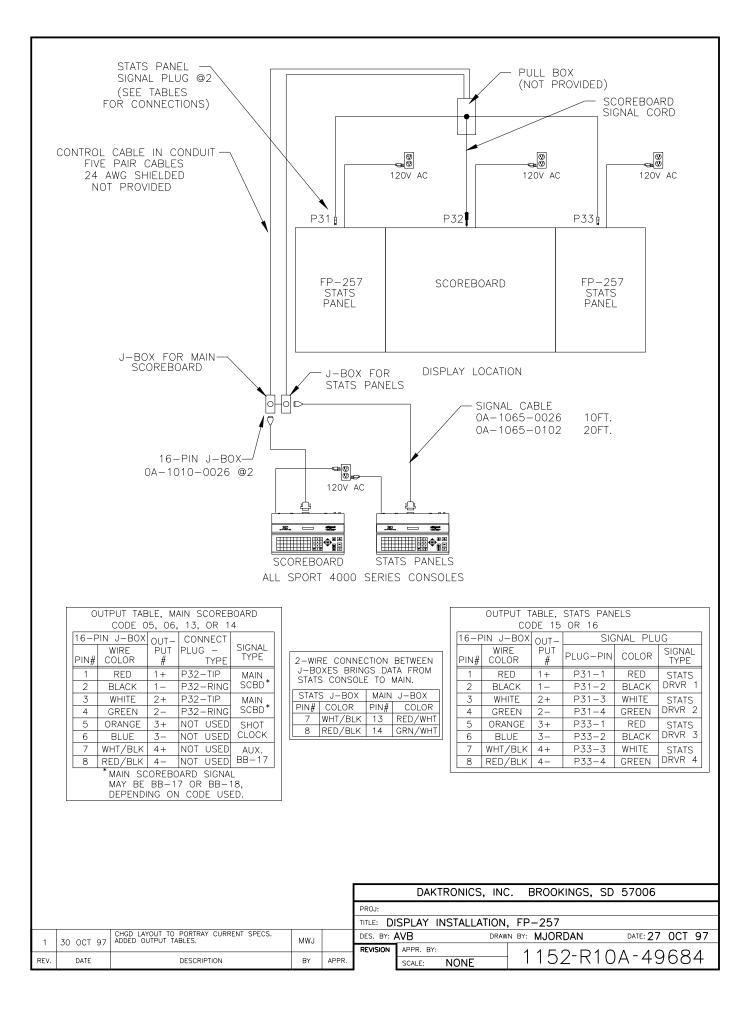


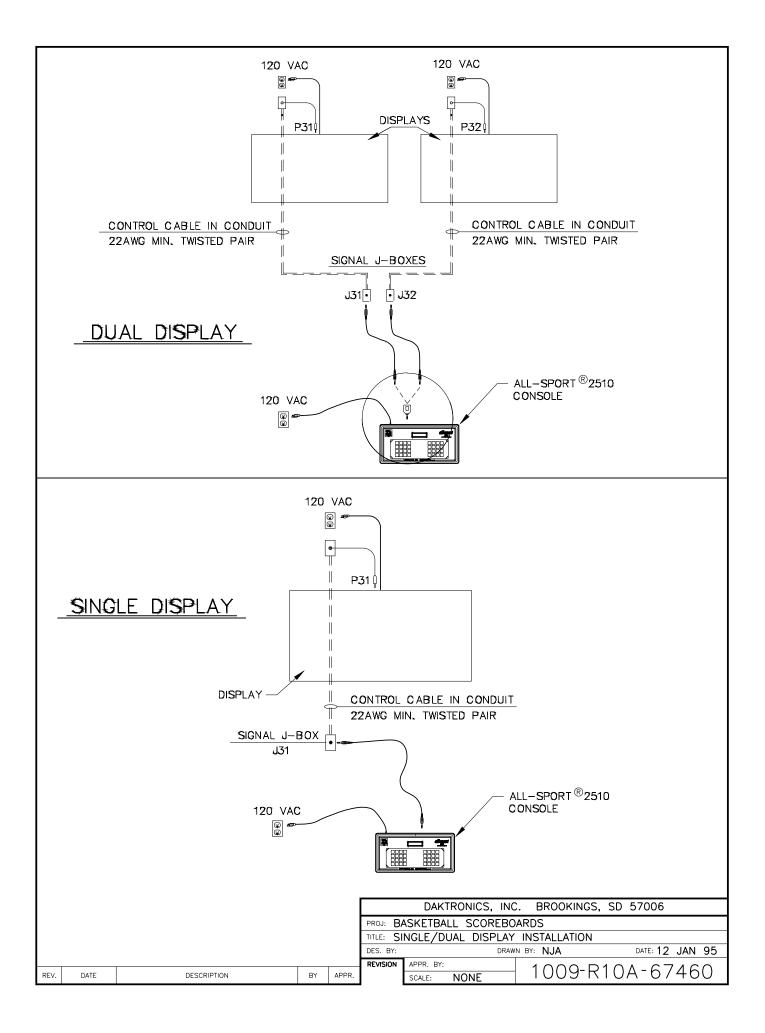


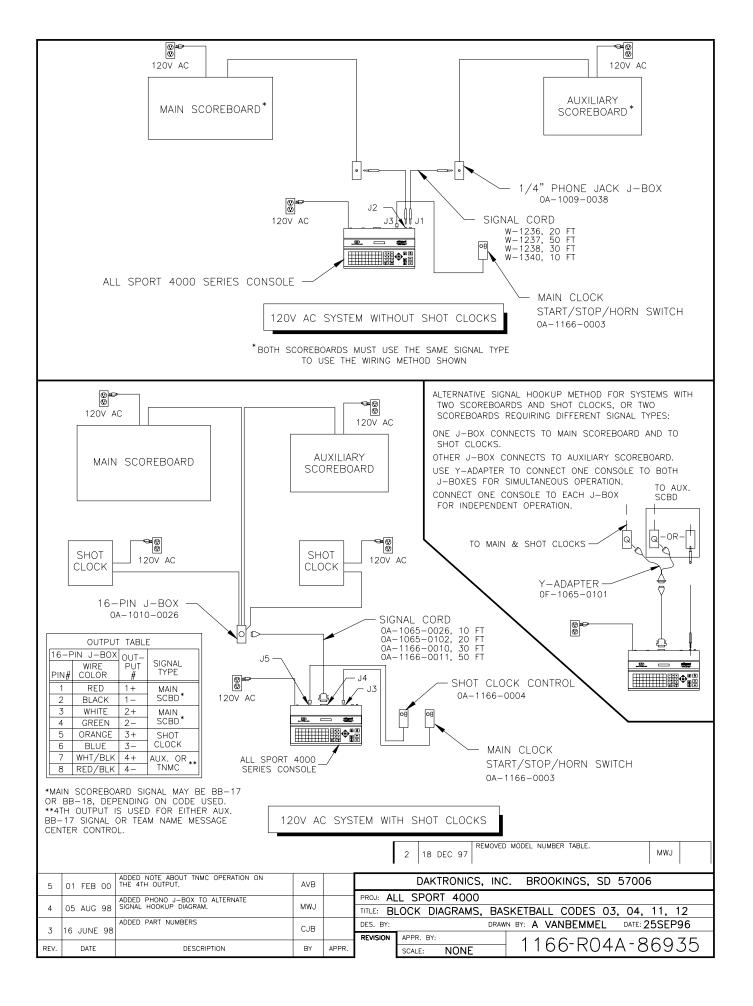


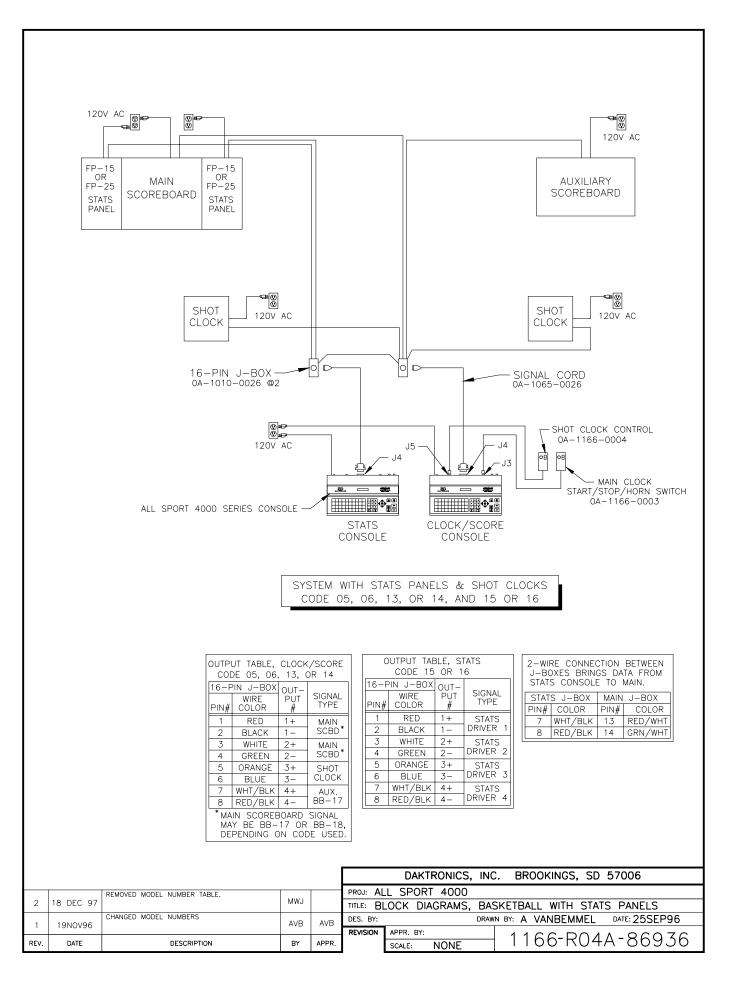


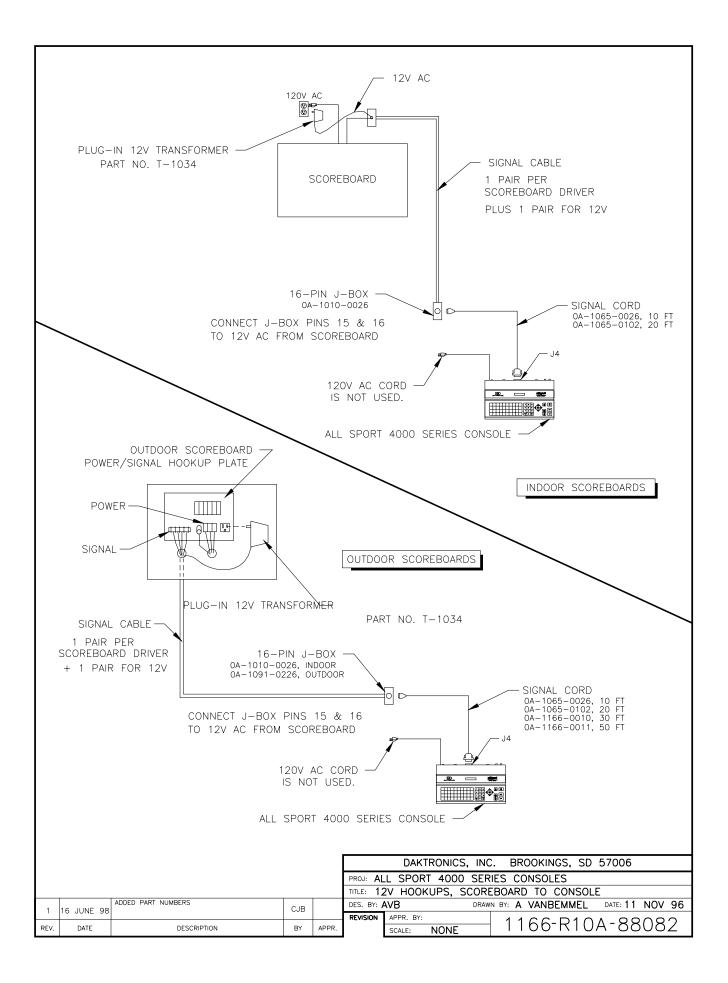
Appendix A: Typical Signal Termination

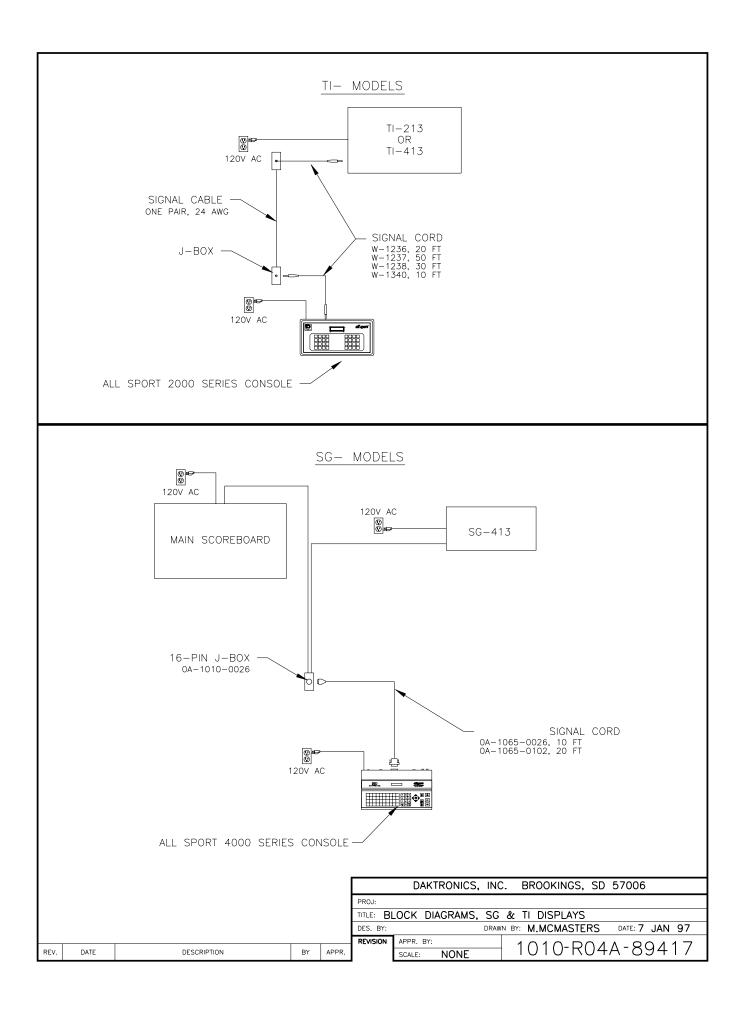


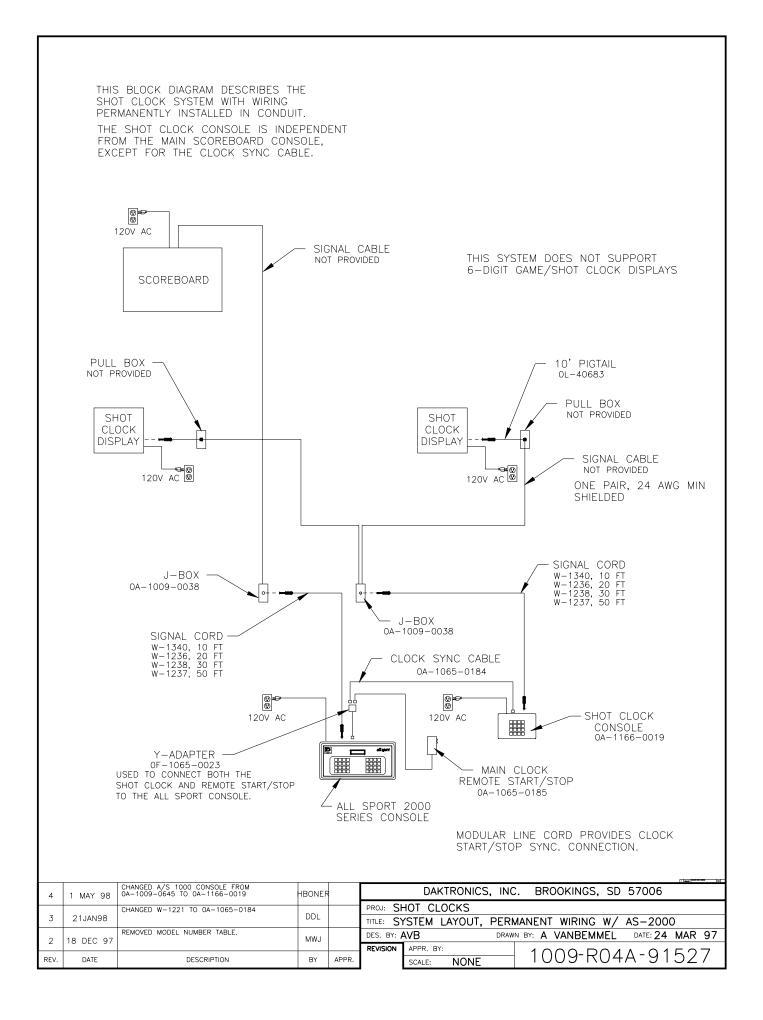


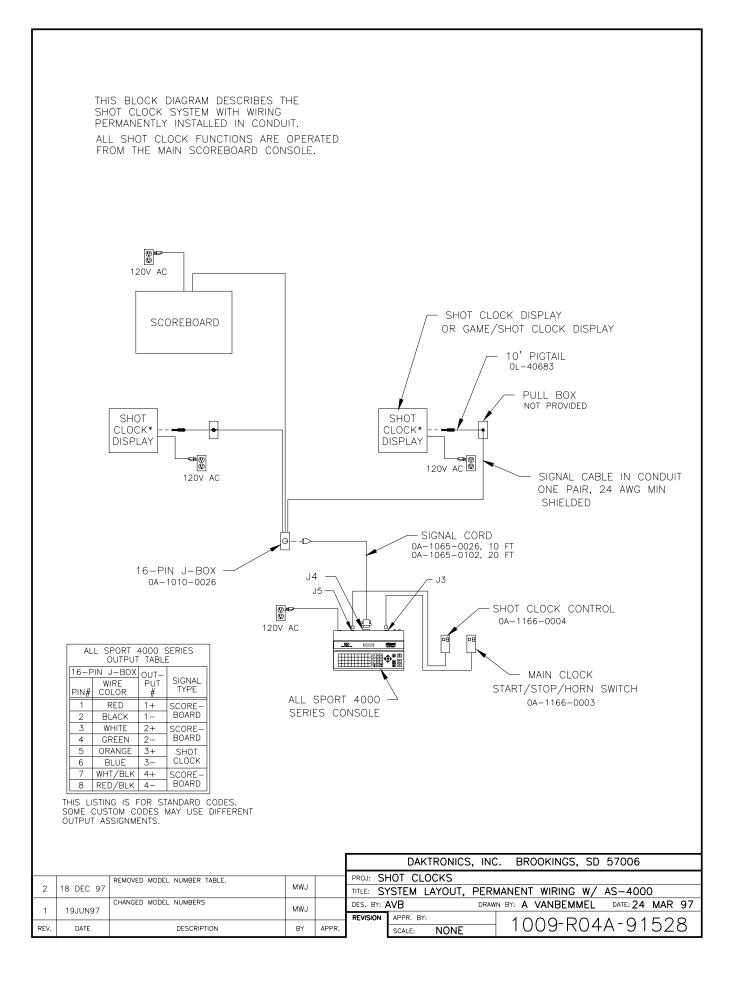


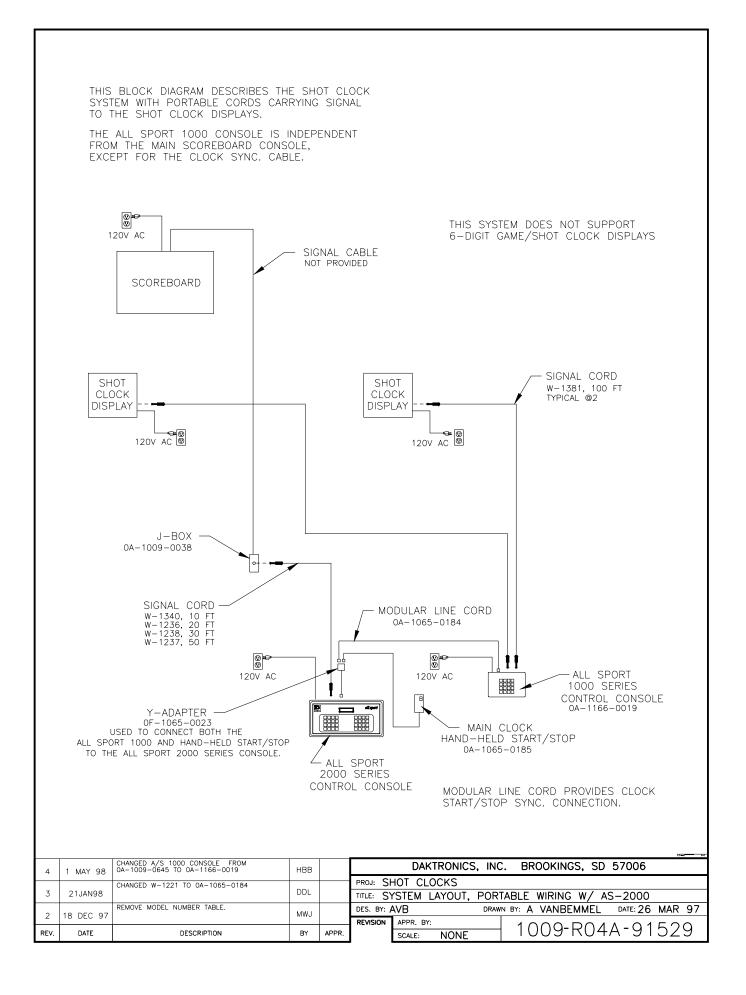


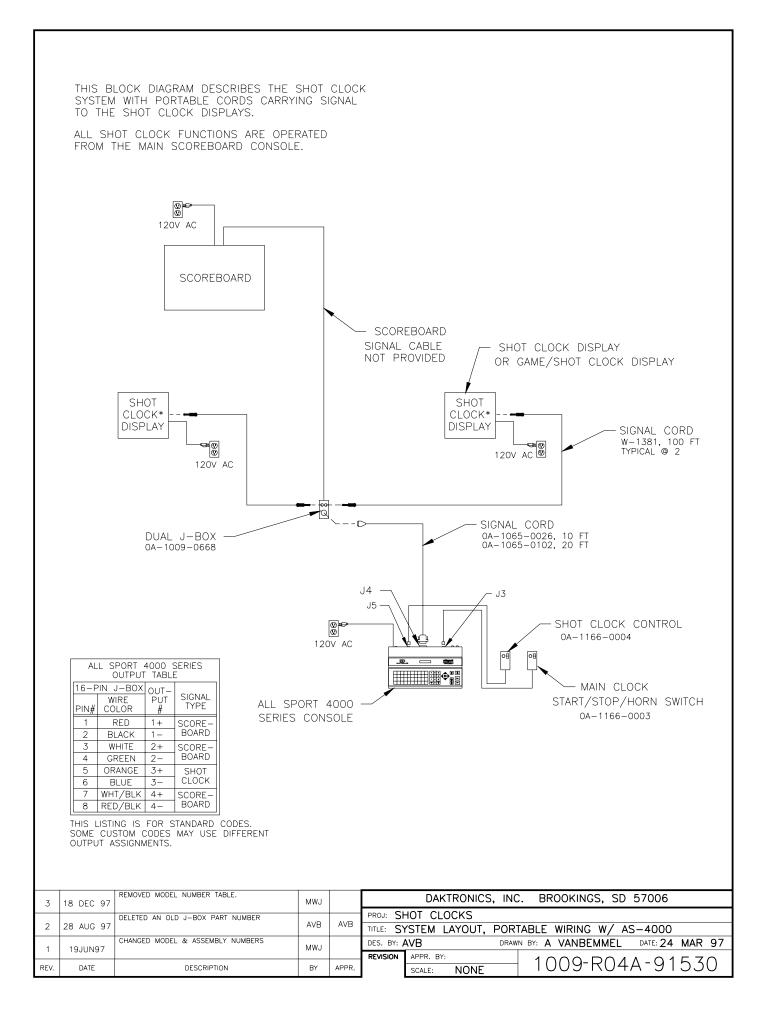


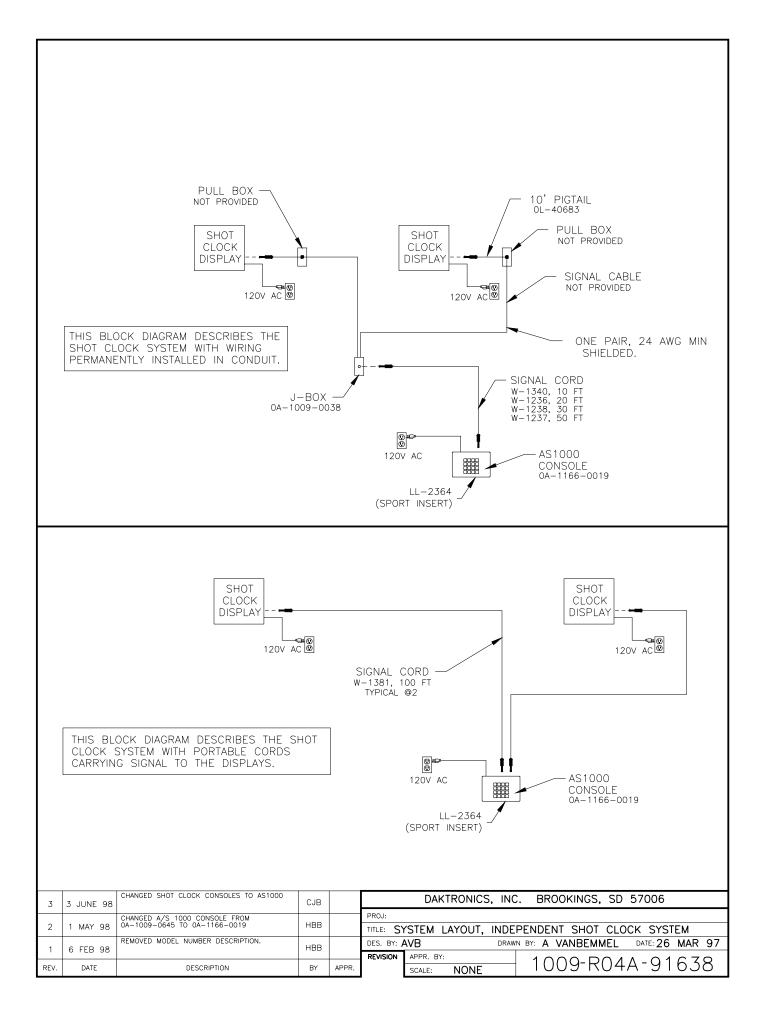


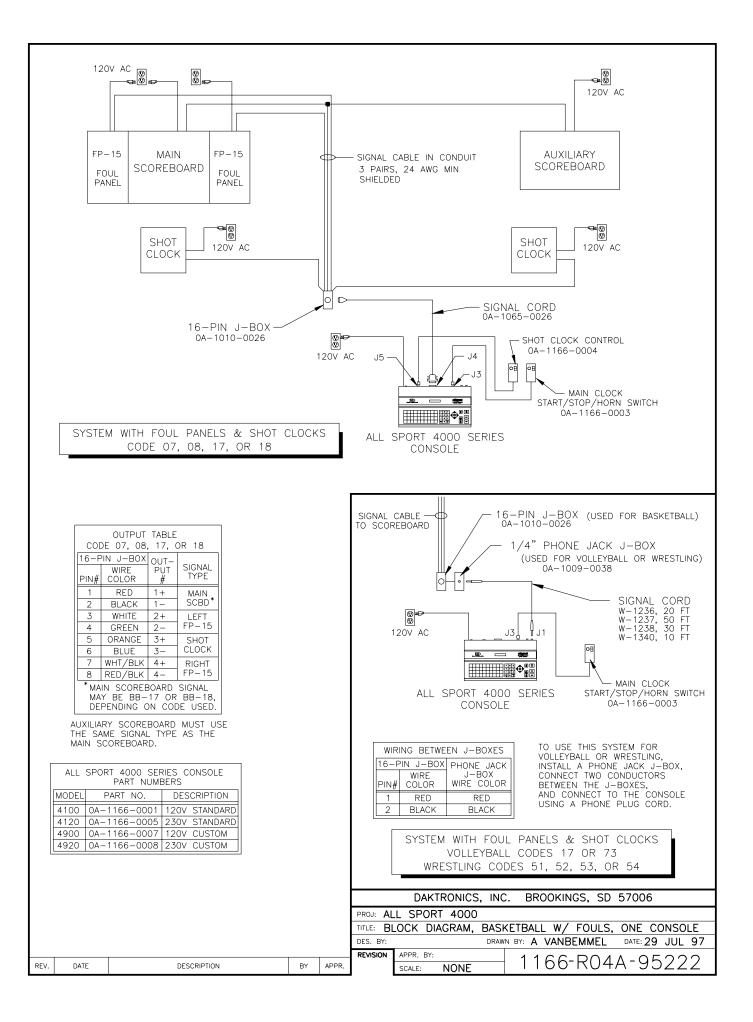


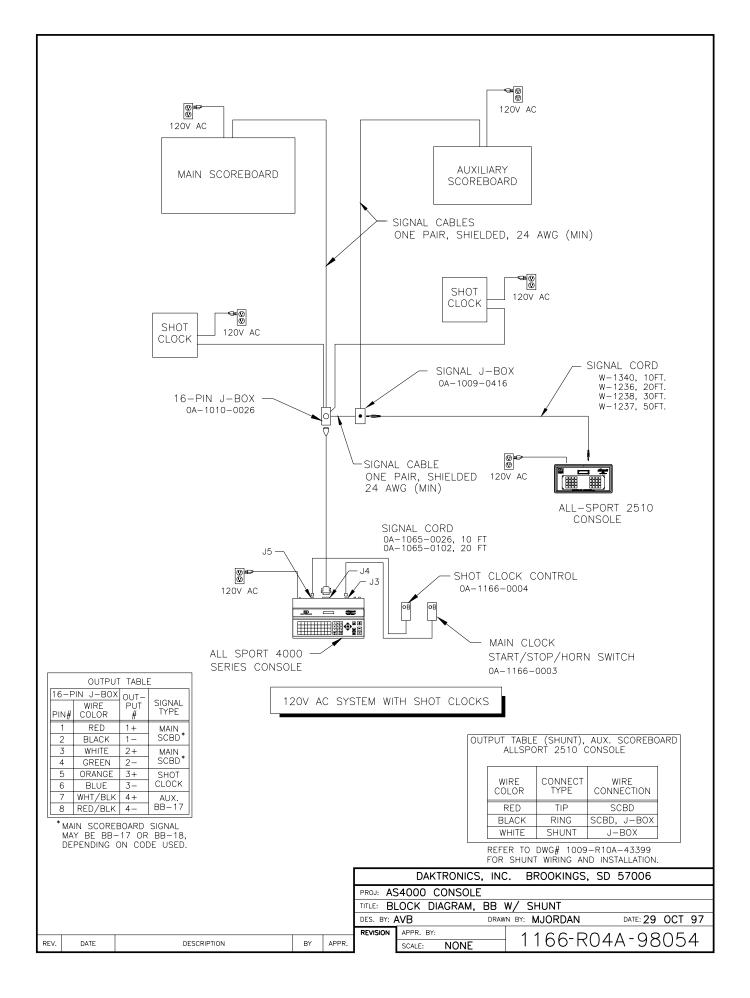


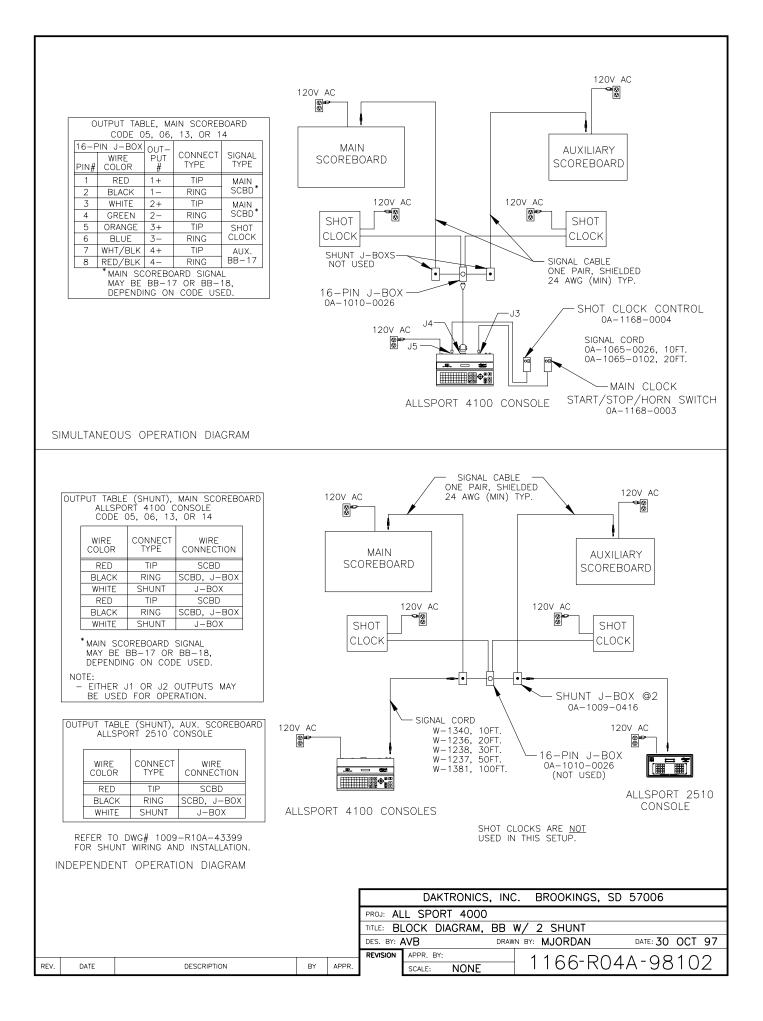


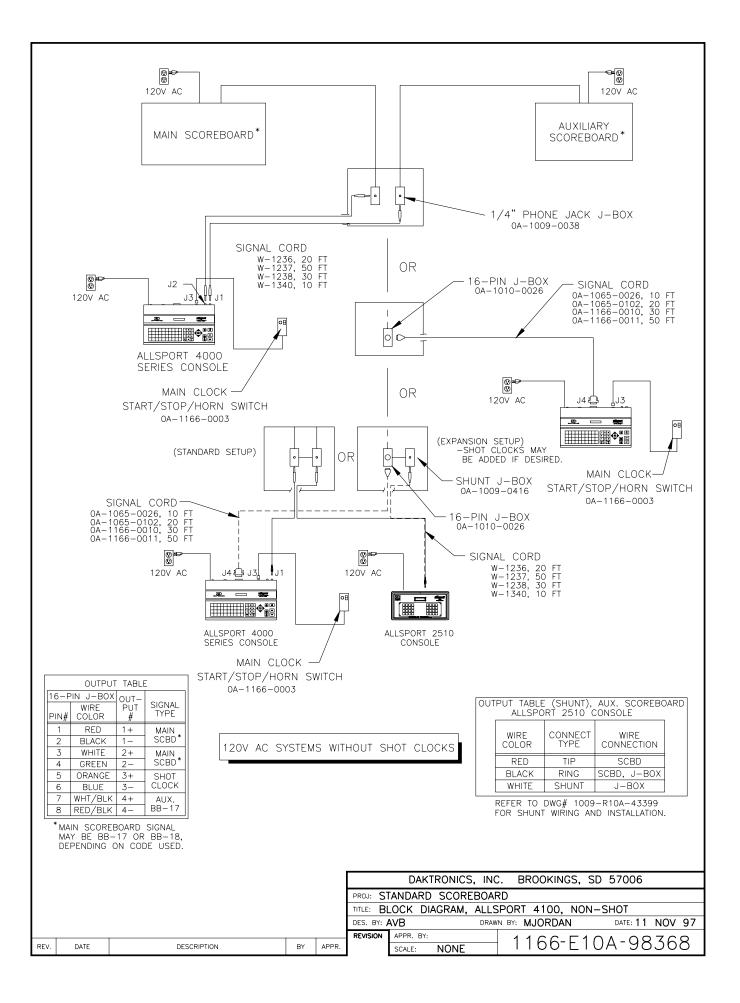


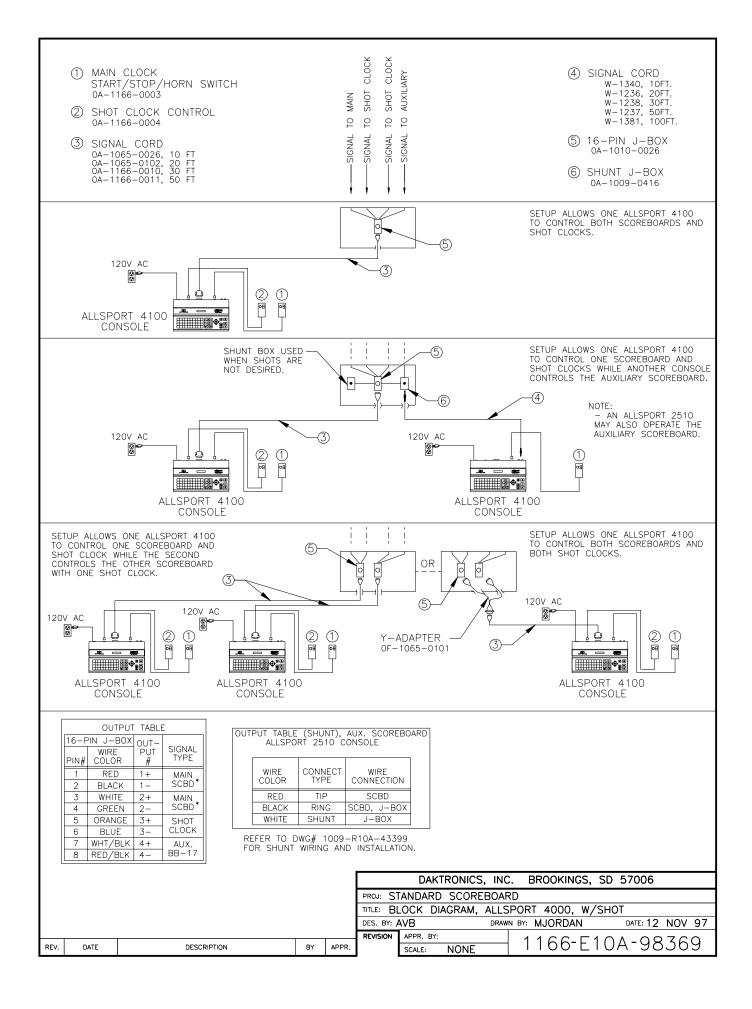






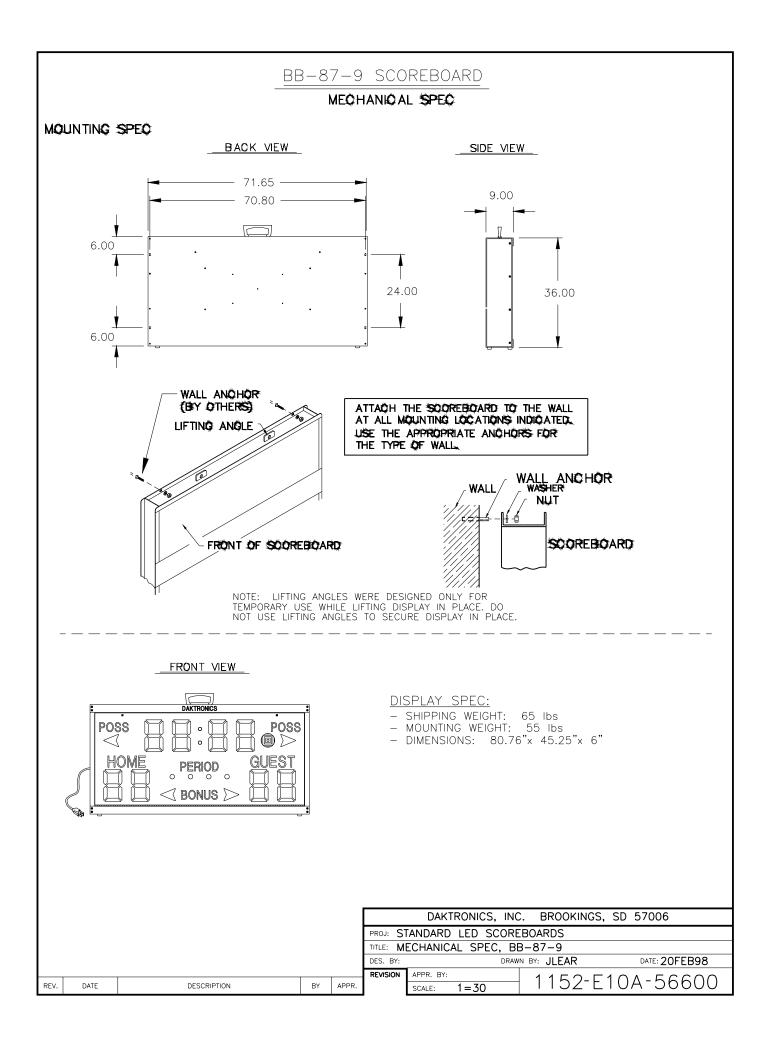






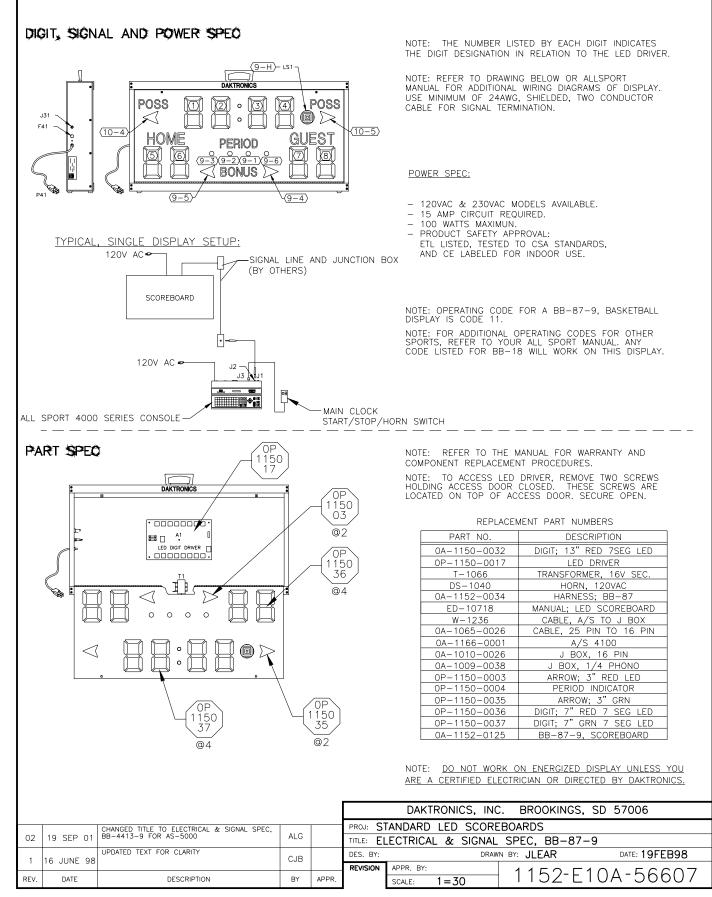
Appendix B: Basketball Scoreboards

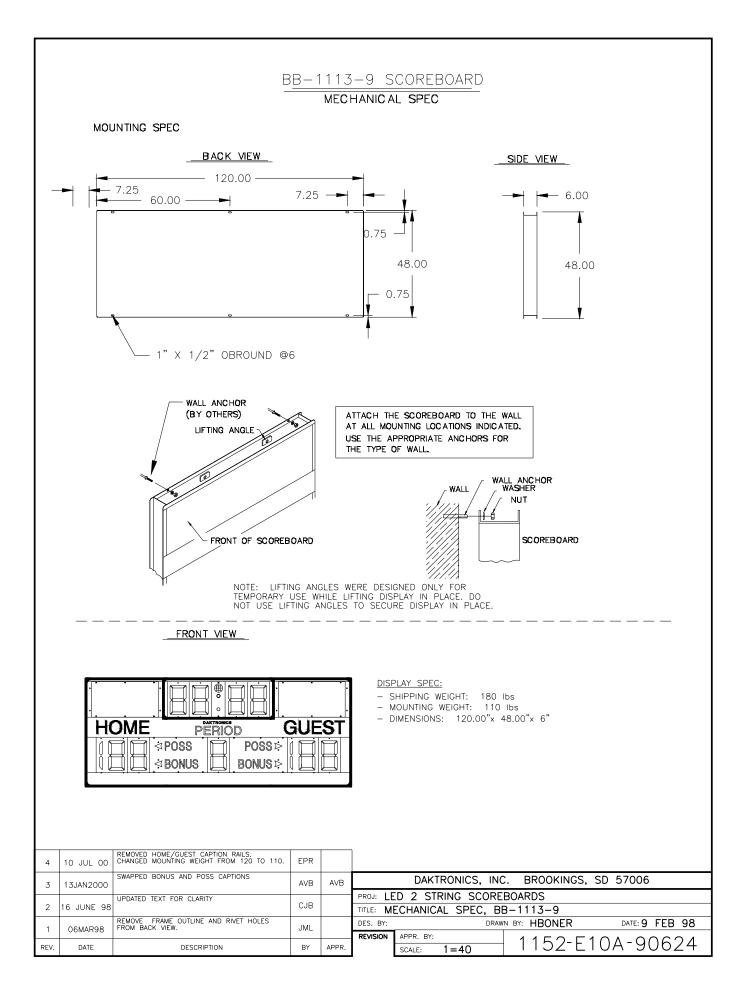
Reference Drawings:	Spec, Mechanical BB-87-9 Spec, Electrical/Signal BB-87-9 Spec, Mechanical BB-1113-9 Spec, Electrical/Signal BB-1113-9 Spec, Mechanical BB-1813-9 Spec, Electrical/Signal BB-1813-9 Spec, Mechanical BB-2021-9 Spec, Electrical/Signal BB-2021-9 Spec, Mechanical BB-2025-9 Spec, Electrical/Signal BB-2025-9 Spec, Mechanical FP-15-9 Spec, Electrical/Signal FP-15-9 Spec, Mechanical FP-257-9 Spec, Electrical/Signal FP-257-9	Drawing A-56607 Drawing A-90624 Drawing A-99895 Drawing A-99893 Drawing A-99893 Drawing A-99480 Drawing A-90792 Drawing A-90683 Drawing A-90683 Drawing A-58619 Drawing A-61870 Drawing A-56470
	Spec, Electrical/Signal FP-257-9	Drawing A-56599



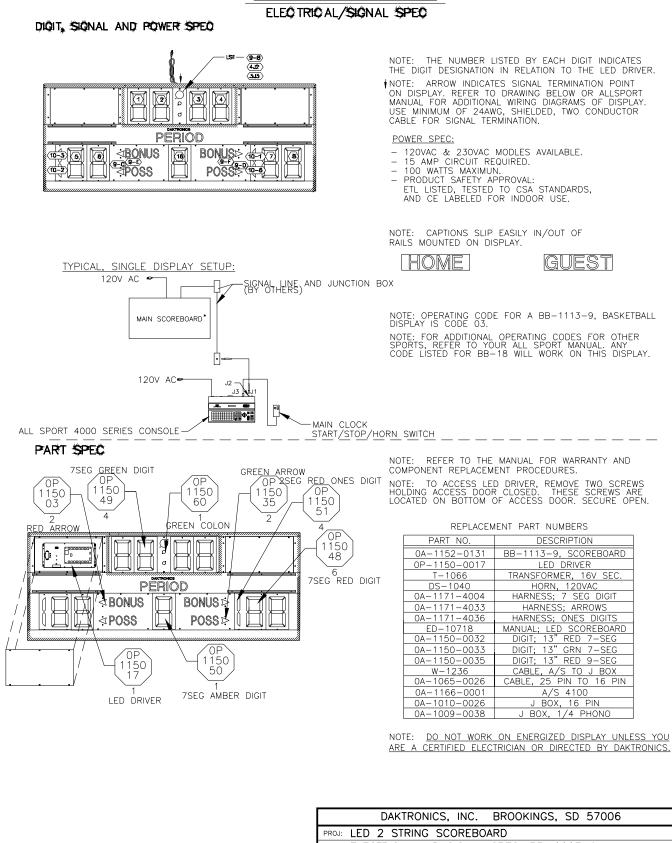
BB-87-9 SCOREBOARD

ELECTRICAL/SIGNAL SPEC

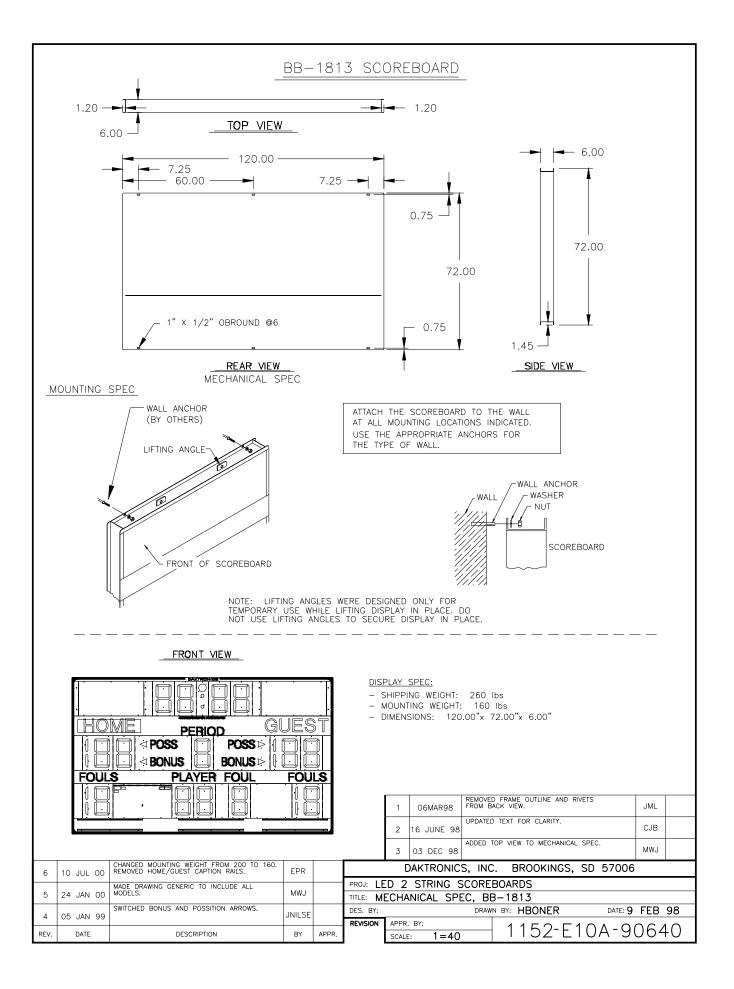




BB-1113-9 SCOREBOARD



				THOSE EED Z STRING SCOREDOARD					
					TITLE: EL	ECTRICAL	AND SIGN	AL SPEC,	BB-1113-9
1	16 JUNE 98	UPDATED TEXT FOR CLARITY	CJB		DES. BY:		DRAW	N BY: HBB	DATE: 6 FEB 98
'	10 00NL 30				REVISION	APPR. BY:		110	
REV.	DATE	DESCRIPTION	BY	APPR.		SCALE:	1=40	1152	2-EIUA-99895



BB-1813-9 SCOREBOARD

ELECTRICAL/SIGNAL SPEC

DIGIT, SIGNAL AND POWER SPEC

REV.

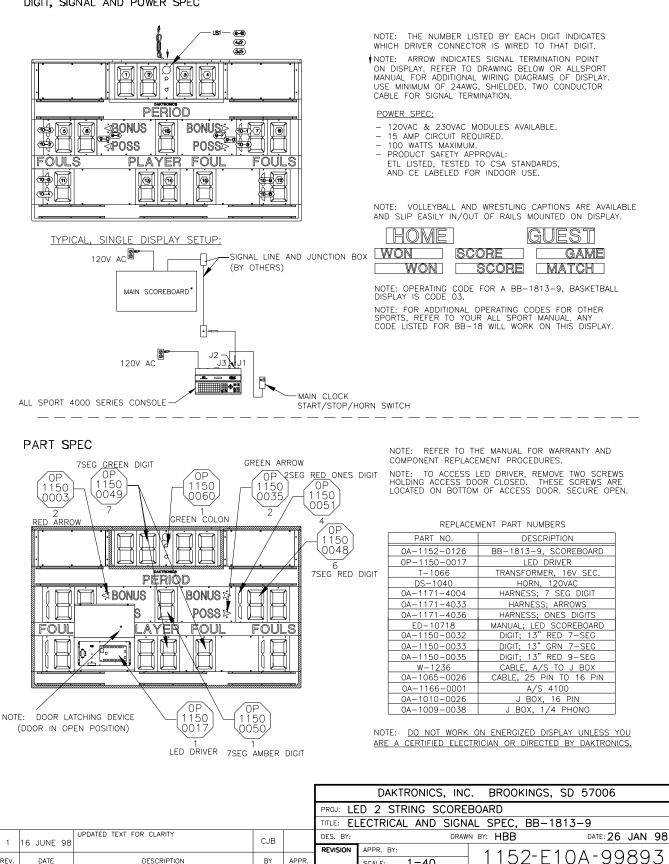
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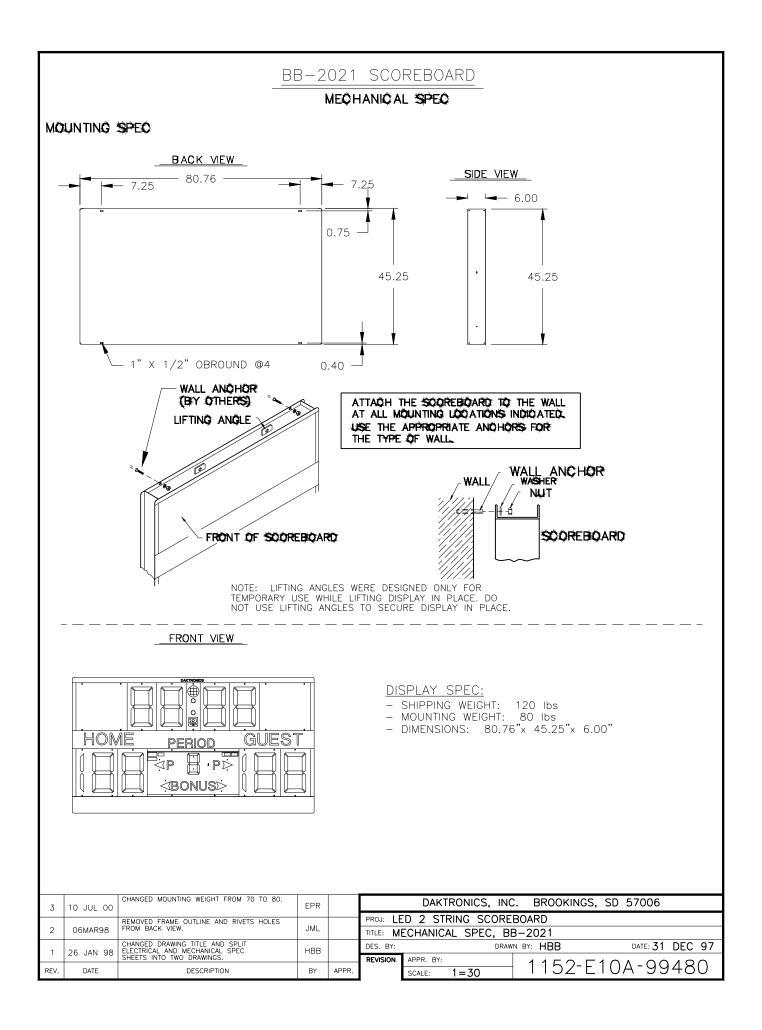
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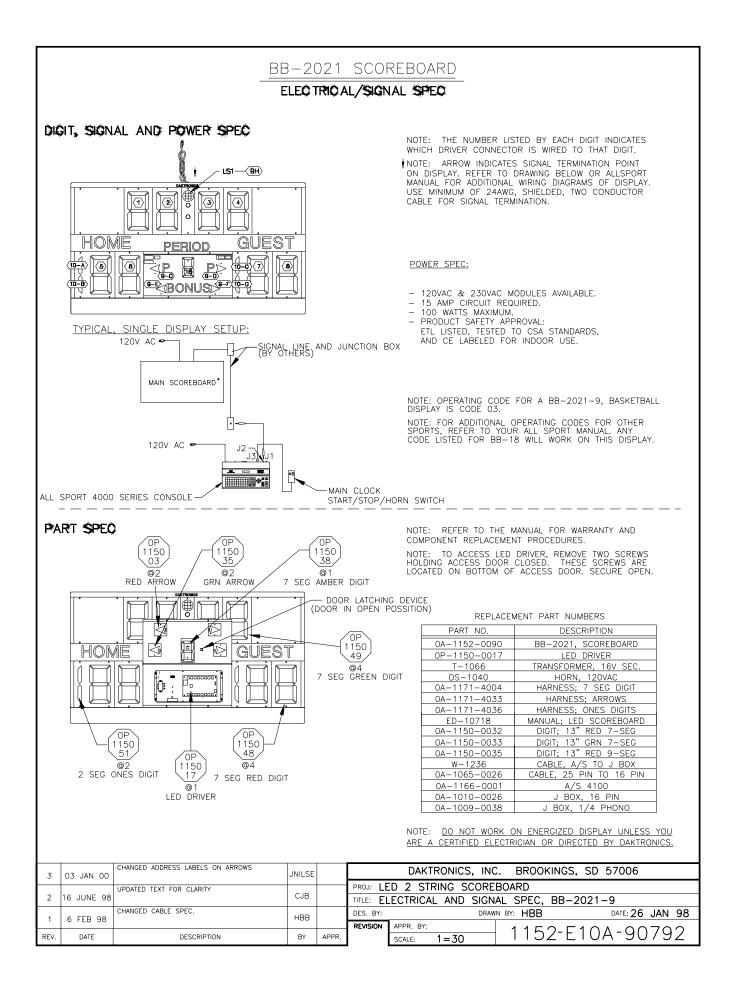
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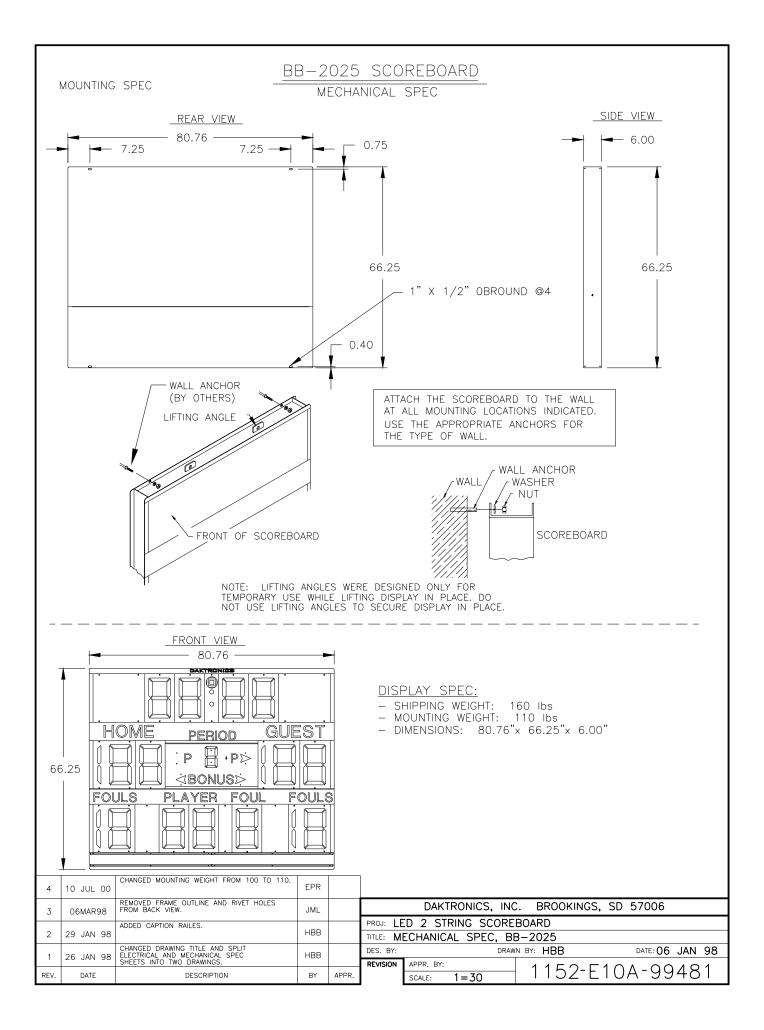
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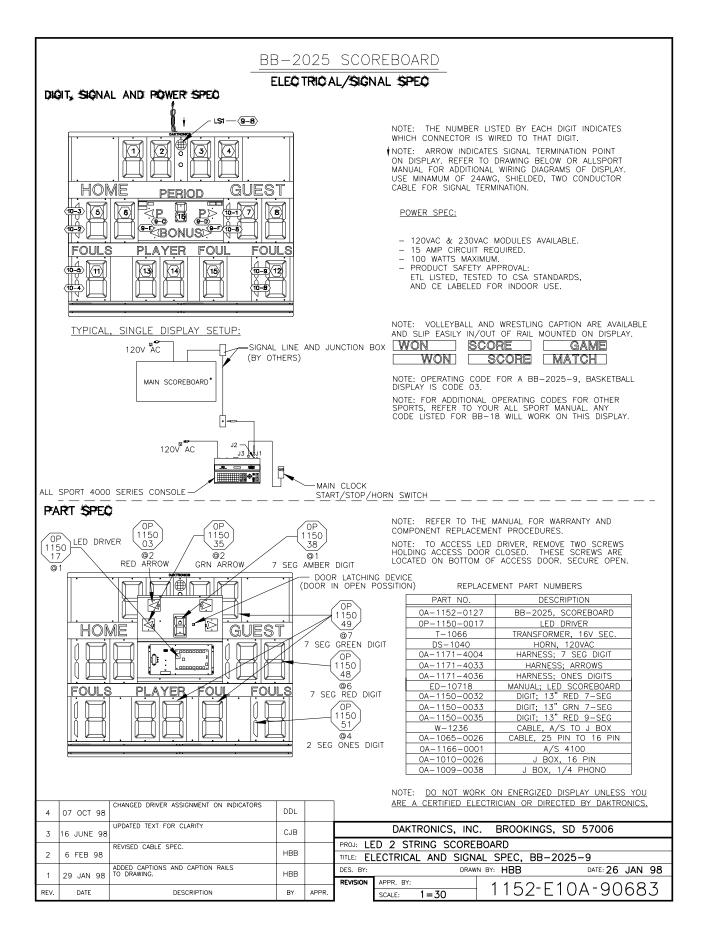
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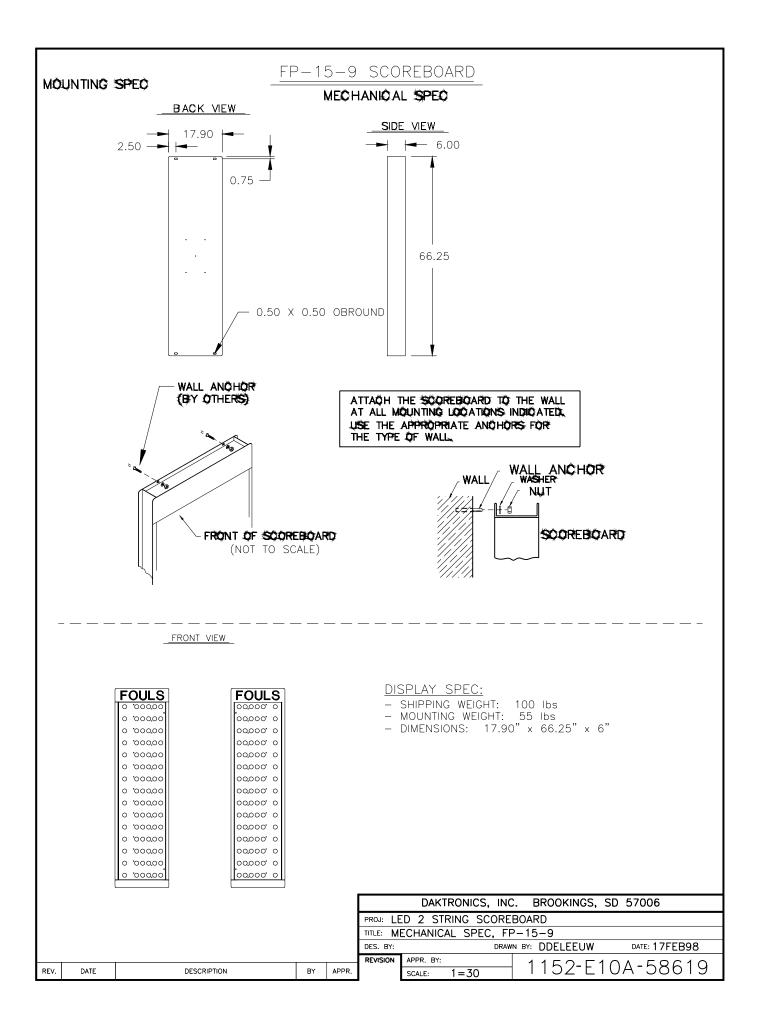


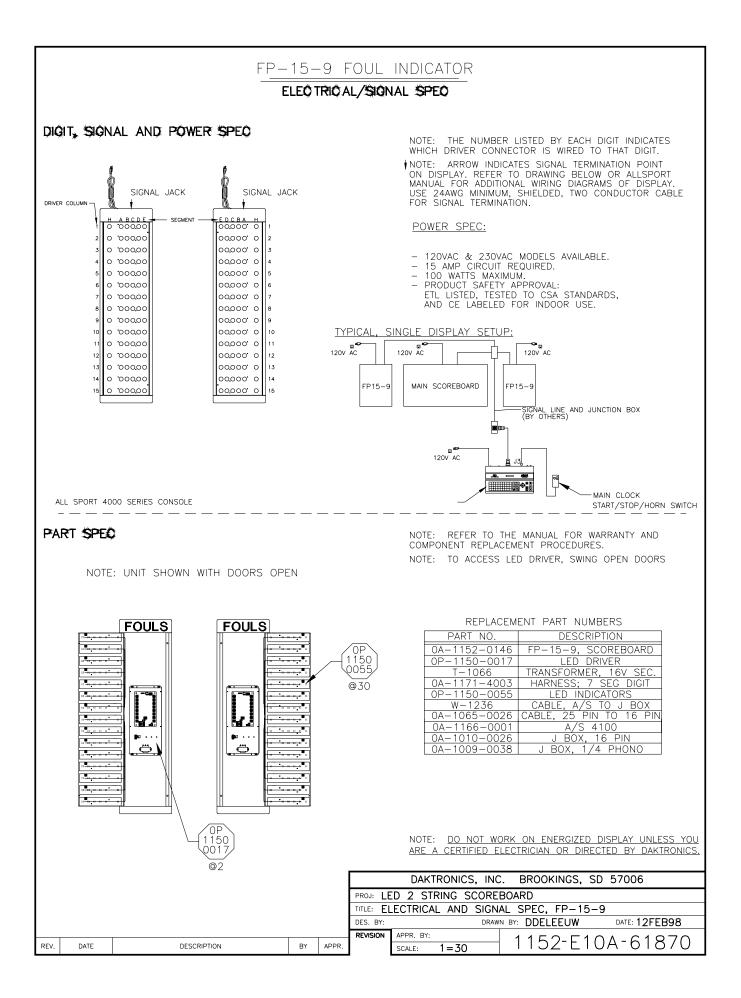


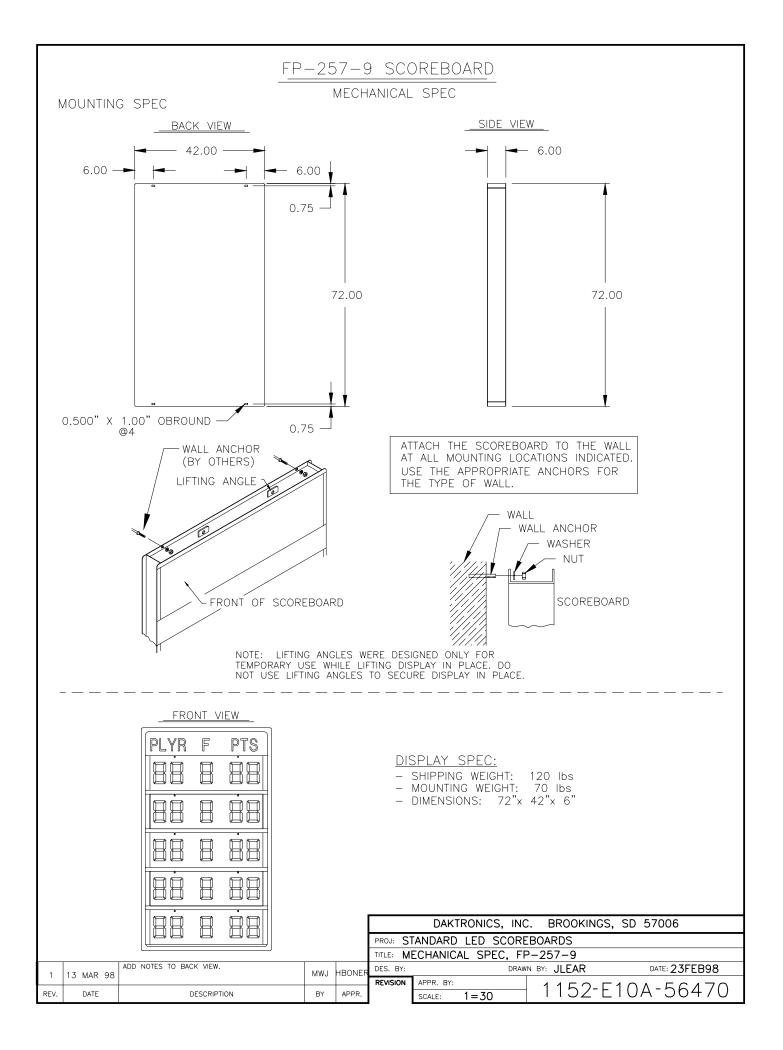


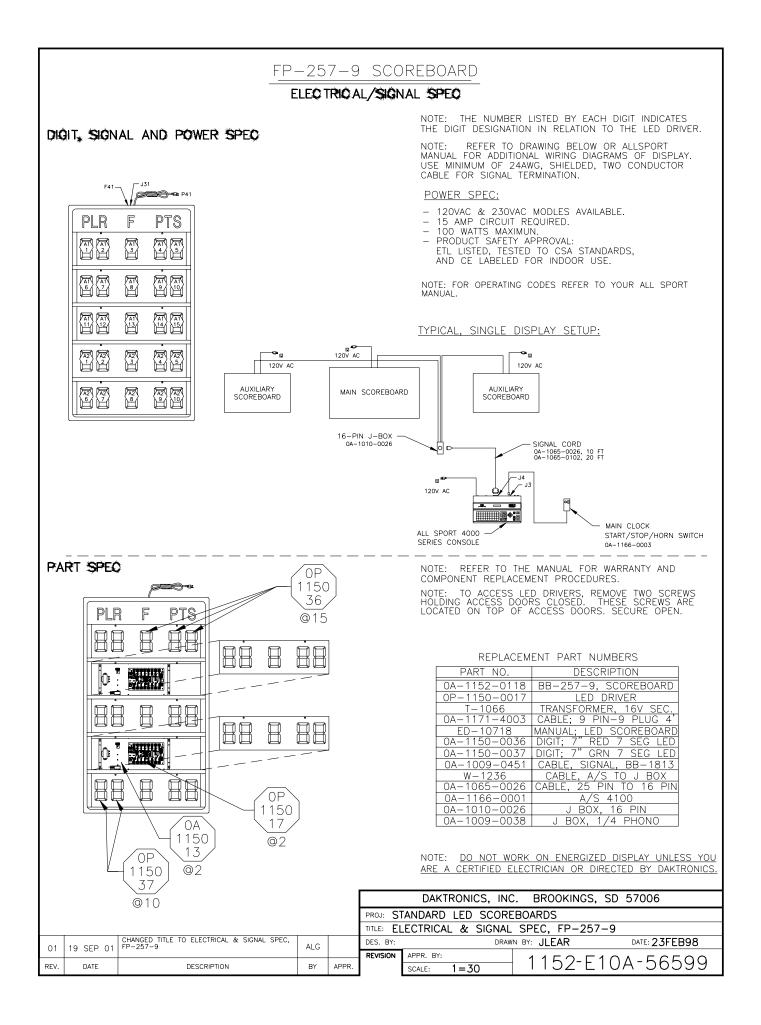




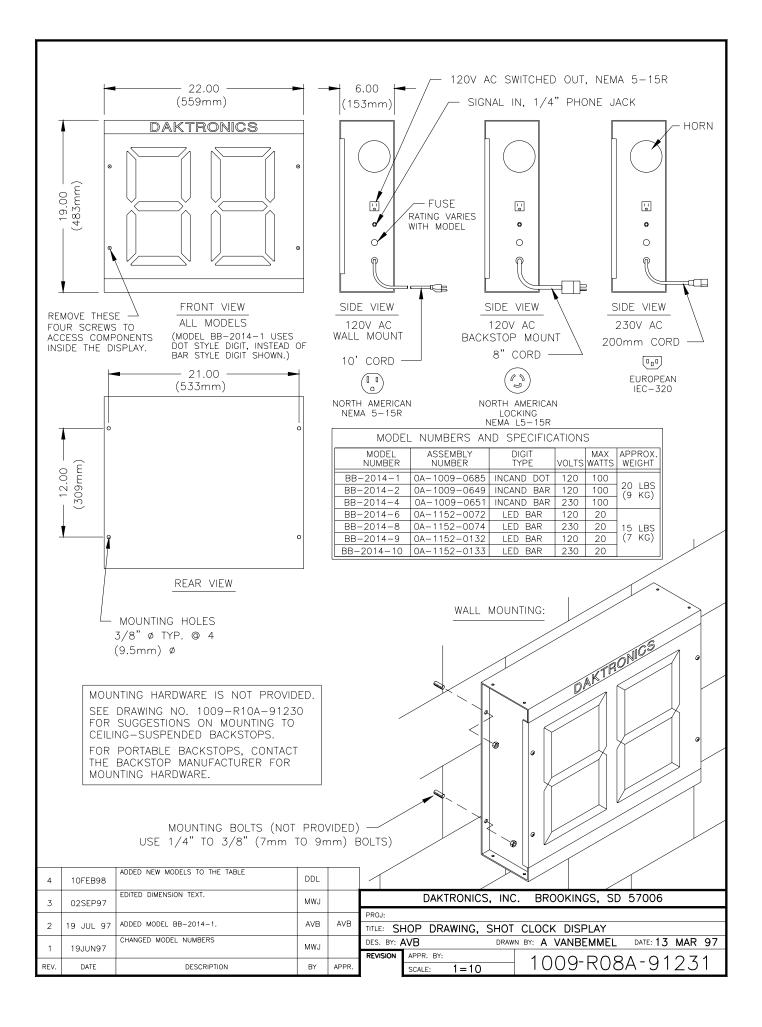


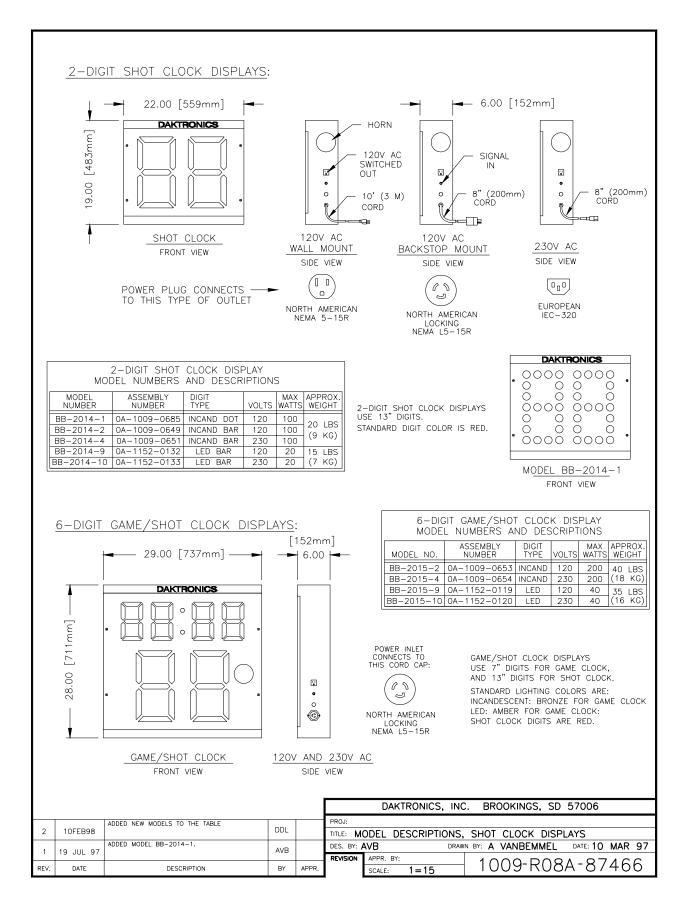


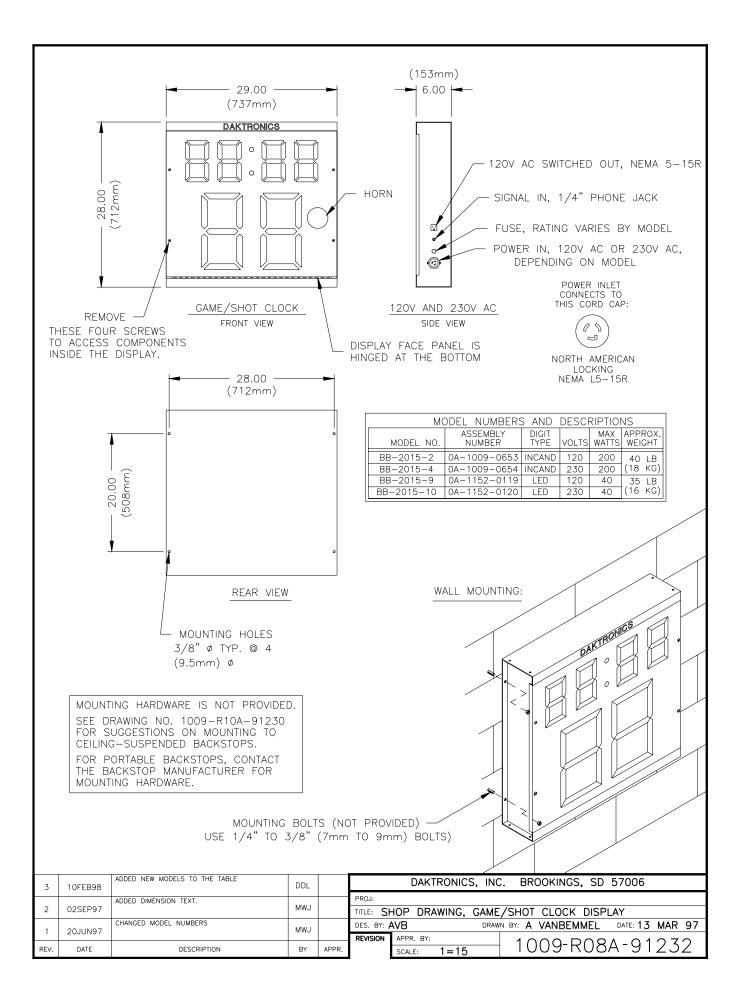


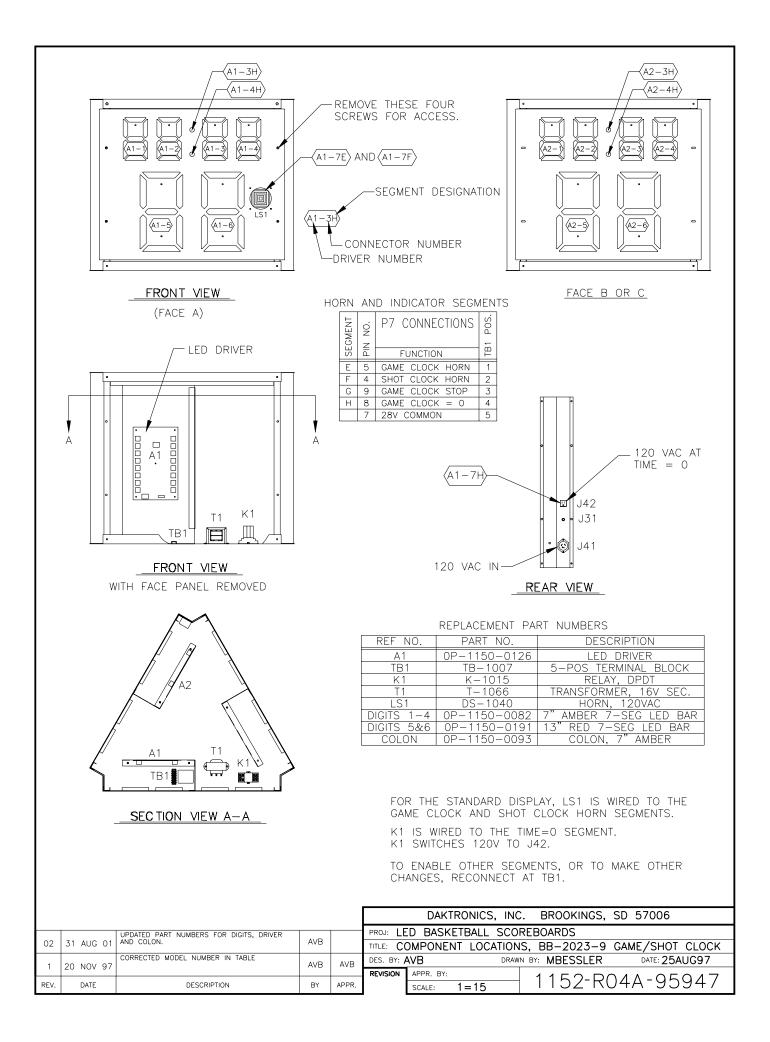


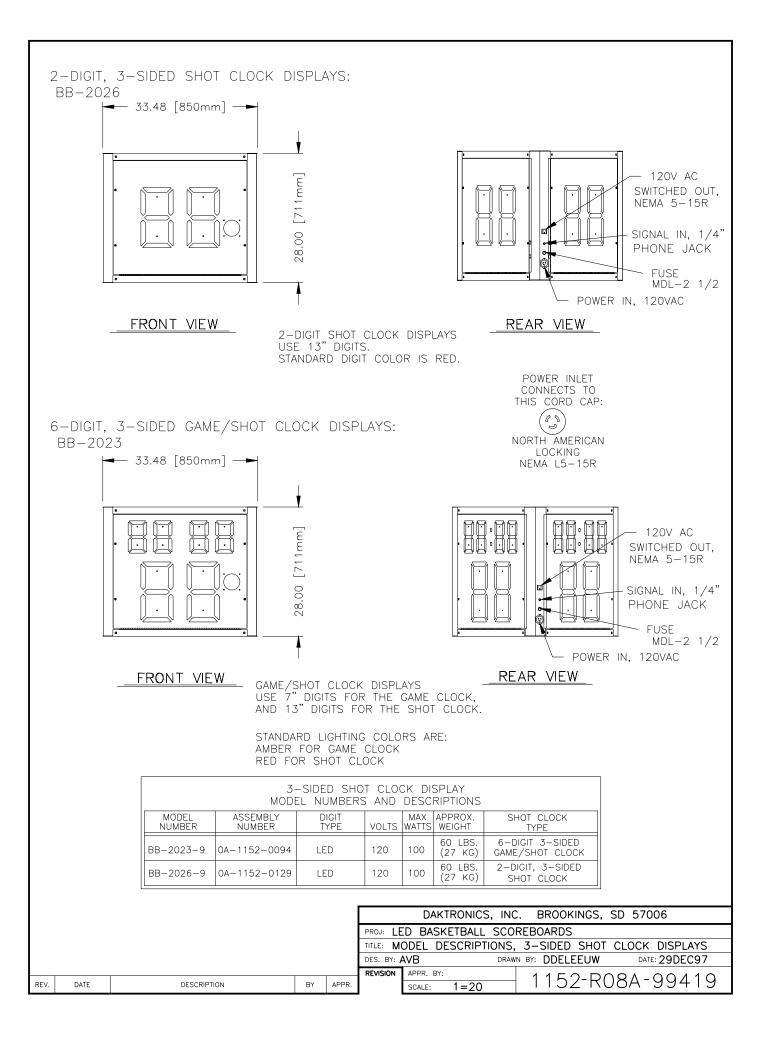
Reference Drawings:	Shot Clock, BB-2014-9 Shot Clock, BB-2014 and 2015-9 Shot Clock, BB-2015-9 Shot Clock, BB 2023-9 Shot Clock, BB 2023 and 2026-9 Shot Clock, BB 2026-9 Shot Clock, BB 2026-9 Shot Clock, Mechanical Spec, BB-2029-9 Shot Clock, Electrical/Signal, BB-2029-9 Mounting Plate, Three Sided	Drawing A-87466 Drawing A-91232 Drawing A-95947 Drawing A-99419 Drawing A-99436 Drawing A-41022 Drawing A-41053 Drawing A-97631
	0	•
	Shot Clock on Portable Backstop Backstop Mounting Suggestions	•

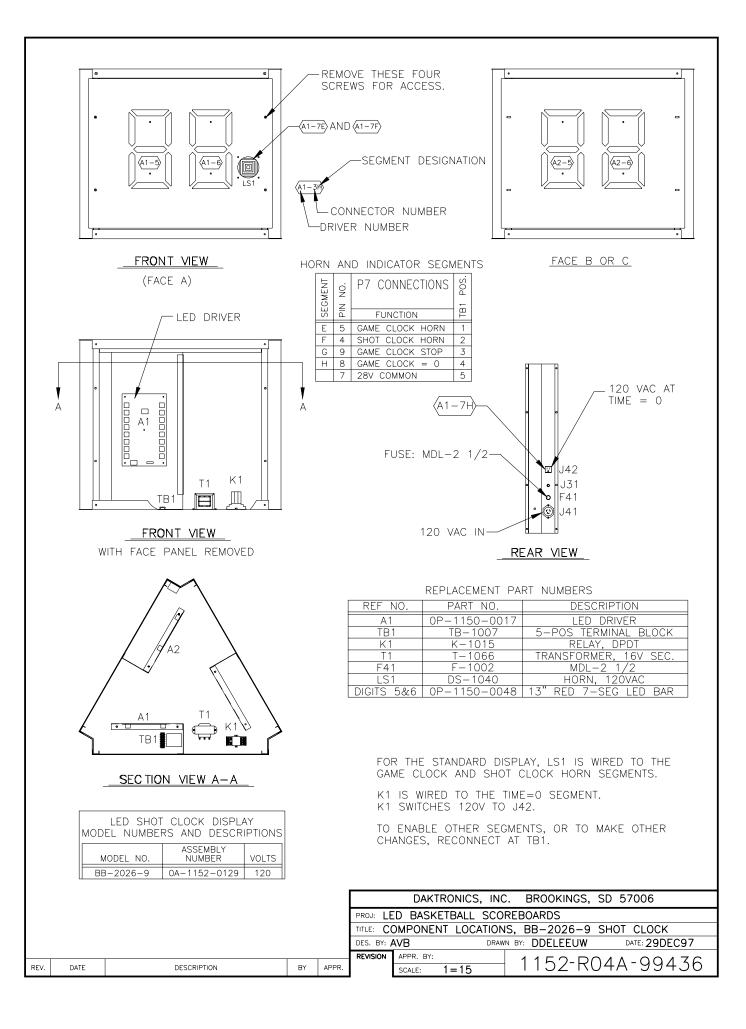


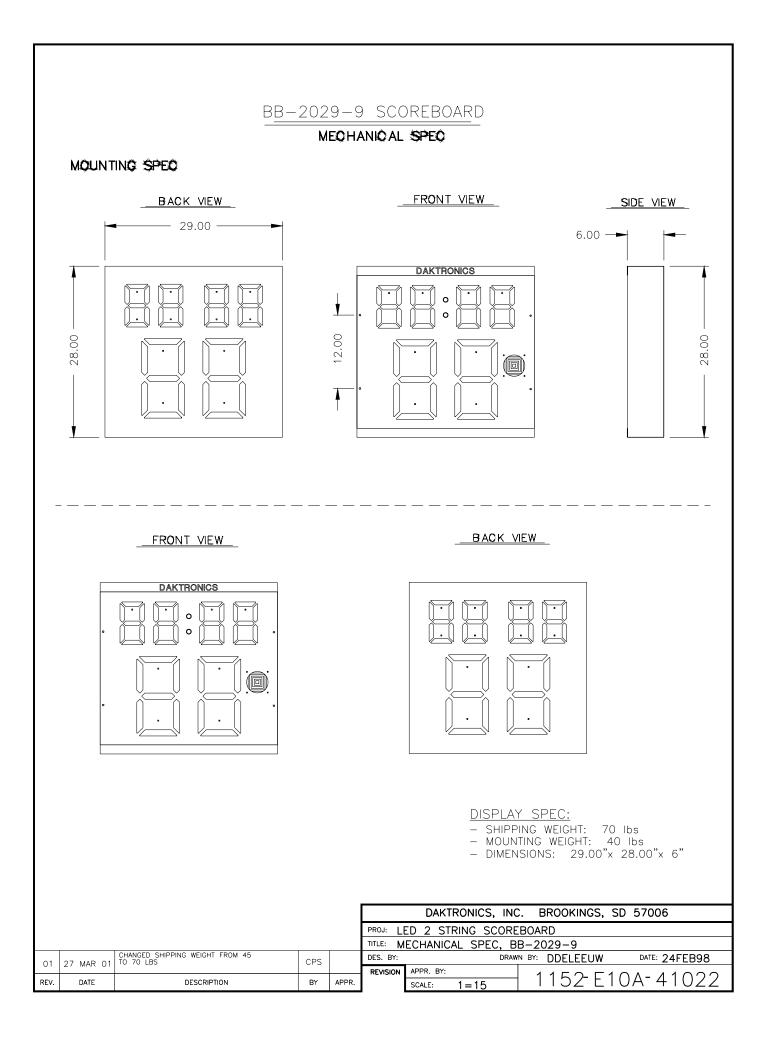


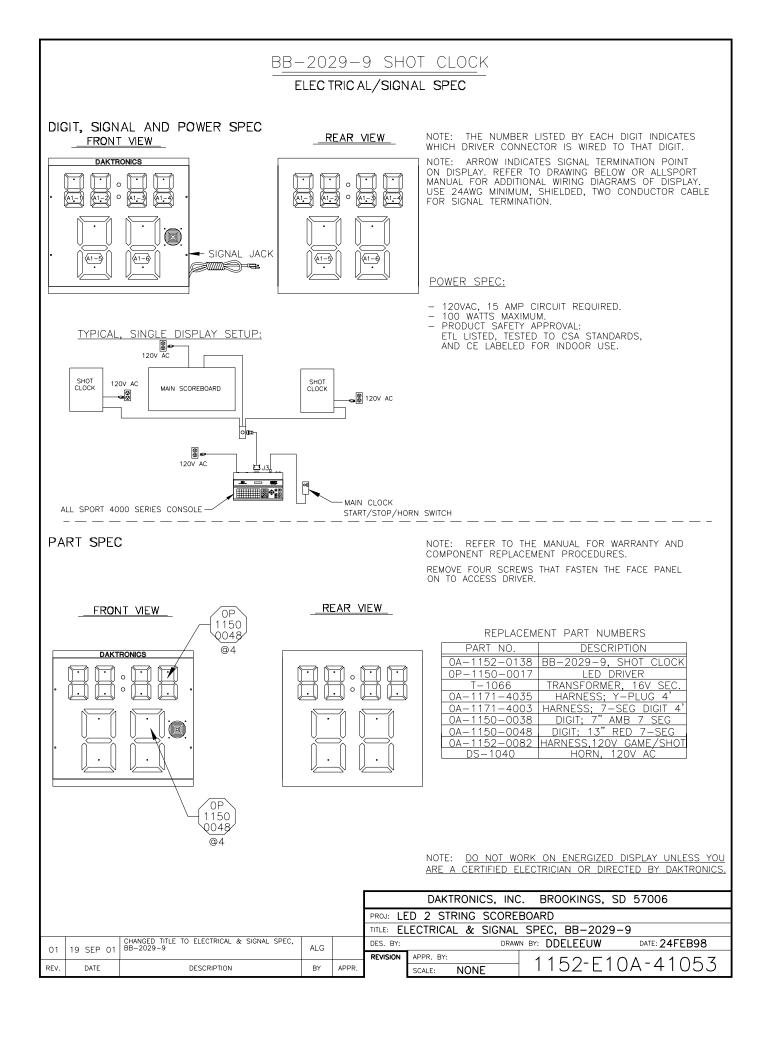












RECOMMENDED MOUNTING PLATE LAYOUT - 29.73 -- 28.58 -0.58 -- 27.42 -0 60**°** 25.75 23.75 CLEARANCE HOLE FOR 3/8" BOLT TYP. @3 1.00 -- 1.15 MODEL BB-2023 3-SIDED GAME/SHOT CLOCK IS EQUIPPED WITH THREE 3/8-16 NUTS, MOUNTED INSIDE THE BOTTOM. FOR PROPER MOUNTING, PROVIDE A STURDY MOUNTING PLATE OR STRUCTURE WITH HOLES LOCATED AS SHOWN. INSERT 3/8-16 BOLTS THROUGH HOLES AND THREAD INTO THE INTERNAL NUTS. BE SURE THE STRUCTURE IS ADEQUATE TO SAFELY SUPPORT THE DISPLAY, WHICH WEIGHS ABOUT 60 LB. STRESSES INCURRED WHEN THE BACKSTOP MOVES DURING PLAY MUST BE TAKEN INTO CONSIDERATION. DAKTRONICS, INC. IS NOT RESPONSIBLE FOR MOUNTING STRUCTURES DESIGNED AND INSTALLED BY OTHERS. SEE DRAWING 1152-E10A-95932 FOR DIMENSIONS OF MODEL BB-2023 DISPLAY, AND OTHER DETAILS. DAKTRONICS, INC. BROOKINGS, SD 57006 PROJ: TITLE: MOUNTING PLATE RECOMMENDATIONS, BB-2023 3/8-16 WAS 3/8-13. DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 17 OCT 97 RJL 23DEC97 REVISION APPR. BY: 1152-R07A-97631 REV. DATE DESCRIPTION ΒY APPR. SCALE: 1 = 6

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