

LED Water Polo Scoreboards WP-2100 Series

Display Installation and
Maintenance Manual

ED-13769

Rev 1 – 6 April 2007

DAKTRONICS

ED13769
Product 1153
Rev 1 – 6 April 2007

Please fill in the information below for your display; use it for reference when calling Daktronics for assistance.

Scoreboard Serial No. _____

Scoreboard Model No. _____

Date Installed _____

DAKTRONICS, INC.

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Section 1: Introduction

1.1 How To Use This Manual

This manual is designed to explain installation and maintenance of the Daktronics WP-2100 series water polo displays. The manual is divided into four main sections: this *Introduction*, which offers basic explanations and provides a brief overview; *Mechanical Installation*, which details techniques for proper mounting of the scoreboards; *Electrical Installation*, which shows the method for completing power and control signal connections to the scoreboards; and *Maintenance and Troubleshooting*, which highlights some of the common problems encountered with scoreboard operation.

For questions regarding the safety, installation, operation, or service of these systems, please refer to the telephone numbers listed on the cover page of this manual.

Important Safeguards:

- Read and understand these instructions before installing.
- Do not drop the controller or allow it to get wet.
- Disconnect power to the scoreboard when the unit is not in use.
- Disconnect power when servicing the scoreboard.
- Do not modify the scoreboard structure or attach any panels or coverings to the scoreboard without the express written consent of Daktronics, Inc.

The box at right, **Figure 1**, illustrates the Daktronics drawing numbering system. Daktronics identifies individual engineering drawings by the drawing number (7087-P08A-69945 in the example), which is located in the lower right corner of the drawing. This manual refers to drawings by their last set of digits and the letter preceding them. The example would be **Drawing A-69945**.

DAKTRONICS, INC. BROOKINGS, SD 57006		
PROJ: BASKETBALL		
TITLE: SEGMENTATION, 7 SEG BAR DIGIT		
DES. BY: BPETERSON	DRAWN BY: TNELSON	DATE: 8 JUL 02
APPR. BY: AVB	7087-P08A-69945	
SCALE: 1 = 4		

Figure 1: Daktronics Drawing Label

Reference drawings are grouped and inserted in alphanumeric order in the **Appendix**.

Listed below are a number of drawing types commonly used by Daktronics, along with the information that each is likely to provide.

System Riser Diagrams: overall system layout from control room to display, power, and phase requirements.

Shop Drawings: fan locations, transformer locations, mounting information, power and signal entrance points, and access method (front or rear).

Schematics: power wiring, signal wiring, panelboard or power termination panel assignments, signal termination panel assignments, and transformer assignments.

Final Assembly: component locations, part numbers, display dimensions, and assembly/disassembly instructions.

All references to drawing numbers, appendices, figures, or other manuals are presented in **bold** typeface, as in this example: “Refer to **Drawing A-114667** for the location of the driver enclosure.” Additionally, any drawings referenced within a particular subsection are listed at the beginning of that subsection in the following manner:

Reference Drawing:
Shop Drawing; 16 High 2 ½" Small Matrix..... **Drawing A-114667**

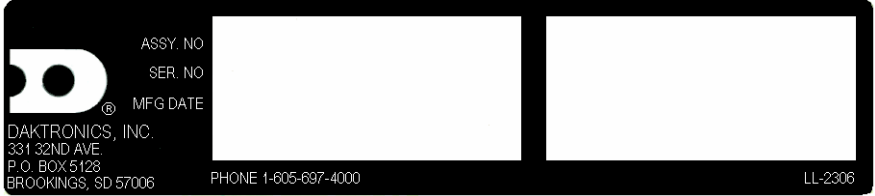


Figure 2: Daktronics Identification Label

Daktronics identifies each manual by assigning an engineering document, or ED, number, which is located on the cover page. This manual, for example, would be referred to as **ED13769**.

The serial and model numbers of a Daktronics scoreboard can be found on the ID label on the display. The label will be similar to the one shown in **Figure 2**. When calling Daktronics Customer Service, please have this information available to ensure that your request is serviced as quickly as possible. For future reference, note your scoreboard model number, serial number, and installation date on the front page of this manual.

Daktronics displays are built for long life and require little maintenance. However, from time to time, certain display components will have to be replaced. The Replacement Parts List in **Section 4** provides names and part numbers of components that may require replacement because of wear, damage, or failure.

Following the Replacement Parts List is an explanation of Daktronics exchange and replacement programs. Refer to these instructions if you must replace or repair any display component.

1.2 Manual Overview

This manual details the WP-2100 series water polo scoreboards. It is divided into the following sections:

- Section 1:** Provides an overview of the product, product safety information, and labeling and numbering descriptions.
- Section 2:** Contains mechanical installation information.
- Section 3:** Contains electrical installation information.
- Section 4:** Contains scoreboard service information and explains the Daktronics Exchange and Repair and Return Programs.
- Appendix:** Contains all engineering drawings referenced in the manual.

The various sections in this manual contain model-specific information, including dimensions, digit configuration, and power requirements. The scoreboard engineering drawings, located in the **Appendix**, also list dimensions, weight, and mounting instructions for each display. Additionally, the scoreboard model number and electrical requirements can be found on a label on the display entrance panel.

1.3 Product Overview

Daktronics LED water polo scoreboards are part of a family of scoring and timing displays designed to offer easy installation, readability, and reliability. Microprocessor control assures consistent operation and accuracy.

Based on one- and two-line sections, the WP-2101 and WP-2102 feature 7" and 10" fixed digits. The scoreboards use red-orange, amber, and red light-emitting diodes to power the display. (Light-emitting diodes – LEDs for short – are tiny, solid-state lighting units.) Outdoor displays use red-orange LEDs, and indoor boards are available in all-red models.



Figure 3: WP-2101

Because this series is based on a modular design, the WP-2101 can be operated alone, in conjunction with the WP-2102, or combined with other Daktronics swimming scoreboard models. Refer to **Figures 3** and **4** for a diagram of each water polo model. The scoreboards are manufactured for indoor and outdoor settings, and 120 V and 230 V versions accommodate both American and European use.



Figure 4: WP-2102

Both models are constructed out of durable, lightweight aluminum for corrosion resistance. The WP-2101 scoreboard cabinet measures 3'-6" high by 9'-0" wide, and the WP-2102 cabinet measures 2'-0" high by 9'-0" wide. The scoreboards have mounting weights of 100 lb (46 kg) and 70 lb (32 kg), respectively.

1.4 Model Identification

Reference Drawings:

- Mechanical Spec, WP-2101**Drawing A-178922**
- Mechanical Spec, WP-2102**Drawing A-178923**

Daktronics scoreboards are differentiated by their model numbers: The two-letter prefix for the scoreboards in this manual is **WP**, which identifies them as water polo

models. The four numbers following the prefix, **2101** and **2102**, simply identify a specific scoreboard model.

- *WP-2101* is the base scoreboard in the water polo series, displaying game time, home and guest score, period, time outs left, and shot time information. This scoreboard can be used alone and in conjunction with the WP-2102 or other Daktronics swimming displays.
- *WP-2102* displays player number, penalty time, and penalty number for two players. This scoreboard must be used with the WP-2101, as it was designed as an optional extension for the base scoreboard.

The scoreboards in all model lines also carry a two-number suffix which refers to indoor-outdoor status: -13 indicates indoor displays with red or amber PanaView™ digits, and -11 and -21 are outdoor scoreboards, with red-orange or amber digits, respectively. For an illustration of each model, refer to **Drawings A-178922** and **A-178923**.

1.5 System Layout

Daktronics WP-2101 and WP-2102 water polo scoreboards have been designed for use with either the All Sport® 5010 or the OmniSport® 2000 control consoles. Both consoles use keyboard overlays (sport inserts) for individual game control. Refer to the following controller manuals for operating instructions:

- **ED11976**: All Sport 5000 Series Control Console Operation Manual
- **ED13312**: OmniSport 2000 Operation Manual

Section 2: Mechanical Installation

Reference Drawings:

Mechanical Spec, WP-2101.....	Drawing A-178922
Mechanical Spec, WP-2102.....	Drawing A-178923

Daktronics water polo scoreboards, illustrated in the drawings listed above, can be mounted in three different ways, depending upon the facility where the scoreboard is installed:

- Vertical wall mounting (indoors or outdoors)
- Corner mounting sections (indoors only)
- Beam mounting sections (outdoors only)

The scoreboard may be mounted directly to a wall, to universal mounting struts (channels), or to some other support structure. Daktronics recommends using universal mounting struts, or channels. Use $\frac{3}{8}$ " bolts through the holes in both ends of the scoreboard frame.

There are two basic methods to mount the water polo scoreboard to a wall: corner mounting and flush wall mounting. Flush wall mounting requires standard bolts and anchors, found in most hardware stores. Corner mounting requires an additional bracket, which can be ordered from Daktronics.

Before installing any wall anchors or the mounting structure, determine where all of the mounting holes will be located. Holes provided on the sections should be convenient for most installations.

The following sections discuss each of the mounting procedures in further detail.

2.1 Vertical Wall Mounting, Indoors or Outdoors

Reference Drawing:

Vertical Wall Mount	Drawing A-130545
---------------------------	-------------------------

1. Attach the mounting struts to the wall. Refer to **Drawing A-130545** to determine the strut length and the distance between struts.
2. Use $\frac{3}{8}$ " bolts to attach the scoreboard to the struts (refer to **Drawing A-130545**). If mounting both models (WP-2101 and WP-2102), attach the lower section first (WP-2102) and then the upper section (WP-2101).

2.2 Corner-Mounting Sections, Indoors Only

Reference Drawing:

Digit Section Corner Mount.....	Drawing A-130508
---------------------------------	-------------------------

If the display is to be mounted across the corner of adjoining walls, you may order special corner-mounting brackets as an option. **Drawing A-130508** shows the procedure for this type of mounting.

2.3 Beam Mounting Digit Sections, Outdoors

Reference Drawings:

Beam Mounting Procedure	Drawing A-128438
Beam Mounting, Side View	Drawing A-128458
Beam Mounting, Top View	Drawing A-129147
Beam Mt., Rear, Vert. Display	Drawing A-129155

WP-2100 series scoreboards are frequently displayed as freestanding units, mounted on steel beams for outdoor usage. A qualified engineer must provide specifications for both the reinforced concrete footings and the steel support beams. Two beams are required, and they must be set 4'-6" apart, center-to-center. Installation is shown in **Drawings A-129154** and **A-129155**, which specify the overall space requirements for the scoreboard as well as its specific dimensions.

Once the support beams have been installed, the scoreboard-mounting procedure is typically a six-step process (refer to **Drawing A-128438**):

1. If mounting both models, begin by attaching mounting brackets to the top and bottom of the lower section. The brackets are fastened to the sections by inserting 10-24 x 5/8" screws through the holes in each bracket and threading into the captivated nuts in the back of section.
2. With the brackets attached, position the scoreboard against the beam and secure it with the 15"-long threaded rods and the other washers and nuts provided. These 1/2-13 x 15 threaded rods, or mounting bolts, do not go through the beam but pass along either side; no drilling is required (refer to **Drawings A-128458** and **A-129147**). The square nuts go inside the bracket, and the hex nuts are used inside the rear mounting angles that straddle the back of each support beam. Tighten the assembly with a 3/4" socket, taking care not to over tighten. *Note: Over tightening can deform the brackets and angles.*
3. Attach the upper mounting bracket to the upper section and set it on top of the lower section.
4. Insert screws through the upper bracket of the lower section to secure the bottom of the upper section. This secures the bracket to the back of both sections. (The sections will also be joined later at each end.)
5. Secure the upper bracket of the upper section to the beams with bolts, washers and nuts.
6. Join the sections together at the ends by inserting screws up through the holes in the top of the lower section and into the captivated nuts in the bottom of the upper section.

Section 3: Electrical Installation

The following sections provide power and signal information for both the outdoor and indoor models of Daktronics water polo scoreboards.

3.1 Connecting Power to the Scoreboard

Reference Drawings:

Electrical & Signal Spec, WP-2101-11,-21	Drawing A-178924
Electrical Spec, WP-2101-13.....	Drawing A-179020
Electrical & Signal Spec, WP-2102.....	Drawing A-179021

The Daktronics WP-2101 and WP-2102 water polo scoreboards have been designed for easy access to components, and power hookup has been simplified.

Indoor WP-2101 water polo scoreboards (models with –13 as a suffix) are equipped with a power cord on the left end of the displays. Simply plug the cord into an available power receptacle in the facility. Power to the outdoor WP-2101 displays (models with –11 or –21 as a suffix) is supplied using conduit routed through knockouts at the rear of the scoreboards. Refer to **Drawings A-178924** and **A-179020**.

To connect power to the WP-2102 water polo display (indoor and outdoor models), locate the cable with the 12-pin plug in the lower section, and route it into the upper section through the hole in the top of the WP-2102 cabinet, which is shown in **Drawing A-179021**.

3.2 Connecting Signal to the Scoreboard

Reference Drawings:

Electrical & Signal Spec, WP-2101-11,-21	Drawing A-178924
Electrical Spec, WP-2101-13.....	Drawing A-179020
Electrical & Signal Spec, WP-2102.....	Drawing A-179021

Signal to the indoor WP-2101 scoreboard (models with –13 as a suffix) routes through a signal jack (J31) on the left side of the displays, located just below the power cord. The outdoor displays (models with –11 or –21 as a suffix) receive signal via shielded conductor cable routed through knockouts at the rear of the scoreboards.

To connect power to the WP-2102 water polo display (indoor and outdoor models), locate the cable with the 12-pin plug in the lower section, and route it into the upper section through the hole in the top of the WP-2102 cabinet, shown in **Drawing A-179021**.

Section 4: Maintenance and Troubleshooting



IMPORTANT NOTES:

Disconnect power before doing any repair or maintenance work on the scoreboard!

Permit only qualified service personnel to access internal display electronics.

Disconnect power when not using the scoreboard.

4.1 Cabinet Specifications

Reference Drawings:

Mechanical Specs, Ad Panels	Drawing A-131038
Mechanical Spec, WP-2101	Drawing A-178922
Mechanical Spec, WP-2102	Drawing A-178923

Cabinets for Daktronics water polo LED scoreboards are constructed of heavy-gauge aluminum. Hinged digit panels for component access are indicated on the water polo scoreboard mechanical specifications drawings, listed above.

4.2 Component Location and Access

The WP-2100 series water polo scoreboards are *front-access* displays. Internal components are serviced by opening the digit panels on the front of the scoreboard. Most panels on the scoreboards are hinged. To gain access to the components located behind these panels, remove the screws, and swing the panels open.

To remove any other panels, remove the screws securing the panel to the scoreboard, and carefully remove the panel.

Drivers and power and signal components in the model WP-2101 scoreboard are located behind the home score digits on the left side of the display. Similar internal components for the WP-2102 model are located behind the left penalty digits.

K Note: Disconnect power before servicing the display! Disconnect power, too, when the display is not in use. Prolonged power-on may shorten the life of some electronic components.

Replacing a Digit

The digit circuit board, the platform for the LEDs, is mounted to the back of the digit panel. Do not attempt to remove individual LEDs. In the case of a malfunctioning LED or segment, replace the entire digit panel.

To remove a digit, follow these steps:

1. Open the digit panel as described in the previous section.
2. Disconnect the 9-pin power/signal connector from the back of the digit. Release the connector by squeezing together the locking tabs as you pull the connector free.
3. The digits are secured to the inside of the panel with screws, spacers, and nuts. Remove the #8 nuts and lift the segment off the screws.
4. Position a new digit over the bolts and tighten the nuts.
5. Reconnect the power/signal connector. **K Note:** *This is a keyed connector, it will attach in one way only. Do not attempt to force the connection!*
6. Close and secure the digit panel and test the scoreboard.

Replacing a Driver

Reference Drawings:

Electrical & Signal Spec, WP-2101-11,-21.....	Drawing A-178924
Electrical Spec, WP-2101-13	Drawing A-179020
Electrical & Signal Spec, WP-2102	Drawing A-179021

Drivers are typically mounted inside the scoreboard and immediately behind or below a digit. In the WP-2101 water polo scoreboard, the driver is located directly behind the home score digits, as shown in **Drawings A-178924** and **A-179020**. The driver for the WP-2102 scoreboard is located directly behind the left penalty digits, as shown in **Drawing A-179021**.

Each driver is enclosed with a transformer and signal terminal block. Before a failed driver can be reached, the enclosure must be accessed. Follow these steps:

1. Open the digit panel or scoreboard face panel as described in **Section 4.2**.
2. Remove the cover from the driver enclosure.
3. Disconnect all connectors from the driver. Release each connector by squeezing together the locking tabs as you pull the connector free. **K Note:** When reconnecting, remember that these are keyed connectors and will attach in one way only. Do not attempt to force the connections.
4. Remove the nuts or wing nuts securing the driver to the inside of the enclosure.
5. Carefully lift the driver from the display.
6. Follow steps 1 through 5 in reverse order to attach a new driver.

4.3 Schematics

Reference Drawing:

Schematics; Driver II Aquatics Scbds	Drawing A-129264
--	-------------------------

Drawing A-129264 is the schematic diagram of the power and signal inputs and all wiring in SW-2000 series scoreboards. Input schematics for both 120 V and 230 V scoreboards are shown in the lower left portion of the drawing.

Note: Disconnect power before servicing the display!

Disconnect power when the display is not in use. Prolonged power-on may shorten the life of some electronic components.

4.4 LED Drivers

Reference Drawings:

16 Column LED Driver II Specifications.....	Drawing A-126174
Electrical & Signal Spec, WP-2101-11,-21	Drawing A-178924
Electrical Spec, WP-2101-13.....	Drawing A-179020
Electrical & Signal Spec, WP-2102.....	Drawing A-179021

The task of switching LEDs on and off is performed by the LED driver (refer to **Drawing A-126174**). Each driver has 19 connectors providing power and signal inputs/outputs to digits and indicators. The function of each of these connectors is as follows:

16-Column LED Driver	
Connector No.	Function
J1 – 16	Outputs to digits
J17	Power and signal input
J18	Control for horn
J19	Address

Output connectors 1 through 16 each have nine pins. Pin 7 provides power to the digit or indicators wired to that connector. The other eight pins provide switching connections. The electrical specification drawings for each of the models in the WP-2100 series, shown at the beginning of this section, specify the driver connectors controlling the digits. Numbers on each digit indicate which connector is wired to that digit. Scoreboard model numbers are shown on the lower left side of each drawing.

4.5 Segmentation

Reference Drawing:

Segmentation, 7 Segment Bar Digit	Drawing A-38532
---	------------------------

In each digit, certain LEDs always go on and off together. These groupings of LEDs are referred to as segments. Drawing A-38532 shows which connector pin number is wired to each digit segment and the wiring color code used throughout the display (illustrated at lower left on drawing).

4.6 Lightning Protection

The use of a disconnect near the scoreboard to completely cut all current-carrying lines significantly protects the circuits against lightning damage. The National Electrical Code also requires it. In order for this system to provide protection, the

power *must* be disconnected when the scoreboard is not in use. The control console should also be disconnected from power and from the signal junction box when the system is not in use. The same surges that may damage the scoreboard's driver can also damage the console's circuit.

4.7 Troubleshooting

Daktronics scoreboards require little maintenance. However, from time to time, a display may malfunction, and certain display components will have to be repaired or replaced. The table below provides a list of problems common to most LED displays and specifies corrective actions.

Symptom/Condition	Possible Cause
Scoreboard will not light	<ul style="list-style-type: none"> • Console not connected or poor connection • No power to control console • No power to the scoreboard
Garbled display	<ul style="list-style-type: none"> • Internal driver logic malfunction • Control console malfunction
Digit will not light	<ul style="list-style-type: none"> • Black wire to digit broken • Poor contact at driver connection. • Driver malfunction
Segment will not light	<ul style="list-style-type: none"> • Broken LED or connection • Driver shift register failure • Broken wire between driver and digit • Poor contact at driver connector
Segment stays lit	<ul style="list-style-type: none"> • Driver shift register failure • Short circuit on digit

The Replacement Parts List in **Section 4.8** includes part numbers of components it may be necessary to reorder during the life of your display. Most scoreboard components have a white label that lists the part number. Refer to the Replacement Part List and the drawings in this manual to obtain the correct replacement part number for any damaged component.

For troubleshooting assistance and to order replacement components, *contact your service provider first*. Your service provider may have the appropriate part or assembly on hand and, in an emergency, may be able to provide same-day service.

Your scoreboard service may advise you to call Daktronics directly, or your facility may not have an area or regional service provider. In those instances, feel free to call the Daktronics Help Desk at 877-605-1115. For faster service, note the model of the scoreboard and any problem-area assembly numbers, as shown on the scoreboard

spec sheet. If you need to order replacement components, it would be helpful to have a purchase order number or other purchase information available at the time you call.

4.8 Replacement Parts

The Daktronics parts list, located on the following page, includes components used by the WP-2101 and WP-2102 custom water polo scoreboards. Some part numbers are listed on the final assembly engineering drawings in the **Appendix**.

Description	Part Number
Horn; 120 V AC 60Hz	0A-1152-0332
Cable, 22 AWG, one pair	W-1077
Junction box; phone jack	0A-1009-0038
LED driver	0P-1150-0127
Digit, 7", red (indoor)	0P-1150-0187
Digit, 10" red (indoor)	0P-1150-0209
Digit, 7", amber (indoor)	0P-1150-0082
Digit, 10", amber (indoor)	0P-1150-0211
Digit, 7", red-orange, (outdoor)	0P-1150-0133
Digit, 7", amber (outdoor)	0P-1192-0104
Digit, 10", amber (outdoor)	0P-1192-0083
Transformer, 16 V	T-1066
Signal cable, 10'	W-1340
Signal cable, 20'	W-1236
Signal cable, 30'	W-1238
Signal cable, 50'	W-1237
Signal cable, 100'	W-1381

4.9 Daktronics Exchange and Repair and Return Programs

Daktronics recommends that each customer keep an inventory of essential parts in case problems arise. If equipment fails, the customer's local service technician can get the equipment operational again with spare parts kept on hand.

For specific repair information for your Daktronics scoreboard, refer to the warranty in the original purchase packet shipped with the display. Unless specifically stated in the warranty agreement, *the warranty does not cover on-site labor*.

To meet customer repair and maintenance needs, Daktronics offers two options: an Exchange Program and a Repair and Return Program.

Daktronics' unique Exchange Program is a quick, economical service for replacing key components in need of repair. If a component fails, Daktronics sends the customer a replacement, and the customer, in turn, sends the failed component to Daktronics. This not only saves money but also decreases scoreboard downtime. Under normal circumstances, Daktronics sends a reconditioned replacement part within 24 hours. In urgent situations, Daktronics ships using the fastest method available.

Daktronics provides these plans to ensure users get the most from their scoreboards and components. The company offers the service to qualified customers who follow the program guidelines explained below. Please call the Help Desk – 877-605-1115 – if you have questions regarding the Exchange Program or any other Daktronics service.

When you call the 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 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 box and wrapping in which the replacement part arrived, fill out and attach the enclosed UPS shipping document, and *RETURN THE PART TO DAKTRONICS*. In most circumstances, you will be invoiced for the replacement part at the time it is shipped. This bill, which represents the exchange price, is due when you receive it.

Daktronics expects immediate return of an exchange part if it does not solve the problem. The company also reserves the right to refuse equipment that has been damaged due to acts of nature or causes other than normal wear and tear.

If you do not ship the defective equipment Daktronics within 30 working days from the invoice date, Daktronics assumes you are purchasing the replacement part outright (with no exchange), and you will be invoiced for it. This second invoice represents the difference between the exchange price and the full purchase price of the equipment. The balance is due when you receive the second invoice.

If you return the exchange equipment after 30 working days from the invoice date, you will be credited for the amount on the second invoice, minus a restocking fee.

To avoid a restocking charge, you must 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.

Return Materials Authorization: To return parts for service, contact your local representative prior to shipment to acquire a Return Material Authorization (RMA) number. If you have no local representative, call the Daktronics Help Desk for the RMA. This expedites repair of your component when it arrives at Daktronics.

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 be installed in an enclosure or placed in an antistatic bag before boxing. Please enclose your name, address, phone number and a clear description of symptoms.

This is how to reach us:

Mail: Customer Service, Daktronics Inc.
PO Box 5128
331 32nd Ave
Brookings SD 57006

Phone: Daktronics Help Desk: 877-605-1115 (toll free)
or 605-697-4036

Fax: 605-697-4444

E-mail: helpdesk@daktronics.com

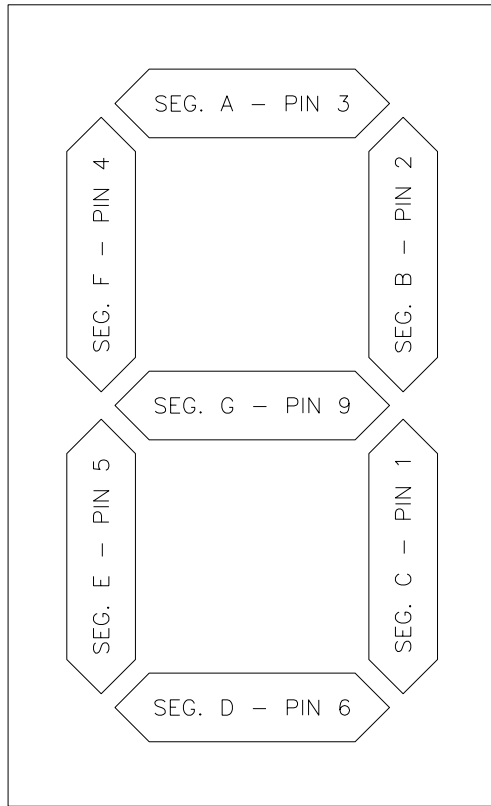
Daktronics Warranty and Limitation of Liability

The Daktronics Warranty and Limitation of Liability is located in Appendix B. The Warranty is independent of Extended Service agreements and is the authority in matters of service, repair, and display operation.

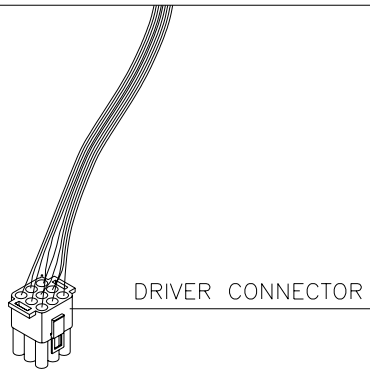
Appendix: Reference Drawings

The drawing number is located in the label in the bottom right corner of each drawing.
Drawings in this manual are identified by the last set of digits and the letter preceding them.

Segmentation, 7 Segment Bar Digit	Drawing A-38532
16 Column LED Driver II Specifications	Drawing A-126174
Beam Mounting Procedure	Drawing A-128438
Beam Mounting, Side View	Drawing A-128458
Beam Mounting, Top View	Drawing A-129147
Beam Mt., Rear, Vert. Display	Drawing A-129155
Schematics; Driver II Aquatics Scbds	Drawing A-129264
Digit Section Corner Mount	Drawing A-130508
Vertical Wall Mount.....	Drawing A-130545
Mechanical Specs, Ad Panels.....	Drawing A-131038
Mechanical Spec, WP-2101	Drawing A-178922
Mechanical Spec, WP-2102	Drawing A-178923
Electrical & Signal Spec, WP-2101-11,-21.....	Drawing A-178924
Electrical Spec, WP-2101-13	Drawing A-179020
Electrical & Signal Spec, WP-2102	Drawing A-179021

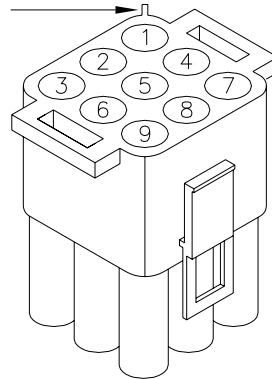


7 SEGMENT BAR DIGIT
FRONT VIEW



COLOR CODE		
PIN NO.	WIRE COLOR	DRIVER SEGMENT
1	ORN	C
2	RED	B
3	BRN	A
4	BLU	F
5	PNK	E
6	TAN	D
7	BLK	COM.
8	GRY	H
9	VIO	G

CONNECTOR PIN NUMBERING
NOTE SPLINE NEAR NO. 1



NOTE: "H" SEGMENT, GRAY WIRE IS NOT USED ON 7 SEGMENT BAR DIGIT.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: BASKETBALL

TITLE: SEGMENTATION, 7 SEGMENT BAR DIGIT

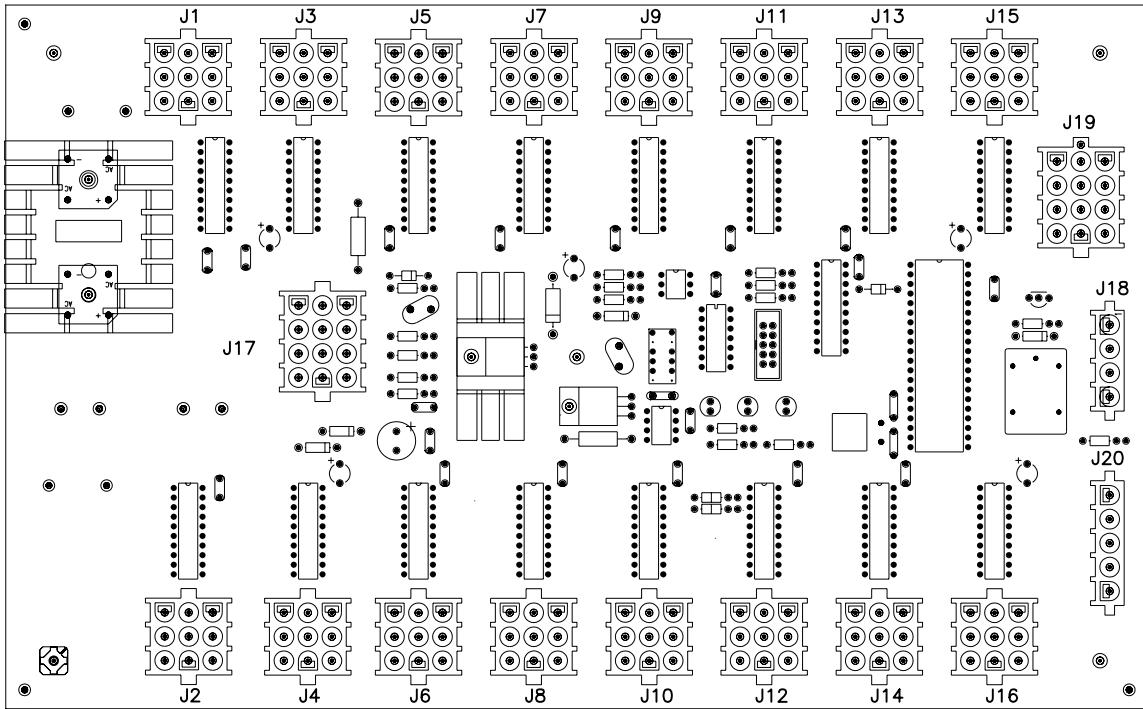
DES. BY: DRAWN BY: HEIDERSCHIEDT DATE: 5 JUN 89

REVISION APPR. BY: AVB
02 SCALE: 1=4

1009-R04A-38532

REV.	DATE	DESCRIPTION	BY	APPR.
2	30 APR 97	ADDED SEGMENT DESIGNATIONS TO DIGIT FIGURE.	AVB	AVB
1	2 JAN 92	CHANGED FROM B-SIZE TO A-SIZE DWG.	C FICK	

OP-1150-0126 UNCOATED OR OP-1150-0127 COATED
16 COLUMN LED DRIVER II



J17 MAIN	
PIN	FUNCTION
1	SIG-P
2	SIG-N
3	SIG2-P
4	CLOUT-P
5	CLOUT-N
6	16VAC-N
7	GND-N
8	EARTH-N
9	16VAC-P
10	GND-N
11	+VDD-P
12	+VBB-P

J1-16 DIGIT	
PIN	FUNCTION
1	SEGC-N
2	SEGB-N
3	SEGA-N
4	SEGF-N
5	SEGE-N
6	SEGD-N
7	+VCC-P
8	SEGH-N
9	SEGG-N

J19 ADDRESS	
PIN	FUNCTION
1	GND-N
2	ADD0-N
3	ADD1-N
4	GND-N
5	ADD2-N
6	ADD3-N
7	GND-N
8	ADD4-N
9	ADD5-N
10	GND-N
11	ADD6-N
12	ADD7-N

J18 RELAY	
PIN	FUNCTION
1	HORNOUT-N
2	AUXOUT-N
3	120SW-P
4	120SW-N

J20 PROTOCOL	
PIN	FUNCTION
1	GND-N
2	PRO-N
3	PR1-N
4	PR2-N
5	TOD-N

NOTE

-WITH NO ADDRESS PINS SELECTED THE DRIVER WILL DEFAULT TO A/S 4000 PROTOCOL

-GREEN LED INDICATES THE DRIVER HAS POWER

-RED LED WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL

-AMBER LED INDICATES LED DRIVER STATUS, LED WILL BE BLINKING TO INDICATE THAT THE DRIVER IS RUNNING, IF THE LED IS OFF OR ON SOLID ALL OF THE TIME, THEN THE DRIVERS CPU IS NOT FUNCTIONING AND MAY NEED TO BE RESET OR REPLACED.

-REFER TO DRAWINGS A-115078 & A-115079 FOR J19 ADDRESS SETTINGS FOR THIS DRIVER.

-REFER TO DRAWING A-115081 FOR J20 PROTOCOL SETTINGS FOR THIS DRIVER.

-REDRIVE CIRCUIT IS PROCESSOR REFRESHED (REFER TO DWG A-128429 FOR FURTHER INFORMATION ON THE CURRENT LOOP REDRIVE CIRCUIT SPECIFICATIONS)

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: 16 COLUMN LED DRIVER II SPECIFICATIONS

DES. BY: EB

DRAWN BY: EBRAVEK

DATE: 11 JAN 00

REVISION

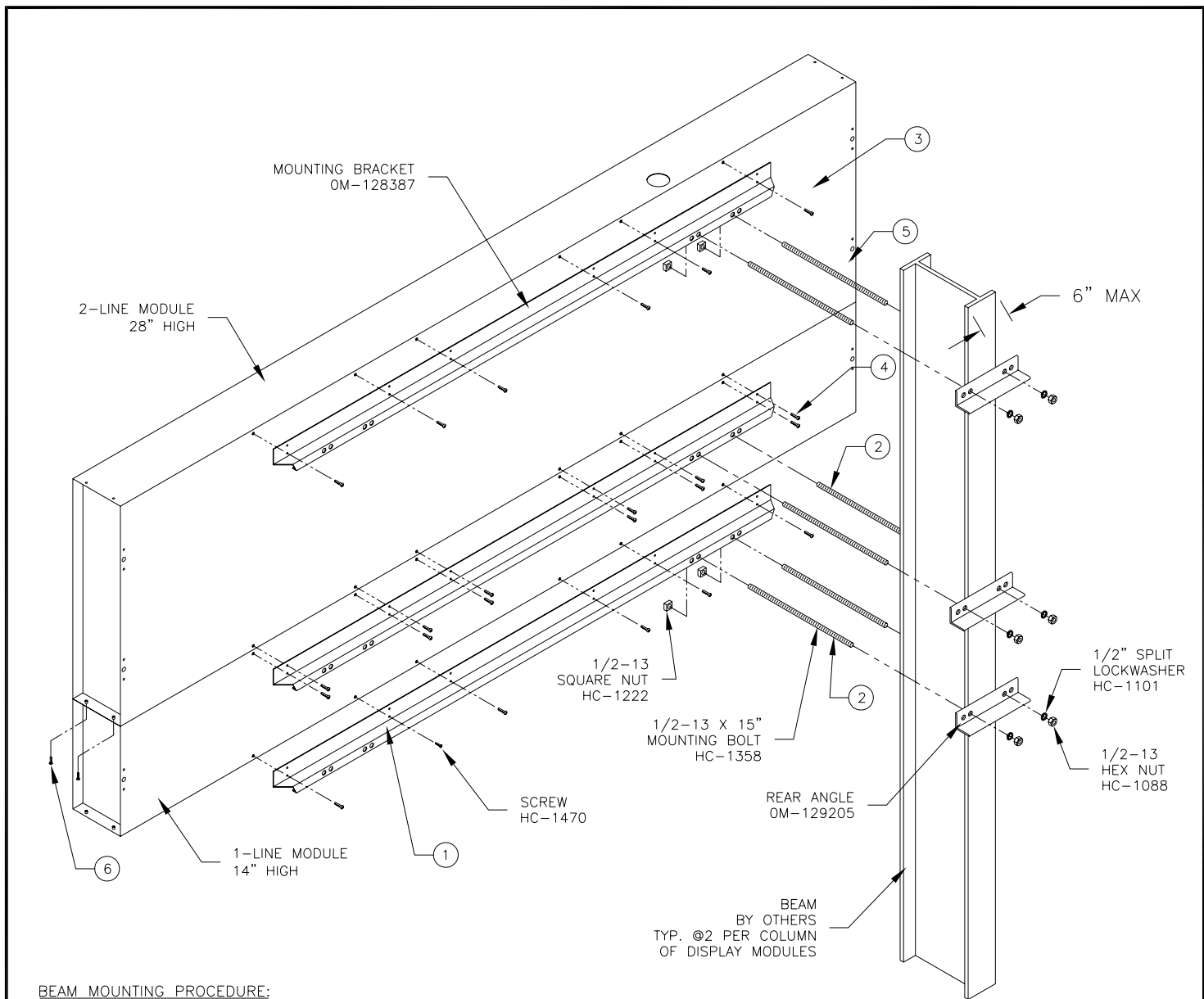
APPR. BY:

01

SCALE: 1=2

1150-R07A-126174

REV.	DATE	DESCRIPTION	BY	APPR.
01	2 OCT 00	UPDATED NOTES SECTION	NSW	



BEAM MOUNTING PROCEDURE:

THE CIRCLED NUMBERS IN THE DRAWING REFER TO THE STEPS OF THIS PROCEDURE.

ONLY ONE BEAM IS SHOWN, TWO BEAMS REQUIRED FOR EACH COLUMN OF DISPLAY MODULES. BEAMS MUST BE SET 4'-6" APART, CENTER TO CENTER.

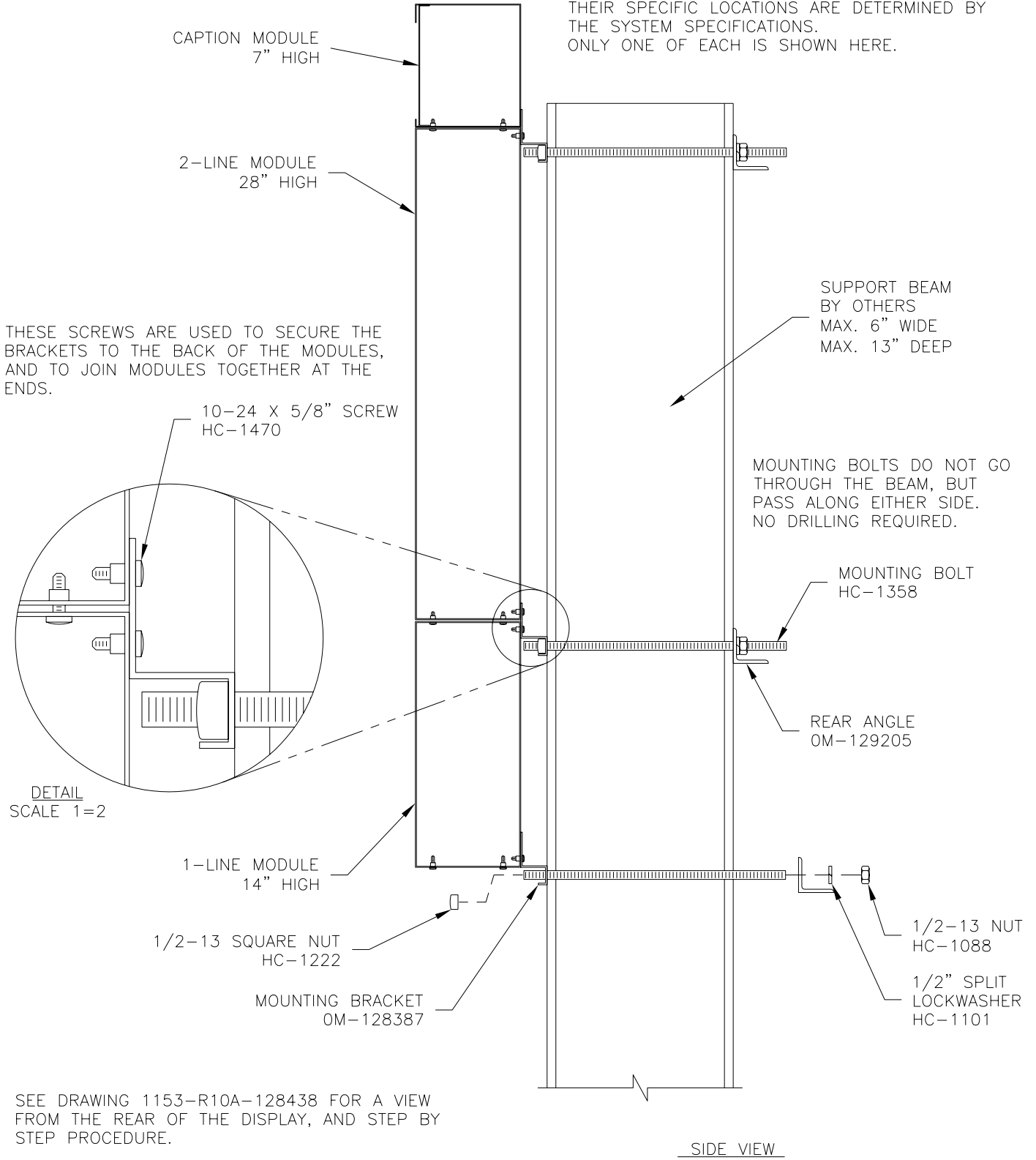
1. ATTACH MOUNTING BRACKETS TO THE TOP AND BOTTOM OF THE LOWEST DISPLAY MODULE IN THE SYSTEM BY INSERTING SCREWS THROUGH THE HOLES IN THE BRACKET AND THREADING INTO THE CAPTIVATED NUTS IN THE BACK OF THE MODULE.
2. POSITION THAT MODULE AGAINST THE BEAMS AND SECURE TO THE BEAM WITH THE BOLTS, WASHERS, AND NUTS PROVIDED. THE SQUARE NUTS GO INSIDE THE BRACKET, AND THE HEX NUTS AND WASHERS ARE USED INSIDE THE REAR ANGLE AT THE BACK OF THE BEAM. USE A 3/4" SOCKET TO TIGHTEN. **CAUTION:** DO NOT OVERTIGHTEN AND DEFORM THE BRACKET OR ANGLES.
3. ATTACH THE UPPER MOUNTING BRACKET TO THE NEXT MODULE AND SET IT ON TOP OF THE FIRST MODULE.
4. INSTALL SCREWS THROUGH THE BRACKET TO SECURE THE BOTTOM OF THE SECOND MODULE.
5. SECURE THE UPPER BRACKET TO THE BEAMS WITH THE BOLTS, WASHERS, AND NUTS.
6. ATTACH THE MODULES TOGETHER AT THE ENDS BY INSERTING SCREWS UP THROUGH THE HOLES IN THE TOP OF THE LOWER MODULE INTO THE CAPTIVATED NUTS IN THE BOTTOM OF THE UPPER MODULE.
7. CONTINUE BUILDING UP IN THIS MANNER FOR ANY REMAINING MODULES IN THE SYSTEM. CAPTION MODULES ARE ATTACHED ONLY TO THE ADJACENT DIGIT MODULES, AND DO NOT ACCEPT BEAM MOUNTING BRACKETS.

SEE DRAWING 1153-R10A-128458 FOR A SIDE VIEW AND DETAILS.

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:			
TITLE: BEAM MOUNTING PROCEDURE			
DES. BY: AVB		DRAWN BY: AVB	
		DATE: 28 FEB 00	
REVISION	APPR. BY:	1153-R10A-128438	
00	SCALE: 1=20		

01	19 APR 02	CHANGED HC-1022 SCREW TO HC-1470.	MRB	
REV.	DATE	DESCRIPTION	BY	APPR.

A TYPICAL INSTALLATION MAY BE MADE UP OF 1- & 2-LINE MODULES AND CAPTION MODULES. THEIR SPECIFIC LOCATIONS ARE DETERMINED BY THE SYSTEM SPECIFICATIONS. ONLY ONE OF EACH IS SHOWN HERE.



THESE SCREWS ARE USED TO SECURE THE BRACKETS TO THE BACK OF THE MODULES, AND TO JOIN MODULES TOGETHER AT THE ENDS.

10-24 X 5/8" SCREW
HC-1470

SUPPORT BEAM
BY OTHERS
MAX. 6" WIDE
MAX. 13" DEEP

MOUNTING BOLTS DO NOT GO THROUGH THE BEAM, BUT PASS ALONG EITHER SIDE. NO DRILLING REQUIRED.

MOUNTING BOLT
HC-1358

REAR ANGLE
OM-129205

DETAIL
SCALE 1=2

1-LINE MODULE
14" HIGH

1/2-13 SQUARE NUT
HC-1222

MOUNTING BRACKET
OM-128387

1/2-13 NUT
HC-1088

1/2" SPLIT
LOCKWASHER
HC-1101

SEE DRAWING 1153-R10A-128438 FOR A VIEW FROM THE REAR OF THE DISPLAY, AND STEP BY STEP PROCEDURE.

SIDE VIEW

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: BEAM MOUNTING, SIDE VIEW

DES. BY: AVB

DRAWN BY: A VANBEMMEL

DATE: 01 MAR 00

REVISION

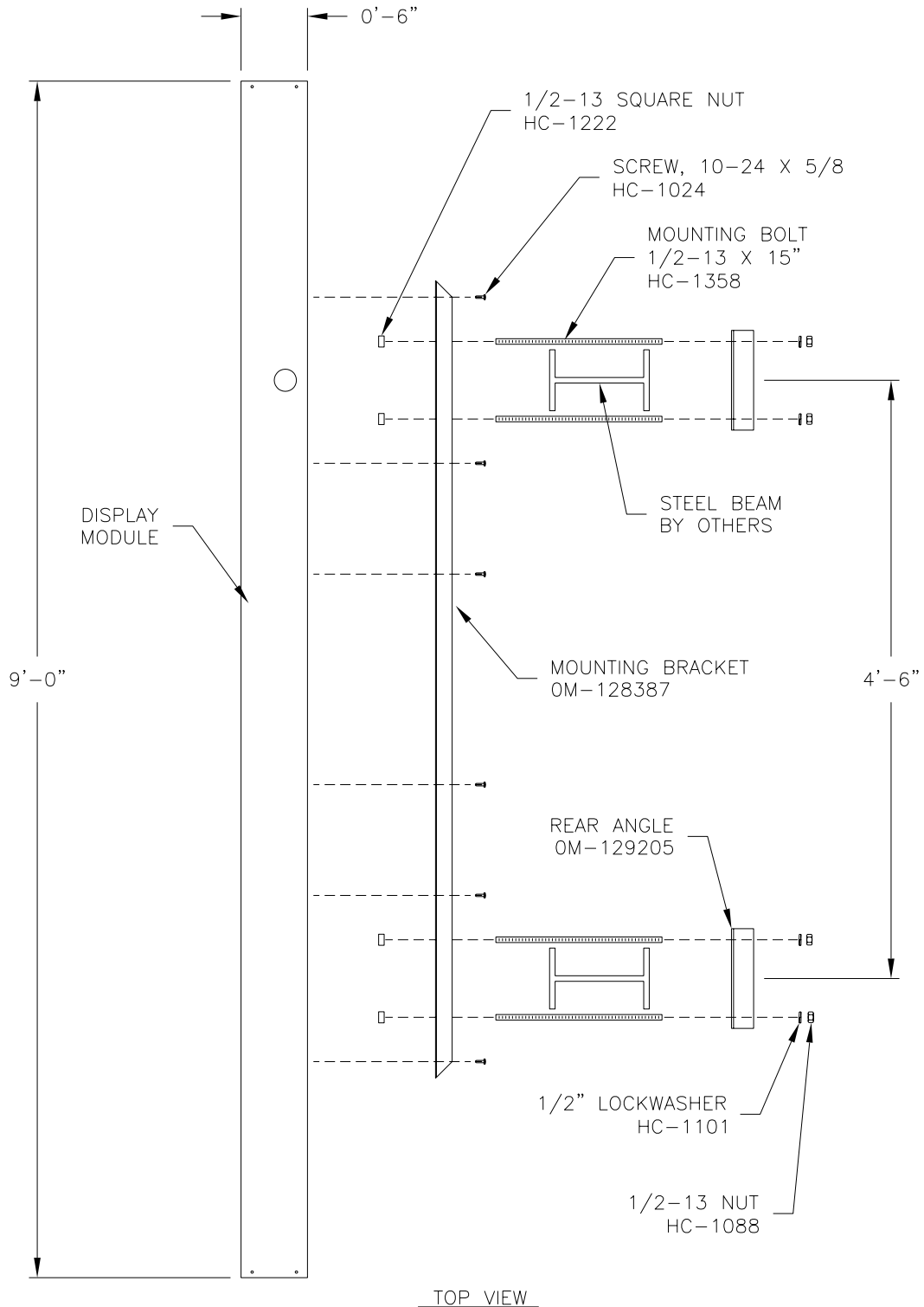
APPR. BY:

01

SCALE: 1=8

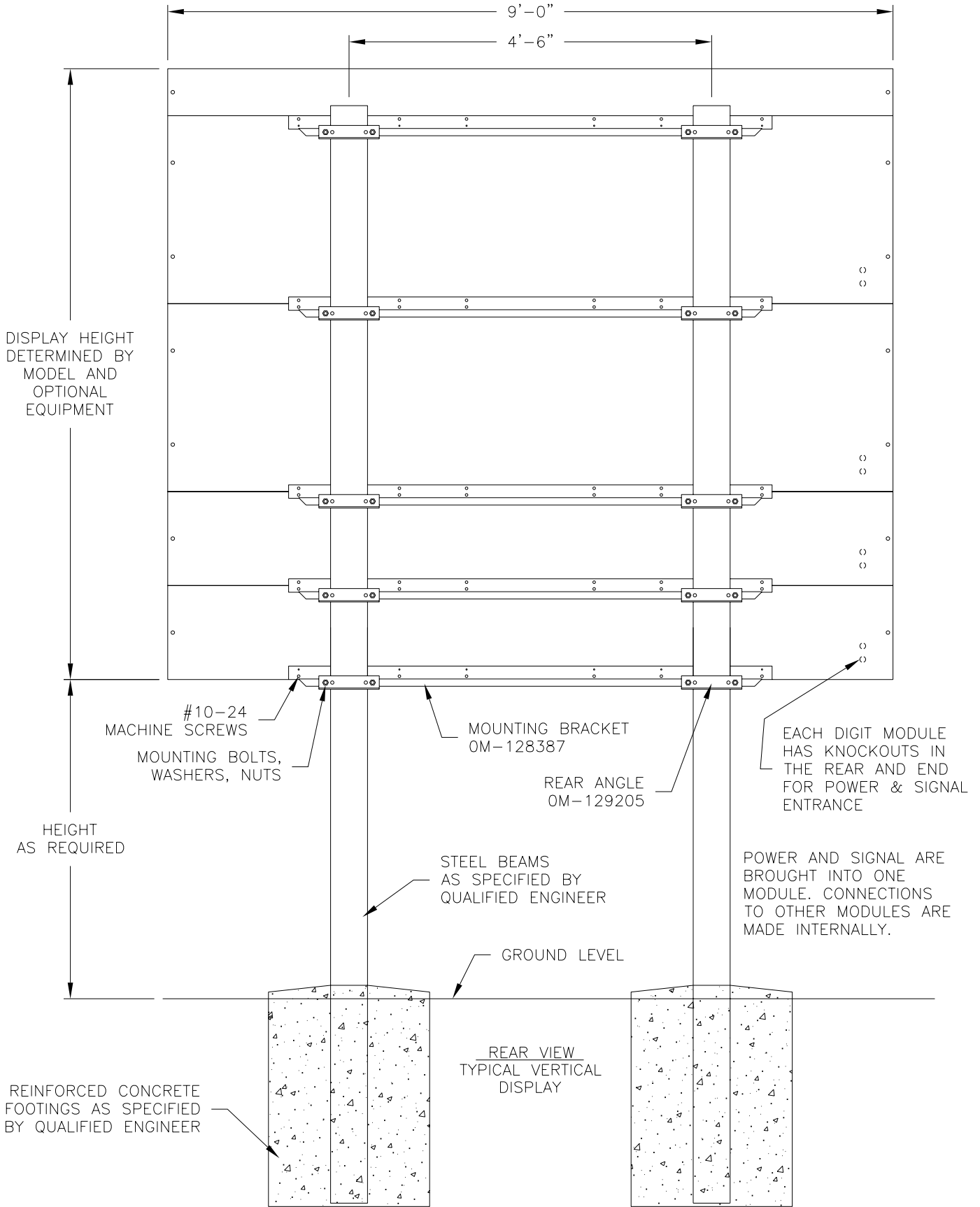
1153-R10A-128458

REV.	DATE	DESCRIPTION	BY	APPR.
01	19 APR 02	CHANGED HC-1022 SCREW TO HC-1470.	MRB	



DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ:	
TITLE: BEAM MOUNTING, TOP VIEW	
DES. BY: AVB	DRAWN BY: A VANBEMMEL DATE: 09 MAR 00
REVISION	APPR. BY:
00	SCALE: 1=15
1153-R10A-129147	

REV.	DATE	DESCRIPTION	BY	APPR.



DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: BEAM MOUNTING, REAR VIEW, VERTICAL DISPLAY

DES. BY: AVB

DRAWN BY: A VANBEMMEL

DATE: 10 MAR 00

REVISION

APPR. BY:

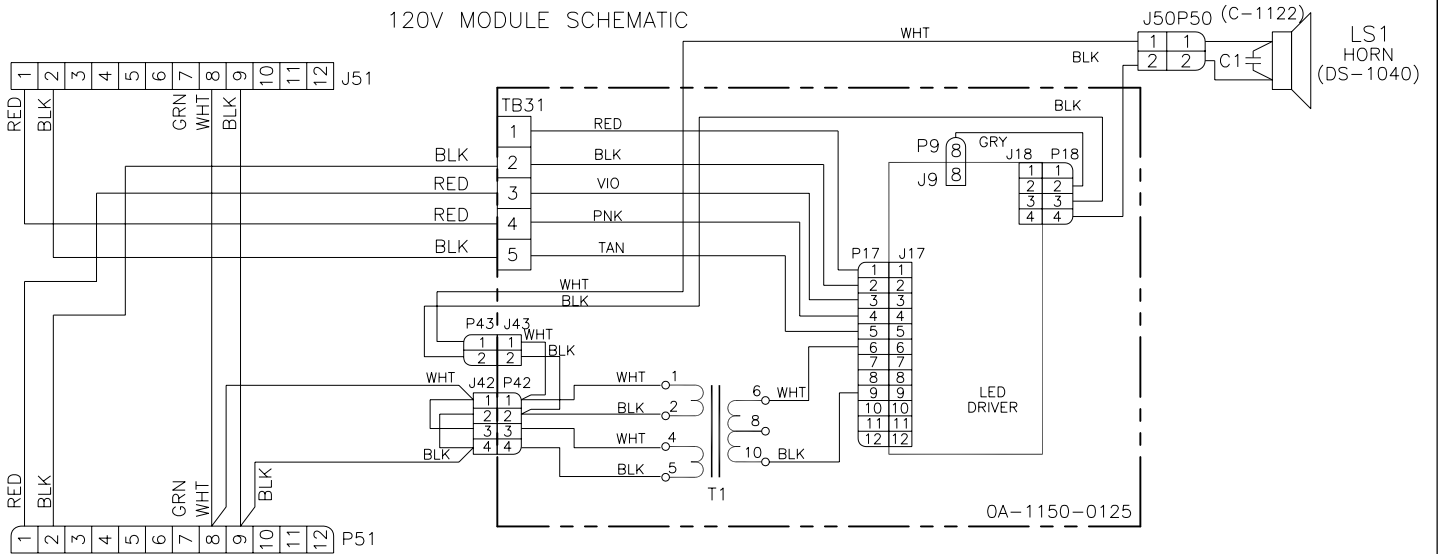
00

SCALE: 1=20

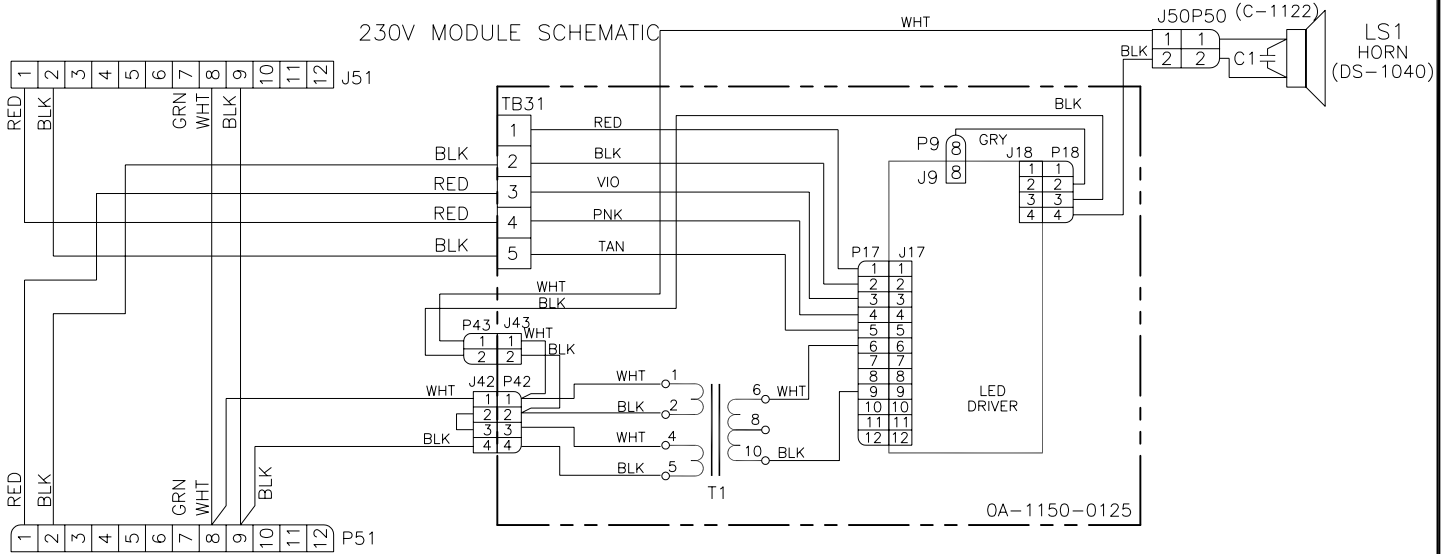
1153-R10A-129155

REV.	DATE	DESCRIPTION	BY	APPR.

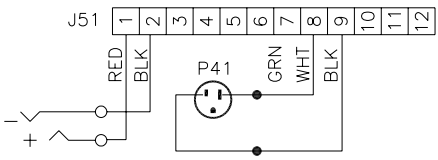
120V MODULE SCHEMATIC



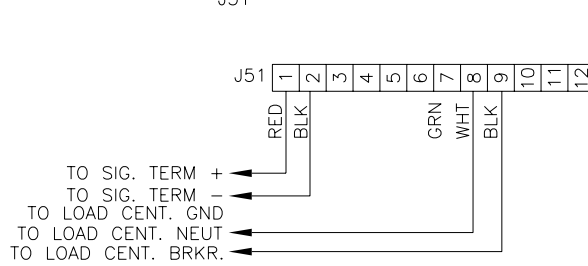
230V MODULE SCHEMATIC



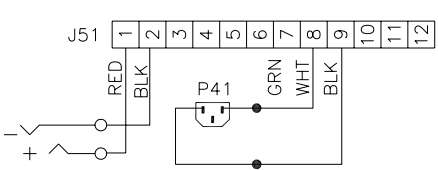
120V INPUT SCHEMATIC



LOAD CENTER INPUT SCHEMATIC



230V INPUT SCHEMATIC



NOTES:

ALL DRIVERS USED IN THIS SETUP MUST HAVE A PROTOCOL PLUG (P20) AND AN ADDRESS PLUG (P19).

HORN AND HORN HARNESS SHOWN IS OPTIONAL. CHECK ASSEMBLY PACKET TO SEE IF IT IS REQUIRED.

2	09 MAY 00	UPDATED SIGNAL WIRING. MOVED + SIGNAL INPUT FROM TB31-1 TO TB31-3.	CJB
1	28MAR00	CHANGED WIRE GOING INTO POSITION 9 FROM RED TO BLACK TO MATCH ADDENDUM.	RASMUS

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: LED AQUATICS

TITLE: SCHEMATICS; DRIVER II AQUATICS SCOREBOARDS

DES. BY: CBRECZI

DRAWN BY: CBRECZI

DATE: 13 MAR 00

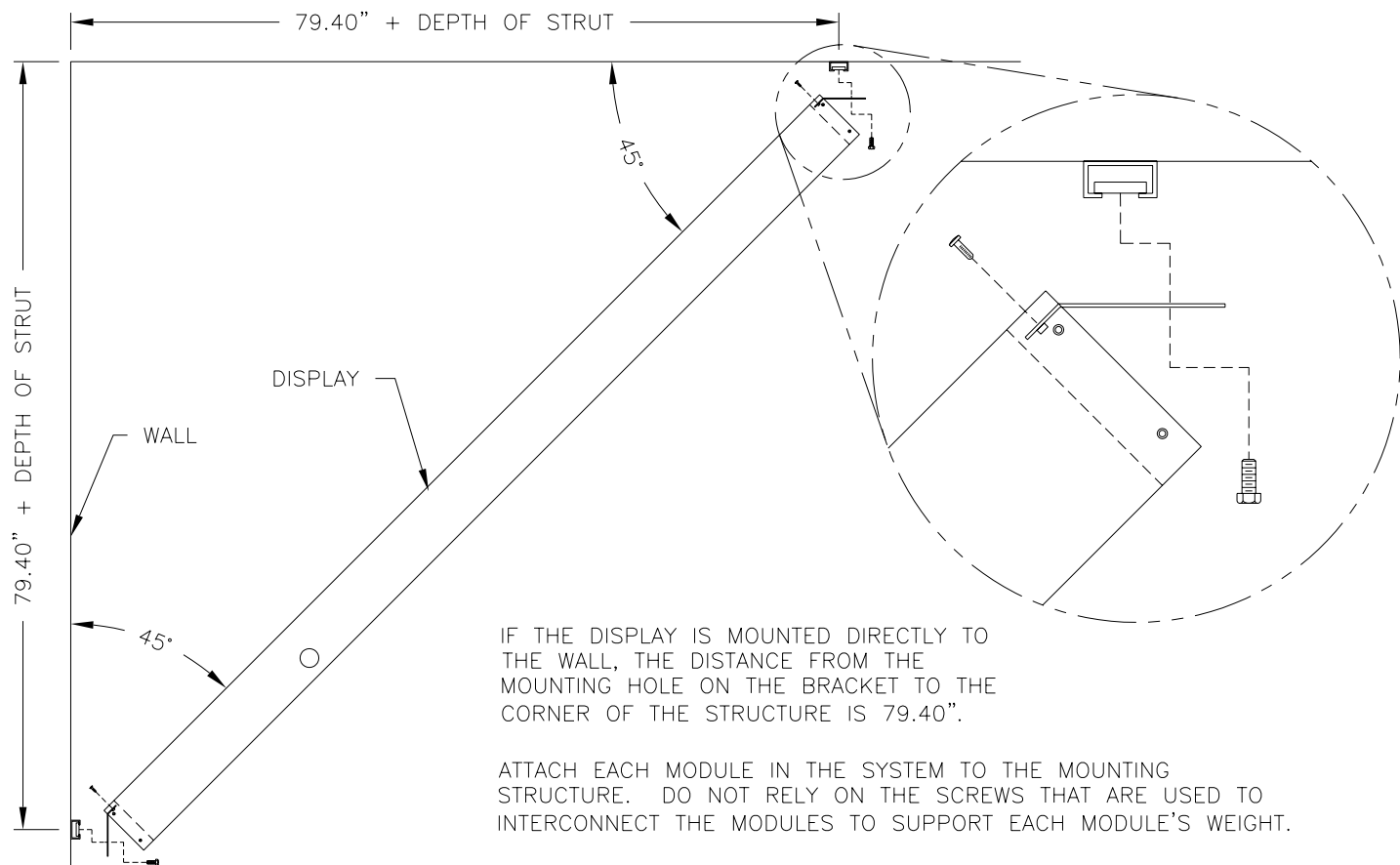
REVISION

APPR. BY:

SCALE: 1=1

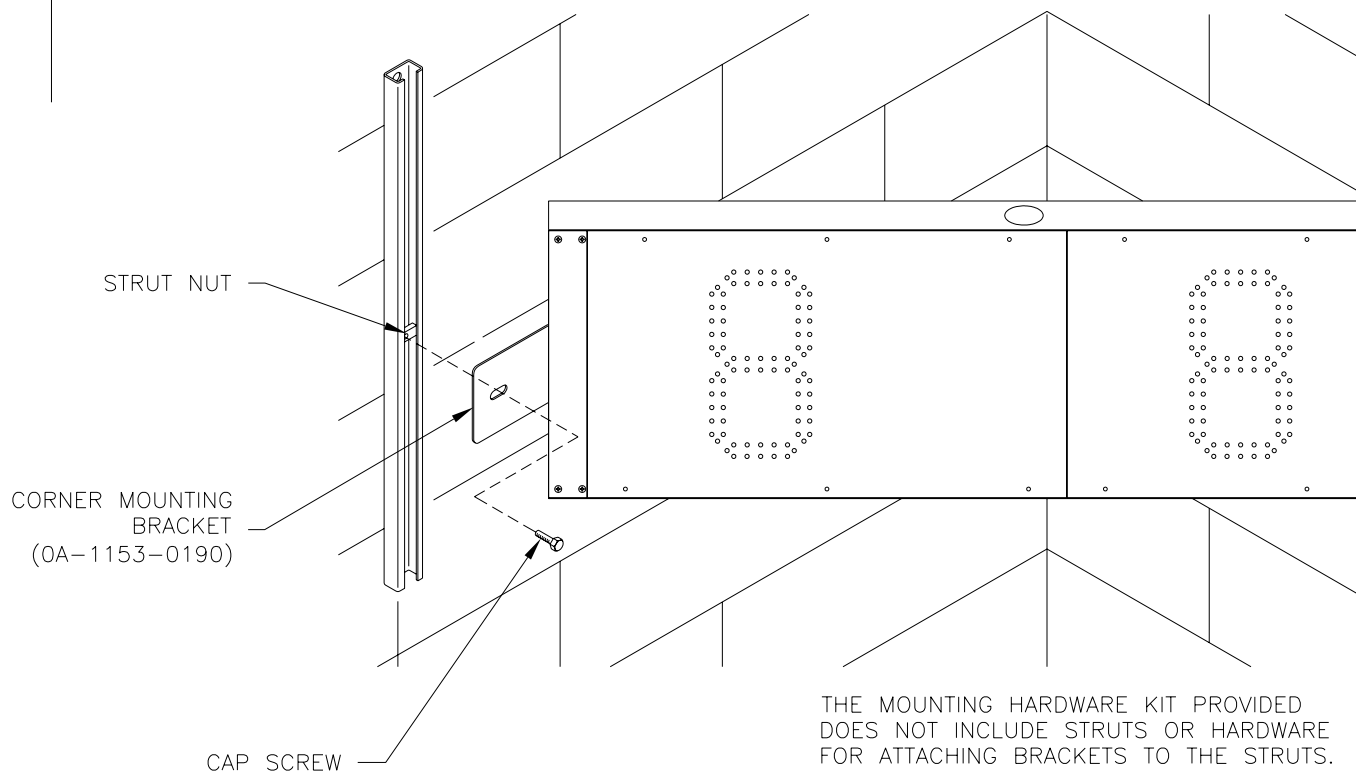
1153-R03A-129264

4	6JUN01	ADDED PLUG & JACK FOR HORN	RASMUS	CMC
3	30 JAN 01	Changed P18 pin 1 and 2 connection to P18 pin 2 to J-9 pin 8 for the horn	MWM	
REV.	DATE	DESCRIPTION	BY	APPR.



IF THE DISPLAY IS MOUNTED DIRECTLY TO THE WALL, THE DISTANCE FROM THE MOUNTING HOLE ON THE BRACKET TO THE CORNER OF THE STRUCTURE IS 79.40".

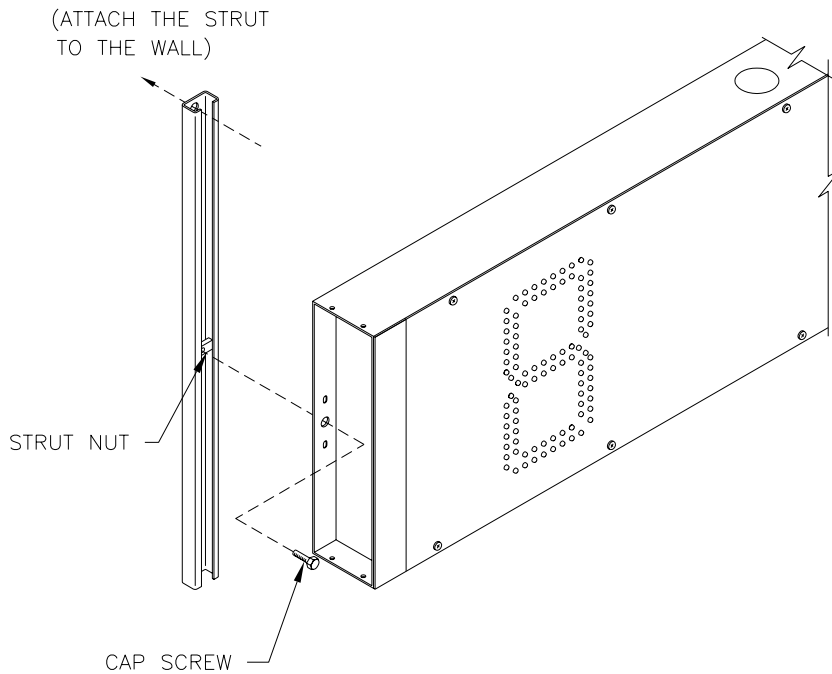
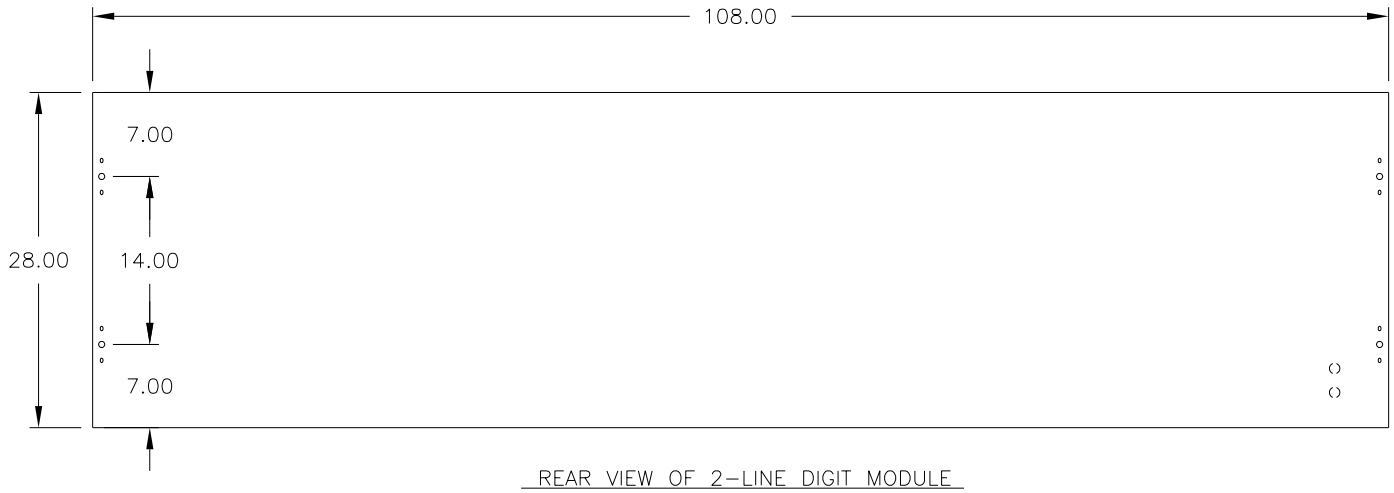
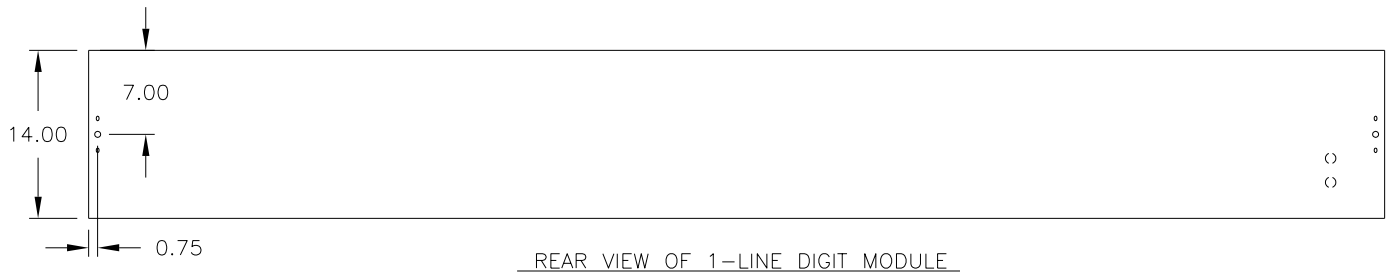
ATTACH EACH MODULE IN THE SYSTEM TO THE MOUNTING STRUCTURE. DO NOT RELY ON THE SCREWS THAT ARE USED TO INTERCONNECT THE MODULES TO SUPPORT EACH MODULE'S WEIGHT.



THE MOUNTING HARDWARE KIT PROVIDED DOES NOT INCLUDE STRUTS OR HARDWARE FOR ATTACHING BRACKETS TO THE STRUTS.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: LED AQUATICS / TRACK DISPLAYS			
TITLE: CORNER MOUNT			
DES. BY: AVB		DRAWN BY: DWEIBEL	
		DATE: 05 APR 00	
REVISION	APPR. BY:	1153-R04A-130508	
03	SCALE: NONE		

REV.	DATE	DESCRIPTION	BY	APPR.
03	16 JUL 04	CORRECTED PART NUMBER OF 0A-1153-0190.	AVB	
02	02 JUN 03	CHANGED DIGIT PATTERN TO G3	MGL	
01	15 JAN 02	CHANGED DIGIT PATTERN	ALG	



SELECT THE WALL ANCHOR METHOD BEST SUITED TO THE FACILITY.

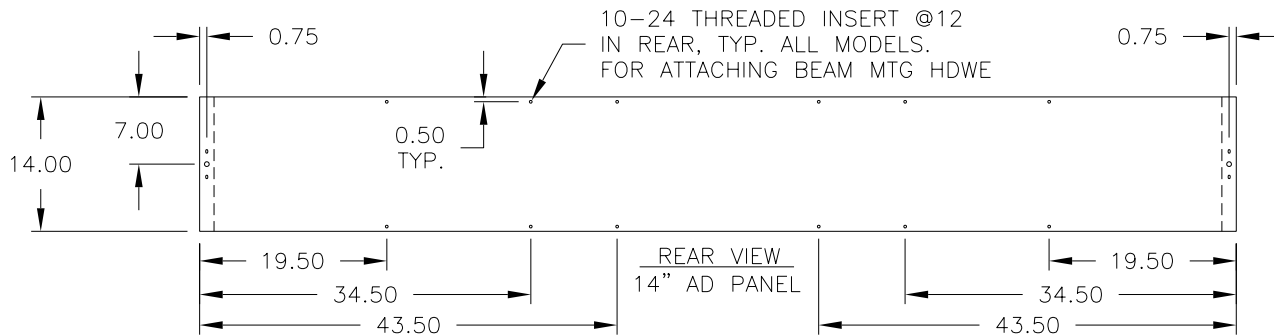
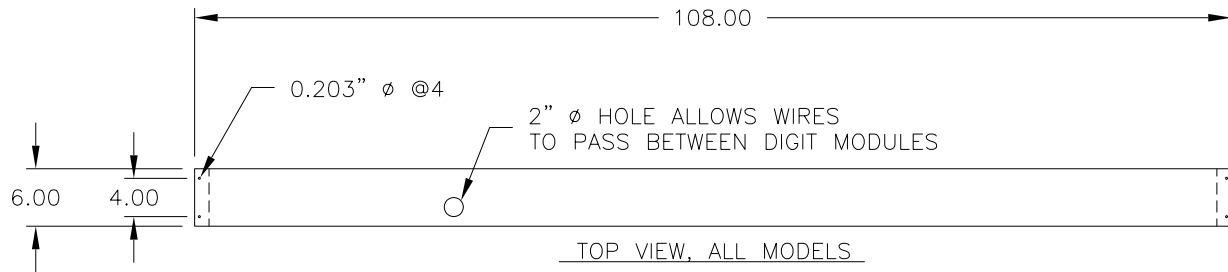
START WITH THE LOWEST MODULE IN THE SYSTEM, AND WORK UP.

MOUNTING HARDWARE SHOWN IS NOT PROVIDED BY DAKTRONICS.

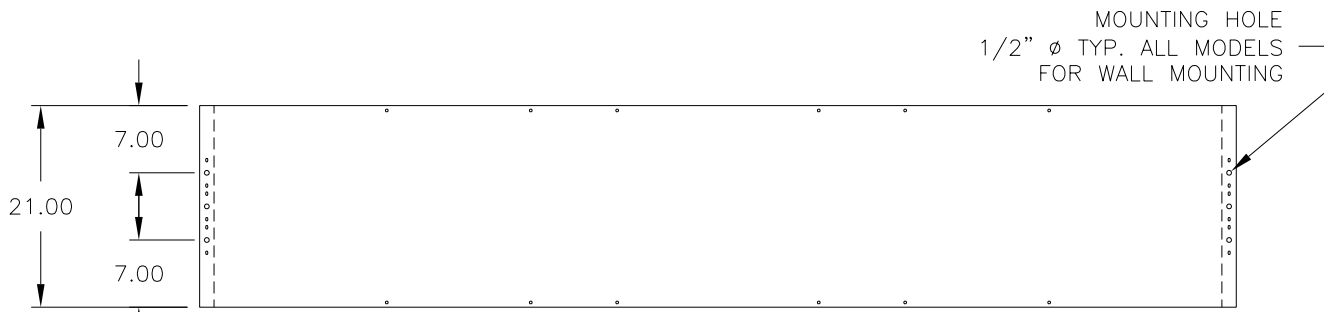
MOUNT THE DIGIT MODULES TO EITHER UNIVERSAL CHANNEL STRUT (AS SHOWN), A MOUNTING STRUCTURE, OR DIRECTLY TO A WALL.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: LED AQUATICS / TRACK DISPLAYS			
TITLE: VERTICAL WALL MOUNT			
DES. BY: AVB		DRAWN BY: DWEIBEL	
		DATE: 13 APR 00	
REVISION	APPR. BY:	1153-R04A-130545	
	SCALE: NONE		

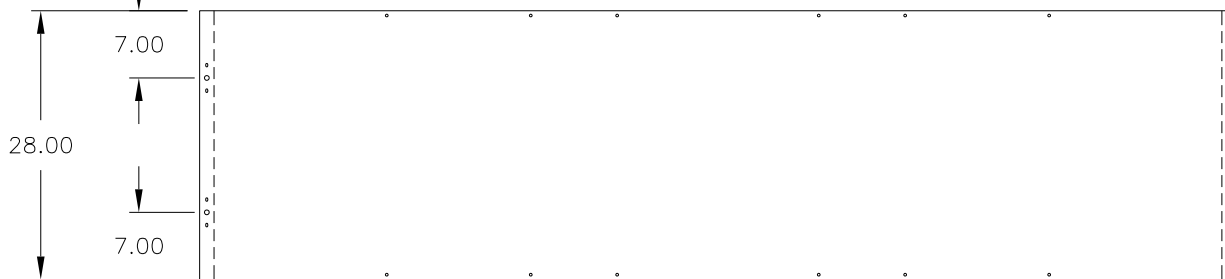
REV.	DATE	DESCRIPTION	BY	APPR.



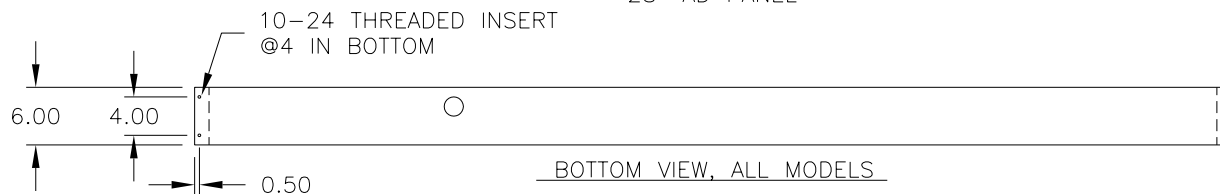
HORIZONTAL DIMENSIONS ARE TYPICAL FOR ALL MODELS



REAR VIEW 21" AD PANEL



REAR VIEW 28" AD PANEL



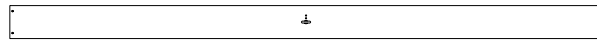
FRONT OF AD PANELS NOT SHOWN. ALL ARE PAINTED ALUMINUM SURFACE ON THE FRONT, WITH NO HOLES. AD COPY MAY BE PAINTED OR VINYL.

DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ: LED AQUATICS/TRACK DISPLAYS	
TITLE: MECHANICAL SPECIFICATIONS, AD PANELS	
DES. BY: AVB	DRAWN BY: A VANBEMMEL DATE: 18 APR 00
REVISION	APPR. BY:
01	SCALE: 1=20
1153-R08A-131038	

REV.	DATE	DESCRIPTION	BY	APPR.
01	05 FEB 03	ADDED HOLES TO 21" DISPLAY.	AVB	

WP-2101

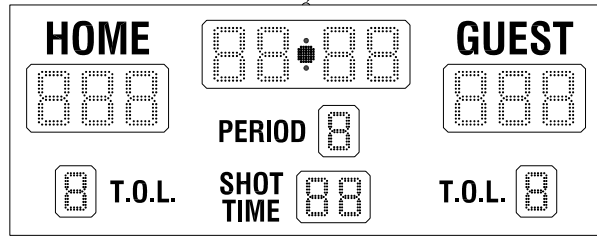
0'-6"
[152mm]



TOP VIEW

LIFT EYE IS FOR TEMPORARY USE WHILE LIFTING SCOREBOARD DURING INSTALLATION. DO NOT USE LIFT EYE FOR PERMANENT SUSPENSION.

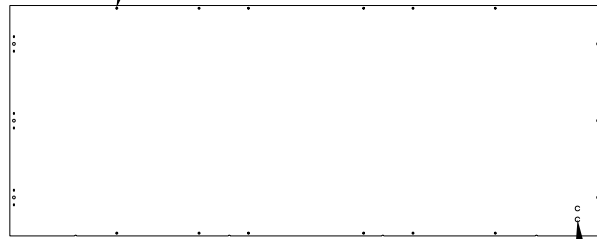
9'-0"
[2743mm]



3'-6"
[1067mm]

FRONT VIEW

10-24 THREADED INSERTS
@12 FOR ATTACHING POLE
MOUNTING BRACKETS.



REAR VIEW

MOUNTING HOLES
1/2" DIA.



SIDE VIEW

KNOCKOUTS ON SIDE AND REAR
MAY BE USED TO ROUTE POWER
AND SIGNAL INTO THE DISPLAY.



BOTTOM VIEW

HOLE IN BOTTOM IS FOR
PASSING POWER AND SIGNAL
BETWEEN SECTIONS

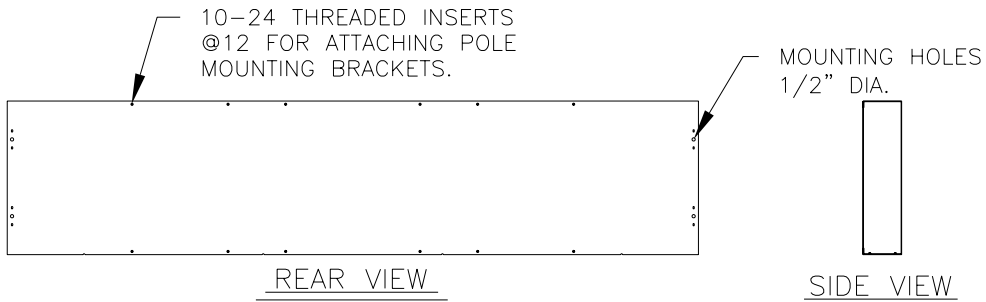
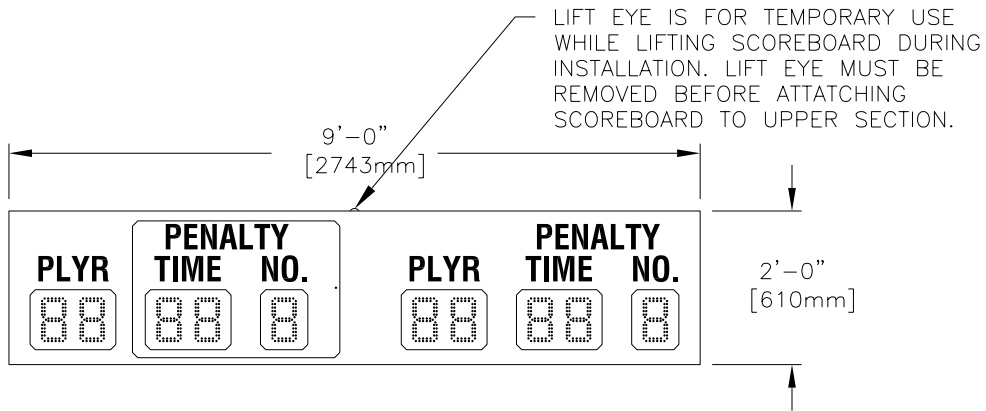
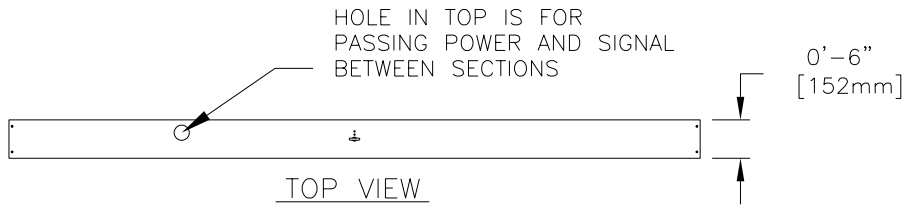
WEIGHTS

SHIPPING WEIGHT	MOUNTING WEIGHT
160 LBS (73 KG)	100 LBS (46 KG)

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: LED AQUATIC SCOREBOARDS			
TITLE: MECHANICAL SPEC, WP-2101			
DES. BY: AVB		DRAWN BY: AGIBSON	DATE: 18 NOV 02
REVISION	APPR. BY:	1153-E10A-178922	
	SCALE: 1=35		

REV.	DATE	DESCRIPTION	BY	APPR.

WP-2102



WEIGHTS	
SHIPPING WEIGHT	MOUNTING WEIGHT
112 LBS (51 KG)	70 LBS (32 KG)

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: LED AQUATIC SCOREBOARDS

TITLE: MECHANICAL SPEC, WP-2102

DES. BY: AVB DRAWN BY: AGIBSON DATE: 18 NOV 02

REVISION	APPR. BY:	1153-E10A-178923
	SCALE: 1=30	

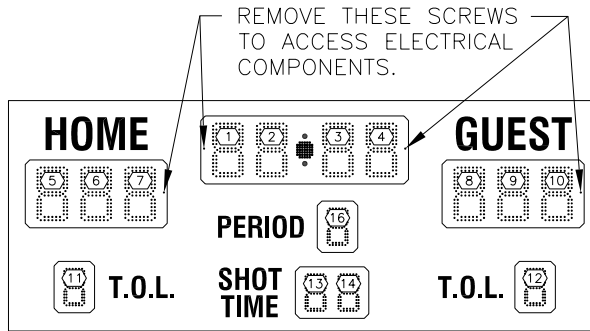
REV.	DATE	DESCRIPTION	BY	APPR.

WP-2101-11, -21

DIGIT, SIGNAL AND POWER SPECIFICATIONS:

NOTES:

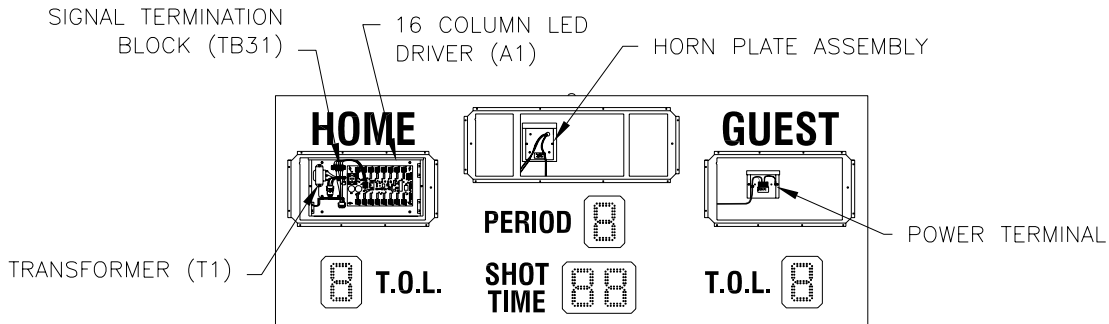
1. USE MINIMUM OF 22AWG, SHIELDED, TWO CONDUCTOR CABLE FOR SIGNAL TERMINATION.
2. THE NUMBER LISTED BY EACH DIGIT INDICATES THE DIGIT DESIGNATION IN RELATION TO THE LED DRIVER.
3. **DO NOT WORK ON ENERGIZED DISPLAY UNLESS YOU ARE A CERTIFIED ELECTRICIAN OR DIRECTED BY DAKTRONICS.**



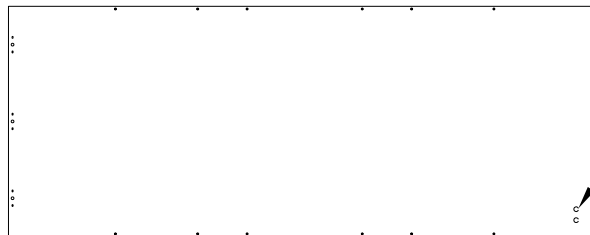
FRONT VIEW

ADDRESS INFORMATION	
DRIVER:	A1
ADDRESS:	13

COMPONENT LOCATION



FRONT VIEW



REAR VIEW

POWER AND SIGNAL ENTER THROUGH KNOCKOUTS.

DIGITS

- WP-2101-11: ALL RED ORANGE
- WP-2101-21: ALL AMBER
- CLOCK: 10"
- SCORE: 10"
- PERIOD: 7"
- T.O.L.: 7"
- SHOT TIME: 7"

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: LED AQUATIC SCOREBOARDS			
TITLE: ELECTRICAL & SIGNAL SPEC, WP-2101-11, -21			
DES. BY: AVB		DRAWN BY: AGIBSON	
		DATE: 18 NOV 02	
REVISION	APPR. BY:	1153-E10A-178924	
	SCALE: 1=35		

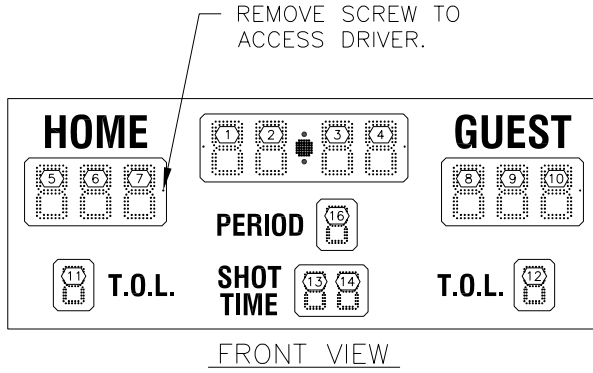
REV.	DATE	DESCRIPTION	BY	APPR.

WP-2101-13

DIGIT, SIGNAL AND POWER SPECIFICATIONS:

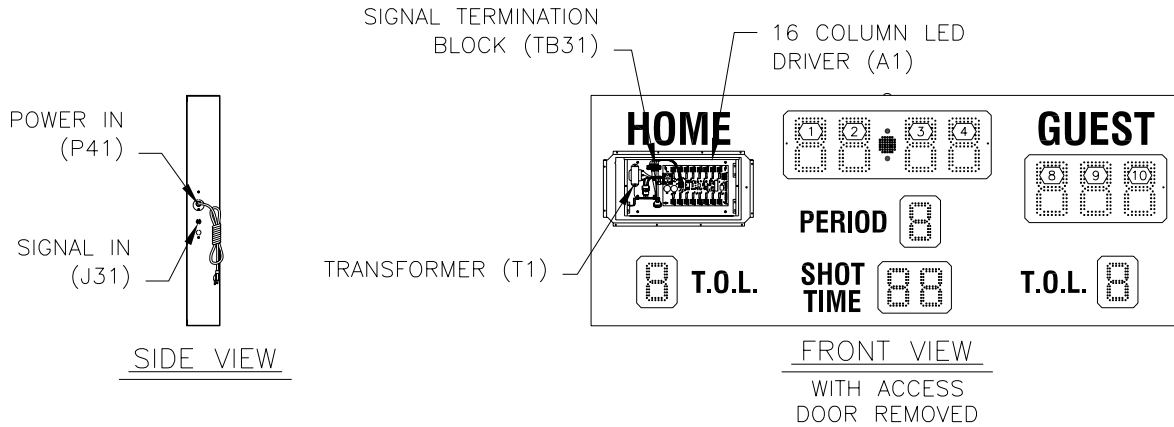
NOTES:

1. USE MINIMUM OF 22AWG, SHIELDED, TWO CONDUCTOR CABLE FOR SIGNAL TERMINATION.
2. THE NUMBER LISTED BY EACH DIGIT INDICATES THE DIGIT DESIGNATION IN RELATION TO THE LED DRIVER.
3. DO NOT WORK ON ENERGIZED DISPLAY UNLESS YOU ARE A CERTIFIED ELECTRICIAN OR DIRECTED BY DAKTRONICS.



ADDRESS INFORMATION	
DRIVER:	A1
ADDRESS:	13

COMPONENT LOCATION



DIGITS

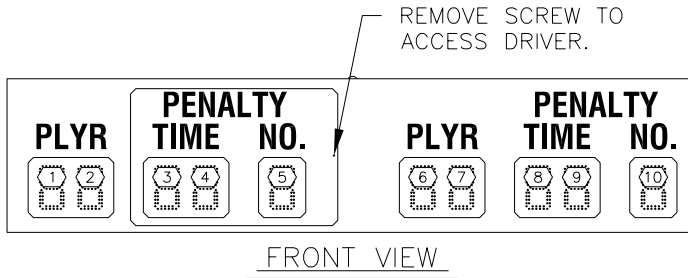
COLOR: ALL RED, OR ALL AMBER
 CLOCK: 10"
 SCORE: 10"
 PERIOD: 7"
 T.O.L.: 7"
 SHOT TIME: 7"

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: LED AQUATIC SCOREBOARDS			
TITLE: ELECTRICAL SPEC, WP-2101-13			
DES. BY: AVB		DRAWN BY: AGIBSON	
		DATE: 18 NOV 02	
REVISION	APPR. BY:	1153-E10A-179020	
	SCALE: 1=35		

REV.	DATE	DESCRIPTION	BY	APPR.

WP-2102

DIGIT, SIGNAL AND POWER SPECIFICATIONS:

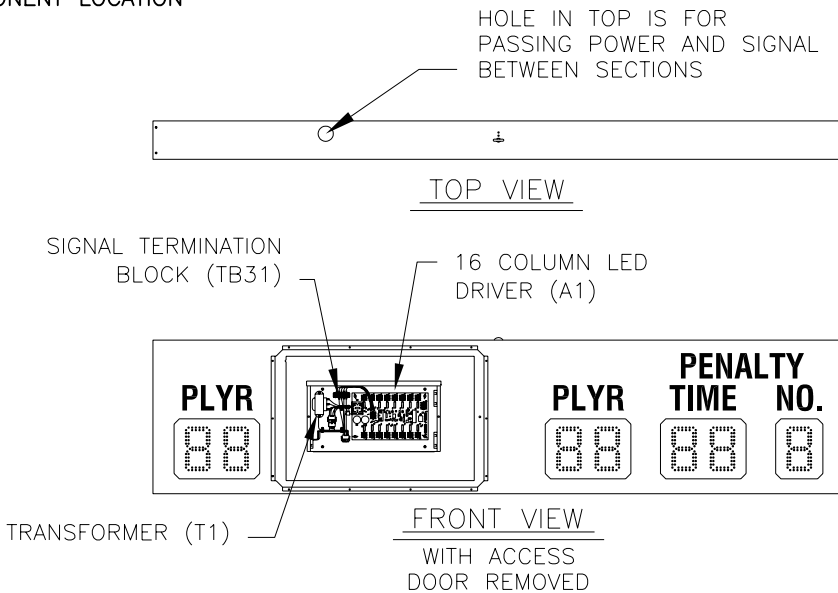


NOTES:

1. USE MINIMUM OF 22AWG, SHIELDED, TWO CONDUCTOR CABLE FOR SIGNAL TERMINATION.
2. THE NUMBER LISTED BY EACH DIGIT INDICATES THE DIGIT DESIGNATION IN RELATION TO THE LED DRIVER.
3. **DO NOT WORK ON ENERGIZED DISPLAY UNLESS YOU ARE A CERTIFIED ELECTRICIAN OR DIRECTED BY DAKTRONICS.**

ADDRESS INFORMATION	
DRIVER:	A1
ADDRESS:	14

COMPONENT LOCATION



DIGITS

- WP-2102-13: ALL RED, OR ALL AMBER
- WP-2102-11: ALL RED ORANGE
- WP-2102-21: ALL AMBER
- PLYR: 7"
- TIME: 7"
- NO.: 7"

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: LED AQUATIC SCOREBOARDS			
TITLE: ELECTRICAL & SIGNAL SPEC, WP-2102			
DES. BY: AVB		DRAWN BY: AGIBSON	DATE: 18 NOV 02
REVISION	APPR. BY:	1153-E10A-179021	
	SCALE: 1=30		

REV.	DATE	DESCRIPTION	BY	APPR.

Appendix B: Daktronics Warranty and Limitations of Liability

**DAKTRONICS
WARRANTY AND LIMITATION OF LIABILITY**

This Warranty and Limitation of Liability (the "Warranty") sets forth the warranty provided by Daktronics with respect to the Equipment. By accepting delivery of the Equipment, Purchaser agrees to be bound by and accept these terms and conditions. All defined terms within the Warranty shall have the same meaning and definition as provided elsewhere in the Agreement.

DAKTRONICS WILL ONLY BE OBLIGATED TO HONOR THE WARRANTY SET FORTH IN THESE TERMS AND CONDITIONS UPON RECEIPT OF FULL PAYMENT FOR THE EQUIPMENT.

1. Warranty Coverage

A. Daktronics warrants to the original end-user that the Equipment will be free from Defects (as defined below) in materials and workmanship for a period of one (1) year (the "Warranty Period"). The warranty period shall commence on the earlier of: (i) four weeks from the date that the equipment leaves Daktronics' facility; or (ii) Substantial Completion as defined herein. The warranty period shall expire on the first anniversary of the commencement date.

"Substantial Completion" means the operational availability of the Equipment to the Purchaser in accordance with the Equipment's specifications, without regard to punch-list items, or other non-substantial items which do not affect the operation of the Equipment.

B. Daktronics' obligation under this Warranty is limited to, at Daktronics' option, replacing or repairing, any Equipment or part thereof that is found by Daktronics not to conform to the Equipment's specifications. Unless otherwise directed by Daktronics, any defective part or component shall be returned to Daktronics for repair or replacement. Daktronics may, at its option, provide on-site warranty service. Daktronics shall have a reasonable period of time to make such replacements or repairs and all labor associated therewith shall be performed during regular working hours. Regular working hours are Monday through Friday between 8:00 a.m. and 5:00 p.m. at the location where labor is performed, excluding any holidays observed by either Purchaser or Daktronics.

C. Daktronics shall pay ground transportation charges for the return of any defective component of the Equipment. If returned Equipment is repaired or replaced under the terms of this warranty, Daktronics will prepay ground transportation charges back to Purchaser; otherwise, Purchaser shall pay transportation charges to return the Equipment back to the Purchaser. All returns must be pre-approved by Daktronics before shipment. Daktronics shall not be obligated to pay freight for any unapproved return. Purchaser shall pay any upgraded or expedited transportation charges.

D. Any replacement parts or Equipment will be new or serviceably used, comparable in function and performance to the original part or Equipment, and warranted for the remainder of the Warranty Period. Purchasing additional parts or Equipment from the Seller does not extend this Warranty Period.

E. Defects shall be defined as follows. With regard to the Equipment (excepting LEDs), a "Defect" shall refer to a material variance from the design specifications that prohibit the Equipment from operating for its intended use. With respect to LEDs, "Defects" are defined as LED pixels that cease to emit light. The limited warranty provided by Daktronics does not impose any duty or liability upon Daktronics for partial LED pixel degradation. Nor does the limited warranty provide for the replacement or installation of communication methods including but not limited to, wire, fiber optic cable, conduit, trenching, or for the purpose of overcoming local site interference radio equipment substitutions.

THIS LIMITED WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE EQUIPMENT AND REPLACES ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SPECIFICALLY, EXCEPT AS PROVIDED HEREIN, THE SELLER UNDERTAKES NO RESPONSIBILITY FOR THE QUALITY OF THE EQUIPMENT OR THAT THE EQUIPMENT WILL BE FIT FOR ANY PARTICULAR PURPOSE FOR WHICH PURCHASER MAY BE BUYING THE EQUIPMENT. ANY IMPLIED WARRANTY IS LIMITED IN DURATION TO THE WARRANTY PERIOD. NO ORAL OR WRITTEN INFORMATION, OR ADVICE GIVEN BY THE COMPANY, ITS AGENTS OR EMPLOYEES, SHALL CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS LIMITED WARRANTY.

THIS LIMITED WARRANTY IS NOT TRANSFERABLE.

2. Exclusion from Warranty Coverage

The limited warranty provided by Daktronics does not impose any duty or liability upon Daktronics for:

A. Any damage occurring, at any time, during shipment of Equipment unless otherwise provided for in the Agreement. When returning Equipment to Daktronics for repair or replacement, Purchaser assumes all risk of loss or damage, and agrees to use any shipping containers that might be provided by Daktronics and to ship the Equipment in the manner prescribed by Daktronics;

B. Any damage caused by the unauthorized adjustment, repair or service of the Equipment by anyone other than personnel of Daktronics or its authorized repair agents;



C. Damage caused by the failure to provide a continuously suitable environment, including, but not limited to: (i) neglect or misuse, (ii) a failure or sudden surge of electrical power, (iii) improper air conditioning or humidity control, or (iv) any other cause other than ordinary use;

D. Damage caused by fire, flood, earthquake, water, wind, lightning or other natural disaster, strike, inability to obtain materials or utilities, war, terrorism, civil disturbance or any other cause beyond Daktronics' reasonable control;

E. Failure to adjust, repair or replace any item of Equipment if it would be impractical for Daktronics personnel to do so because of connection of the Equipment by mechanical or electrical means to another device not supplied by Daktronics, or the existence of general environmental conditions at the site that pose a danger to Daktronics personnel;

F. Any statements made about the product by salesmen, dealers, distributors or agents, unless such statements are in a written document signed by an officer of Daktronics. Such statements as are not included in a signed writing do not constitute warranties, shall not be relied upon by Purchaser and are not part of the contract of sale;

G. Any damage arising from the use of Daktronics products in any application other than the commercial and industrial applications for which they are intended, unless, upon request, such use is specifically approved in writing by Daktronics; or

H. Any performance of preventive maintenance.

3. Limitation of Liability

Daktronics shall be under no obligation to furnish continued service under this Warranty if alterations are made to the Equipment without the prior written approval of Daktronics.

It is specifically agreed that the price of the Equipment is based upon the following limitation of liability. In no event shall Daktronics (including its subsidiaries, affiliates, officers, directors, employees, or agents) be liable for any special, consequential, incidental or exemplary damages arising out of or in any way connected with the Equipment or otherwise, including but not limited to damages for lost profits, cost of substitute or replacement equipment, down time, lost data, injury to property or any damages or sums paid by Purchaser to third parties, even if Daktronics has been advised of the possibility of such damages. The foregoing limitation of liability shall apply whether any claim is based upon principles of contract, tort or statutory duty, principles of indemnity or contribution, or otherwise.

In no event shall Daktronics be liable to Purchaser or any other party for loss, damage, or injury of any kind or nature arising out of or in connection with this Warranty in excess of the purchase price of the Equipment actually delivered to and paid for by the Purchaser. The Purchaser's remedy in any dispute under this Warranty shall be ultimately limited to the Purchase Price of the Equipment to the extent the Purchase Price has been paid.

4. Assignment of Rights

The Warranty contained herein extends only to the original end-user (which may be the Purchaser) of the Equipment and no attempt to extend the Warranty to any subsequent user-transferee of the Equipment shall be valid or enforceable without the express written consent of Daktronics.

5. Dispute Resolution

Any dispute between the parties will be resolved exclusively and finally by arbitration administered by the American Arbitration Association ("AAA") and conducted under its rules, except as otherwise provided below. The arbitration will be conducted before a single arbitrator. The arbitration shall be held in Brookings, South Dakota. Any decision rendered in such arbitration proceedings will be final and binding on each of the parties, and judgment may be entered thereon in any court of competent jurisdiction. This arbitration agreement is made pursuant to a transaction involving interstate commerce, and shall be governed by the Federal Arbitration Act.

6. Governing Law

The rights and obligations of the parties under this warranty shall not be governed by the provisions of the United Nations Convention on Contracts for the International Sales of Goods of 1980. Both parties consent to the application of the laws of the State of South Dakota to govern, interpret, and enforce all of Purchaser and Daktronics rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Warranty, without regard to conflict of law principles.

7. Availability of Extended Service Agreement

For Purchaser's protection, in addition to that afforded by the warranties set forth herein, Purchaser may purchase extended warranty services to cover the Equipment. The Extended Service Agreement, available from Daktronics, provides for electronic parts repair and/or on-site labor for an extended period from the date of expiration of this warranty. Alternatively, an Extended Service Agreement may be purchased in conjunction with this warranty for extended additional services. For further information, contact Daktronics Customer Service at 1-877-605-1116.