Multi-Section DistaView™ LED Scoreboards Generation IV

Display Manual

ED-16963 ***Rev 1 – 04 April 2008***

DAKTRONICS

Models		
BA-1518-31	**FB-1424-31**	**FB-2003-31**
BA-1524-31	**FB-1524-31**	**FB-2007-31**
BA-3718-31	**FB-2002-31**	

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DAKTRONICS

ED-16963
Product 1192
Rev 1 – 04 April 2008

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

Display Serial No. _____

Display Model No. _____

Date Installed _____

DAKTRONICS, INC.

Table of Contents

Section 1: Introduction

This manual explains the installation of ***Daktronics Multi-Section DistaView™ LED Scoreboards*** and provides details for display maintenance. With questions regarding the safety, installation, operation, or service of these systems, contact Daktronics. The Customer Service telephone number is listed in **Section 5.9** of this manual.

1.1 How To Use This Manual

Important Safeguards:

1. Read and understand these instructions before installing the display.
2. Do not drop the control console or allow it to get wet.
3. Properly ground the scoreboard with a grounding electrode at the scoreboard location.
4. ***Disconnect power when the scoreboard is not in use.***
5. ***Disconnect power when servicing the scoreboard.***
6. Do not modify the scoreboard structure or attach any panels or coverings to the scoreboard without the express written consent of Daktronics, Inc.

Figure 1 illustrates the Daktronics drawing numbering system. Daktronics identifies individual engineering drawings by their 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 numbers and the letter preceding them. The example would be **Drawing A-69945**.

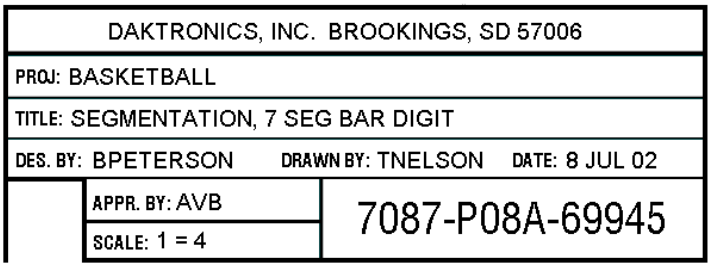


Figure 1: *Daktronics Drawing Label*

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-69945** 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:
Segmentation, 7 Seg Bar Digit.....**Drawing A-69945**

Daktronics identifies manuals by their engineering document (ED) number, which is located on the cover page of the manual. For example, this manual would be referred to as **ED-16963**.

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 second page of this manual.

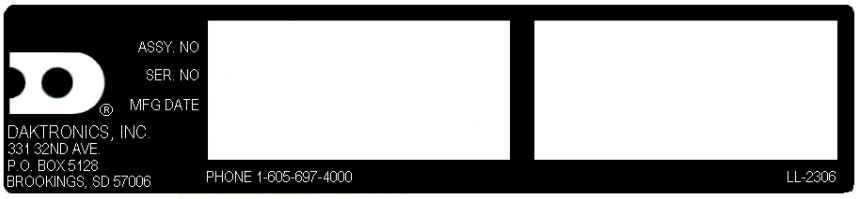


Figure 2: *Scoreboard ID Label*

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 5.7** provides the names and part numbers of components that may require replacement during the life of this display.

Following the Replacement Parts List is an explanation of Daktronics' exchange and replacement programs. Refer to these instructions when replacing or repairing any display component.

1.2 Daktronics Nomenclature

To fully understand some Daktronics drawings, such as schematics, it is necessary to know how various components are labeled in those drawings. This information is useful when trying to communicate maintenance or troubleshooting efforts.
The label "A" on a drawing item typically denotes an assembly. An assembly can be a single circuit board or a collection of components that function together, usually

mounted on a single plate or in a single enclosure.

In addition, the following labeling formats might be found on various Daktronics drawings:

- "TB _ _" denotes a termination block for power or signal cable.
- "F _ _" denotes a fuse.
- "E _ _" denotes a grounding point.
- "J _ _" denotes a power or signal jack.
- "P _ _" denotes a power or signal plug for the opposite jack.

Finally, Daktronics part numbers are commonly found on drawings. Those part numbers can be used when requesting replacement parts from Daktronics Customer Service. Take note of the following part number formats. (Not all possible formats are listed here.)

- "0P- _ _ _ _- _ _ _ _" denotes an individual circuit board, such as a driver board.
- "0A-_ _ _ _ - _ _ _ _" denotes an assembly, such as a circuit board and the plate or bracket to which it is mounted. A collection of circuit boards working as a single unit may also carry an assembly label.
- "W- _ _ _ _ " denotes a wire or cable. Cables may also carry the assembly numbering format in certain circumstances. This is especially true for ribbon cables.
- "F- _ _ _ _ " denotes a *fuse*.
- "T- _ _ _ _ " denotes a transformer.
- "PR- _ _ _ _ _ - _" denotes a specially ordered part.
- "M- _ _ _ " denotes a metal part, and "0S-_ _ _ _ _ _" typically denotes a fabricated metal assembly.

1.3 Product Overview

The Daktronics multi-section DistaView™ LED 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.

Featuring large, highly visible DistaView™ digits, the boards use light emitting diodes, or LEDs, to illuminate the display. LEDs are tiny, solid-state components that use a semiconductor chip to transform electrical current into light; they are high-intensity, low-energy lighting units. Scoreboards in this series only use red LEDs for optimum outdoor readability.

Because of their LED technology, the scoreboards consume little power – barely more than a single household lamp.

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

Cabinets for the displays are constructed of heavy-gauge aluminum. Digit and indicator faceplates are black, and they are set directly into the scoreboard surface.

The All Sport® 5000 Series control console runs these scoreboards. The console uses All Sport keyboard overlays (sport inserts) for game control, and the boards operate without modification on All Sport 5000 signal protocol. Refer to the following controller manuals for operating instructions:

- **ED-11976**: All Sport 5000 Series Control Console Operation Manual

1.4 Model Names

Daktronics scoreboards are differentiated by their model numbers: *FB-1424-31*, for example, designates a specific football scoreboard. The two-letter prefixes for scoreboards in this manual include the following: **BA** – baseball; **CT** – counter; **FB** – football; **MS** – multisport; **RO** – rodeo; **SO** – soccer; and **TI** – timer.

In the outdoor LED scoreboard series, the first number or first two numbers following the prefix simply identify the number of digits, while the second set of numbers often refers to digit size. With the *FB-1424-31* scoreboard, "14" identifies the number of digits, and "24" signifies that the board's largest digits are a nominal 24" tall. Not all scoreboard lines follow this identification feature, however, and the three or four numbers following the prefix may simply identify the specific model.

1.5 Product Safety Approval

Daktronics outdoor scoreboards are ETL and CE listed and tested to CSA standard for outdoor use. Contact Daktronics with any questions regarding testing procedures.

Section 2: Specifications

The following table shows all of the mechanical specifications, circuit specifications and maximum power requirements for each model in this manual. Models are listed in alphanumeric order.

Notes: Driver address setting can be configured using the J19 address plug. Also, the S1 dip switch is found in all Gen IV drivers. For more details see **Section 5.4**.

Model	Dimensions Height, Width, Depth	Weight Uncrated Crated	Digit Size Digit Color	Maximum Wattage	Power	Amps per Line (Single Phase)	Driver Number and Address
BA-1518-31	H8'-0", W16'-0", D6" (2438 mm, 4877 mm, 152 mm)	400 lb (181 kg) 845 lb (383 kg)	18" (457 mm) Red DistaView™	200 W	120 V AC	1.7 A	A1 63
BA-1524-31	H9'-0", W16'-0", D6" (2743 mm, 4877 mm, 152 mm)	480 lb (218 kg) 912 lb (414 kg)	24" (610 mm) 18" (457 mm) Red DistaView™	200 W	120 V AC	1.7 A	A1 63
BA-3718-31	H7'-0", W28'-0", D6" (2134 mm, 8534 mm, 152 mm)	640 lb (290 kg) 1347 lb (611 kg)	18" (457 mm) 15” (381mm) Red DistaView™	600 W	120 V AC	5.0 A	A1 64 A2 65 A3 66
FB-1424-31	H8'-0", W18'-0", D6" (2438 mm, 5486 mm, 152 mm)	400 lb (181 kg) 845 lb (383 kg)	24" (610 mm) Red DistaView™	200 W	120 V AC	1.7 A	A1 12

Model	Dimensions Height, Width, Depth	Weight Uncrated Crated	Digit Size Digit Color	Maximum Wattage	Power	Amps per Line (Single Phase)	Driver Number and Address
FB-1524-31	H8'-0", W18'-0", D6" (2438 mm, 5486 mm, 152 mm)	400 lb (181 kg) 845 lb (383 kg)	24" (610 mm) Red DistaView™	200 W	120 V AC	1.7 A	A1 12
FB-2002-31	H8'-0", W20'-0", D6" (2438 mm, 6096 mm, 152 mm)	520 lb (236 kg) 988 lb (448 kg)	24" (610 mm) 15” (381mm) Red DistaView™	400 W	120 V AC	3.4 A	A1 15 A2 16
FB-2003-31	H8'-0", W20'-0", D6" (2438 mm, 6096 mm, 152 mm)	540 lb (245 kg) 1026 lb (465 kg)	24" (610 mm) 15” (381 mm) Red DistaView™	400 W	120 V AC	3.4 A	A1 15 A2 16
FB-2007-31	H8'-0", W18'-0", D6" (2438 mm, 5486 mm, 152 mm)	425 lb (193 kg) 845 lb (383 kg)	24" (610 mm) 18” (457 mm) Red DistaView™	200 W	120 V AC	1.7 A	A1 18

Section 3: Mechanical Installation

Mechanical installation consists of installing concrete footings and steel beams and mounting the scoreboard and accompanying ad panels to the beams.

3.1 Scoreboard Protective Devices

Note: Some users install devices to protect the scoreboard from projectiles. Scoreboard protection devices not provided by Daktronics must be approved by Daktronics prior to installation. Failure to follow this approval procedure will void the scoreboard warranty.

Daktronics makes available optional devices, including screens and netting, to help protect the scoreboard from damage due to normal ball impacts.

3.2 Erecting Beams and Columns

Reference Drawings:

Beam & Footing Recommendations, FB-XX24 (used with FB-1424-31, FB-1524-31; and FB-2007-31) ..... **Drawing A-44514**
Installation Specifications, BA-1518 (used with the BA-1518-31)..... **Drawing A-55008**
Installation Specifications, BA-1524..... **Drawing A-120972**
Installation Specifications, BA-3718..... **Drawing A-126455**
Installation Specifications, FB-2002 & FB-2003..... **Drawing A-128044**

Refer to the drawings listed above for typical display installation with and without ad panels. The drawings depict beams, footings and wiring conduits.

Be sure that the installation complies with local building codes and is suitable for both the type of soil and for wind conditions in the area. A licensed structural engineer must design all footings and beam structures.

Note: Daktronics assumes no liability for structures designed and installed by others.

3.3 Lifting the Scoreboard

Reference Drawings:

Lifting Scoreboard ..... **Drawing A-44548**

Small Daktronics scoreboards are not equipped with eyebolts. Refer to **Drawing A-44548** for lifting details.

Larger scoreboard sections and message centers are shipped equipped with eyebolts that are used to lift the displays. The eyebolts are located along the top of the cabinet for each scoreboard or scoreboard section.

Note: Daktronics strongly recommends using a spreader bar, or lifting bar, to lift the display. Using a spreader bar ensures that the force on the eyebolts is straight up, minimizing lifting stress. Lifting methods are shown in **Figure 3** and in **Drawing A-44548**.

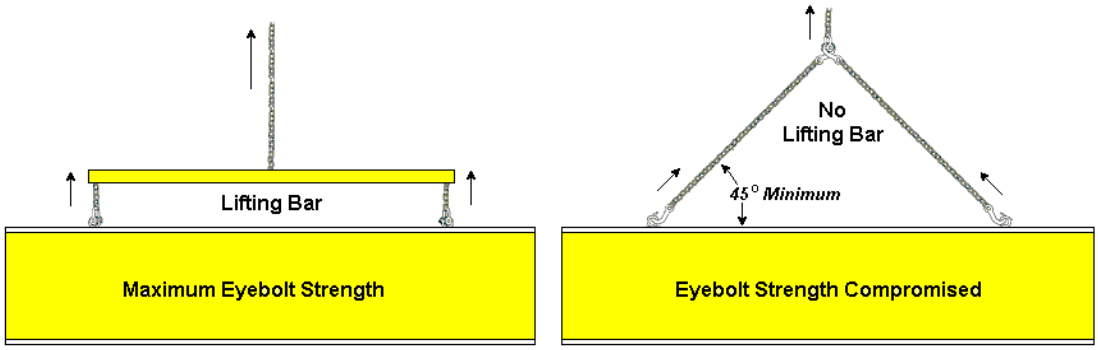


Figure 3: *Lifting the Display*

Figure 3 illustrates both the preferred method (left example) and an alternative method (right example) for lifting a scoreboard. When lifting the display:

- Use a spreader bar.
- Use every lifting point provided.

Take special care not to exceed the rated load of the eyebolts. Refer to **ED-7244**, **Eyebolts**, to determine allowable loads and load angles for the lifting hardware. **ED-7244** is located in **Appendix B** of this manual.

Avoid using other lifting methods. Cables and chains attached to the eyebolts and directly to a center lifting point, as shown in the right-hand example in **Figure 3**, can create a dangerous lateral force on the eyebolts and may cause the eyebolts to fail. Daktronics scoreboards use $^{1}/_{2}$" and $^{5}/_{8}$" shoulder-type eyebolts mounted to a $^{1}/_{8}$" aluminum plate or steel nut plate, but exceeding load angles or weight limits could cause the bolts to pull out or the scoreboard cabinet to buckle. In either circumstance, there could be serious damage to the scoreboard. If using this method, ensure a minimum angle between the chain and scoreboard of at least 45 degrees.

Note: Daktronics assumes no liability for scoreboard damage resulting from incorrect setup or incorrect lifting methods.

Eyebolts are intended for lifting only. Do not attempt to permanently support the display by the eyebolts.

In installations in which an ad panel or some other scoreboard section may be added to the base display, the lower scoreboard section is installed first and secured to the support beams and then the upper section is placed atop or above the lower section and attached to the beams. There may be cables extending from the top of the lower section. Guide these cables into the hole in the bottom of the upper section to be connected later.

If installers remove the lift eyebolts, plug the holes with bolts and the rubber sealing

washers used with the eyebolts. Apply silicone or another waterproof sealant to the eyebolt openings. Inspect the top and sides of the display for any other holes or openings that may allow moisture to enter the display and plug and seal those openings as well.

3.4 Scoreboard Mounting

Reference Drawings:

Beam & Footing Recommendations, FB-XX24 (used with FB-1424-31, FB-1524-31; and FB-2007-31) ..... **Drawing A-44514**
Installation Specifications, BA-1518 (used with the BA-1518-31)..... **Drawing A-55008**
Installation Specifications, BA-1524..... **Drawing A-120972**
Installation Specifications, BA-3718..... **Drawing A-126455**
Installation Specifications, FB-2002 & FB-2003..... **Drawing A-128044**

Daktronics Multi-Section DistaView™ LED scoreboards are typically mounted to steel beams. Beam-mounted installations require that a qualified engineer provide specifications for both the reinforced concrete footings and the steel support beams. Each display has plastic plugs\ in the rear for power and signal entrance. Refer to **Drawing A-44412** for locations. Power and signal are brought into the DOWN section (housing the master driver) through these external plastic plugs.

Refer to the installation specifications drawings listed above for further details regarding scoreboard installation.

Scoreboards can be mounted on two, three or four poles.

Drawing A-44412 shows the hardware used for mounting the scoreboard to the beams. Each section of the scoreboard attaches at the top and the bottom to all the beams. The drawing also shows top and side views of the scoreboard secured to the beams.

Note: The threaded rods do not pass through the flanges of the beams, but instead run along both sides of each beam.

Review the illustrations of the mounting hardware in **Drawing A-44412**, and then follow this procedure for each section:

1. Using the 3/8" bolts, loosely attach the inner and outer mounting clamps to the rear flanges of the scoreboard's horizontal frame members. Measure the beam spacing and position the clamps to fit on either side of the beams.
2. Insert a 1/2" square nut into each mounting clamp. From the rear, screw a threaded rod into each of the nuts, as shown in **Figure 4** (see next page).

3. Position the scoreboard at the front of the beams with the threaded rods extending from the rear of the clamps, straddling the beams. Raise the scoreboard section to the desired height.
4. Slide clamping angles over the ends of the rods and loosely install the washers and nuts.
5. Make final adjustments in the positioning of the scoreboard. Tighten the 3/8" bolts in the mounting clamps.

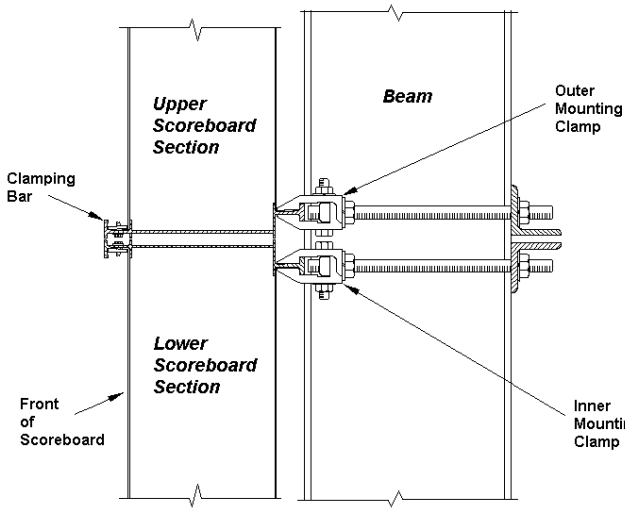


Figure 4: Multi-Section Scoreboard Mounting (Side View)

6. Make sure that the threaded rods are perpendicular to the scoreboard, and tighten all of the 1/2" nuts.

3.5 Ad Panel Mounting

Reference Drawings:

Ad Panel Mounting .....**Drawing A-52187**

Refer to **Drawing A-52187** for mounting details. The installation uses C-channel, mounting angles, $^{1}/_{2}$-13" threaded rod, and $^{1}/_{2}$" square nuts, hex nuts, and lockwashers. Mount the ad panel or panels in the following manner:

1. Use the mounting channel to determine which hole combination to use. Be sure to keep the bolts as close to the beam as possible.
2. Using the mounting channel as a template, drill $^{9}/_{16}$" holes in the upper and lower rear flange of the ad panel where the C-channel supports will be placed.
3. Position the C-channel *inside* the ad panel cabinet along the upper and lower back flanges.
4. Place square nuts inside the channel and thread the long rods through both the C-channel and the flange.
5. Lift the ad panel into position with the rods still in place.
6. With the threaded rod straddling the beams, place mounting angles over each pair of bolts and secure with $^{1}/_{2}$" lockwashers and hex nuts.
7. When the panel is adjusted to the final desired position, tighten hex nuts firmly.

Some ad panels have back sheets that must be removed before the display can be installed. After marking and drilling holes in the upper and lower rear flanges of the ad panel, remove the back sheets above and below the hole locations. Position the C-channel inside the cabinet and attach the square nuts to the threaded rods as described above. Be sure to replace the back sheets after placing the square nuts inside the channel and threading the rods through the holes in the upper and lower flanges.

Section 4: Electrical Installation

Electrical installation consists of the following processes:

- Providing power and ground to a disconnect near the scoreboard;
- Routing power and ground from the main disconnect to the scoreboard driver/power enclosure;
- Connecting the scoreboard ground to a grounding electrode at the scoreboard location;
- Routing the control signal cable from the control location to the scoreboard location.

Note: Only qualified individuals should perform power routing and termination to the display. It is the responsibility of the electrical contractor to ensure that all electrical work meets or exceeds local and national codes.

4.1 Power

Reference Drawing:

Schematic; DistaView; O.D. LED,
Multi Driver Display..... **Drawing A-229706**
Schematic; XFMR 16 Col, GEN IV, DistaView LED..... **Drawing A-286657**

Daktronics LED scoreboards have been designed for easy access to components and the power and control signal hookup has been simplified. Front panels are removable to allow access to the digits, cabling, and other electronic components.

Correct power installation is imperative for proper display operation. The subsections that follow give details of display power installation. Only qualified individuals should attempt to complete the electrical installation; untrained personnel should not attempt to install these displays or any of the electrical components. Improper installation could result in serious damage to the equipment and could be hazardous to personnel.

The multi-section scoreboards require a dedicated, 120 V circuit for incoming power. The display itself has no breakers or fuses.

WARNING: It is critical that the scoreboard circuit be fused at 15 A, and that all conductors used must be designed to pass a 15 A current in normal operation. Failure to meet wiring and overcurrent protection device requirements is a violation of the National Electrical Code® and will void the scoreboard warranty.

All power conductors are 14 AWG, except where 18 AWG wiring is called out on the schematic. All signal conductors are 18 AWG.

Refer to the outdoor scoreboard schematics listed at the beginning of this section and to the table in **Section 2** to determine circuit specifications and maximum power requirements for the models described in this manual.

Grounding

Note: Displays MUST be grounded according to the provisions outlined in Article 250 of the National Electrical Code and according to the specifications in this manual. Daktronics recommends a resistance-to-ground of 10 ohms or less.

The electrical contractor performing the electrical installation can verify ground resistance. Daktronics Sales and Service personnel can also provide this service.

The display system *must* be connected to an earth electrode installed at the display. Proper grounding is necessary for reliable equipment operation. It also protects the equipment from damaging electrical disturbances and lightning.

Note: The display must be properly grounded or the warranty will be void. Refer to the schematics listed at the beginning of this section for information about ground wire connection. The connection is illustrated in the "Pwr In" detail on each of the schematics.

The material for an earth-ground electrode differs from region to region and may vary according to conditions present at the site. Consult the National Electrical Code and any local electrical codes that may apply. The support structure of the display cannot be used as an earth-ground electrode. The support is generally embedded in concrete, and if it is in earth, the steel is usually primed or it corrodes, making it a poor ground in either case.

Power Installation

There are two considerations for power installation: installation with ground and neutral conductors provided, and installation with only a neutral conductor provided. These two power installations differ slightly, as described in the following paragraphs:

Installation with Ground and Neutral Conductors Provided

For this type of installation, the power circuit *must* contain an isolated earth-ground conductor. In this circumstance, *do not* connect neutral to ground at the disconnect or at the display.

Note: This would violate electrical codes and void the warranty. Use a disconnect so that all hot lines and neutral can be disconnected. The National Electrical Code requires the use of a lockable power disconnect within sight of or at the display.

Installation with Only a Neutral Conductor Provided

Installations where no grounding conductor is provided must comply with Article 250-32 of the National Electrical Code. If the installation in question meets all of the requirements of Article 250-32, the following guidelines must be observed:

- Connect the grounding electrode cable at the local disconnect, never at the display driver/power enclosure.
- Use a disconnect that opens all of the ungrounded phase conductors.

4.2 Power and Signal Connection

Reference Drawings:

Schematic; DistaView; O.D. LED,
Multi Driver Display ..... **Drawing A-229706**
Driver; GEN IV LC Outdoor LED, 16 Col ..... **Drawing A-285469**
Schematic; XFMR 16 Col, GEN IV, DistaView LED ..... **Drawing A-286657**

All power and signal wiring terminates at the termination connector **TB1**, as illustrated in **Drawing A-285469 andA-286657**.

To gain access to the termination connector, open the access door and remove the cover from the enclosure. Refer to the component locations drawings for the access location for your scoreboard.

Connect power and signal cables at the appropriate locations on the termination connector **TB1**, shown in **Drawing A-285469 andA-286657**.

Note: The **TB1** termination connector has protection variators across the terminals labeled “signal” to the terminal labeled “ground.” Proper grounding of the scoreboard also protects the signal line.

For signal cable, Daktronics recommends, as a minimum, single-pair, shielded cable, 22 AWG (Daktronics part number W-1077). Two-pair shielded cable (Daktronics part W-1614) is preferred.

For multi-driver displays, the power and signal are connected using inter-connection harness, which is installed at Daktronics. Refer to **Drawing A-229706** for more information.

For additional information on signal connection, refer to the All Sport 5000 Series control console operation manual, **ED-11976**.

Section 5: Scoreboard Maintenance and Troubleshooting

IMPORTANT NOTES:

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

2. **Permit only qualified service personnel to access internal display electronics.**

3. **Disconnect power when not using the scoreboard.**

5.1 Cabinet Specifications

Cabinets for the Daktronics multi-section DistaView™ LED scoreboards are constructed of heavy-gauge aluminum. Exact dimensions and weights for each model are listed in the chart in **Section 2**. Removable panels for digits and indicators and for component access are detailed in each model's component locations drawing, listed in the following section.

5.2 Component Location and Access

Reference Drawing:

Segmentation, 7 Segment Bar Digit ..... **Drawing A-38532**
Display Mounting ..... **Drawing A-44412**
Lifting Scoreboard ..... **Drawing A-44548**
Ad Panel Mounting ..... **Drawing A-52187**
Component Locations; FB-1424-31 ..... **Drawing A-217809**
Component Locations; FB-2007-31 ..... **Drawing A-227207**
Component Locations; FB-2002-31 ..... **Drawing A-229305**
Component Locations; FB-2003-31 ..... **Drawing A-229308**
Component Locations; FB-1524-31 ..... **Drawing A-229261**
Component Locations; BA-1524-31 ..... **Drawing A-229300**
Component Locations; BA-1518-31 ..... **Drawing A-229302**
Schematic; XFMR DistaView; O.D. LED, Multi Driver Display ..... **Drawing A-229706**
Schematic; XMFR 16 Col, GEN IV, DistaView LED ..... **Drawing A-286657**
Driver; GEN IV LC Outdoor LED, 16 Col ..... **Drawing A-285469**
Component Locations; BA-3718-31, G4 ..... **Drawing A-292344**

For front-access scoreboards, all internal electronic components and digits can be reached by opening a face panel, an access door, or a digit panel on the front of the display.

In the Daktronics multi-section DistaView LED scoreboards, digits are attached to the hinged doors on the front of the scoreboard. Refer to the drawings listed above for more details on each model.

Component location varies with each scoreboard model, but drivers and power and signal components are typically mounted inside the scoreboard behind an access panel or a digit.

With a non-digit access panel, simply remove the top, side and bottom screws holding it in place. Some panels are hinged and swing open when the screws are removed or loosened.

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. See **Figure 4** below. Do not attempt to remove individual LEDs. In the case of a malfunctioning board, replace the entire digit panel.

To remove a scoreboard digit, follow these steps:

1. Open the digit panel as described in the preceding section.
2. Disconnect the 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 fixed machine screws, spacers, and push nuts. Remove the nuts and lift the digit off the standoff screws. (The push nuts can be removed in several ways, but Daktronics recommends using a $^{9}/_{32}$" nut driver.)

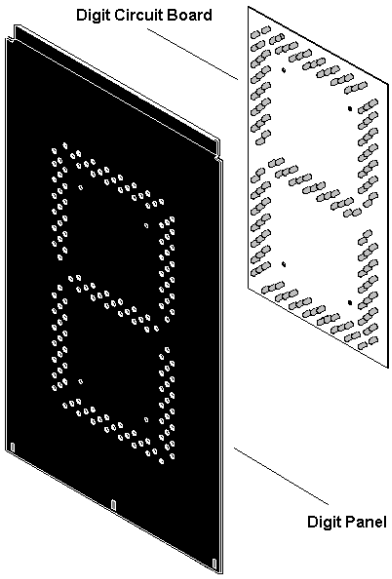


Figure 5: Digit Assembly

4. Position a new digit over the screws and tighten the nuts.
5. Reconnect the power/signal connector.

   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

Drivers are typically mounted inside the scoreboard and immediately behind a digit, but location and mounting varies with the model of the scoreboard. Refer to the component locations drawings in **Section 5.2** for the location of your scoreboard driver. All scoreboards in this manual are front-accessible.

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:

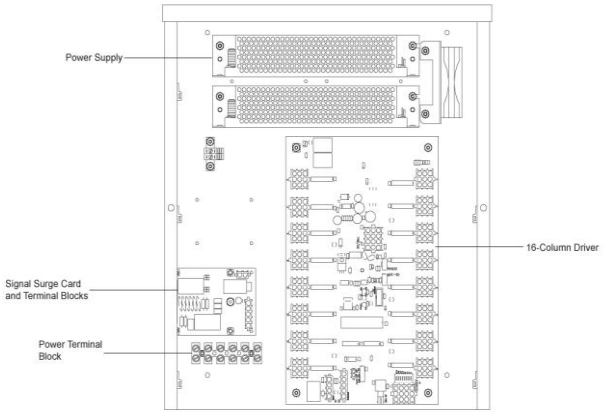


Figure 6: *16-column driver enclosure*

1. Open the digit panel or scoreboard face panel as described in the previous sections.
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.

   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 screws, nuts or wing nuts securing the driver to the inside of the enclosure.
5. Carefully lift the driver from the display and place it on a clean, flat surface.
6. Follow steps 1 through 5 in reverse order to attach a new driver.

5.3 Schematic

Reference Drawings:

Schematic; XFMR DistaView; O.D. LED,
Multi Driver Display..... **Drawing A-229706**
Schematic; XMFR 16 Col, GEN IV, DistaView LED..... **Drawing A-286657**

Drawing A-229706 and **A-286657** are schematic diagrams for the 16-column driver used in Daktronics multi-section DistaView™ LED scoreboards. The schematics include power and signal inputs and all wiring for the models described in this manual.

5.4 LED Drivers

In the scoreboard, the LED drivers perform the task of switching digits on and off. Refer to **Drawings A-154792 and A-134371**. Each driver has 20 or more connectors providing power and signal inputs to the circuit and outputs to the digits and indicators. The connectors function as follows:

16-Column LED Driver	
Connector No.	*Function*
1 – 16	Output to digits and indicators
17	Power and signal input
18	Relay
19	Address
20	Protocol

Output connectors 1 through 16 each have nine pins. Pin 7 provides power (hot) to the digit or indicators wired to that connector. The other eight pins provide switching connections.

For the scoreboard to receive signal and function properly, the driver must be set to the correct address. This address is set with jumper wires in a 12-pin plug which mates with a jack on the driver. **Drawing A-288137** details the specifications for 16-column drivers.

Address settings can be configured by using the SI dip switch. See **Drawing A-290261** for more information. The older method using the J19 address plug is still available. Refer to **Drawing A-115078** for a listing of the wire/pin connections for driver addresses 1 – 128.

5.5 Segmentation and Digit Designation

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** illustrates digit segmentation. It also details which connector pin is wired to each digit segment and the wiring color code used throughout the display.

The component locations drawings in **Section 5.2** specify the driver connectors controlling the digits. Numbers displayed in hexagons in the upper half of each digit, as shown in **Figure 6**, indicate which connector is wired

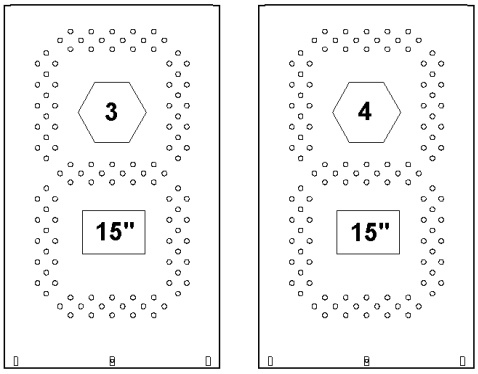


Figure 7: Digit Designation

to that digit. (The lower number in the square indicates nominal digit size.)

5.6 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 the disconnect. 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.

5.7 Replacement Parts

Refer to the following table for Daktronics scoreboard replacement parts.

Description	Daktronics Part No.
15" LED Digit	0P-1192-0308
18" LED Digit	0P-1192-0291
24" vertical segment	0P-1192-0306
24" horizontal segment	0P-1192-0305
FB indicator	0P-1192-0307
16 Column Driver	0P-1192-0384
Transformer	T-1066

5.8 Troubleshooting

This section lists potential problems with the scoreboard and indicates possible causes and corrective actions. This list does not include every possible problem, but does represent some of the more common situations that may occur.

Symptom/Condition	Possible Cause
Scoreboard will not light	▪ Console not connected or poor connection ▪ No power to control console ▪ No power to the scoreboard
Garbled display	▪ Internal driver logic malfunction ▪ Control console malfunction
Digit will not light	▪ Black wire to digit broken ▪ Poor contact at driver connection. ▪ Driver malfunction
Segment will not light	▪ Broken LED or connection ▪ Driver shift register failure

Symptom/Condition	Possible Cause
	▪ Broken wire between driver and digit ▪ Poor contact at driver connector
Segment stays lit	▪ Driver shift register failure ▪ Short circuit on digit
Date appears in the wrong place on the scoreboard	▪ Incorrect address settings on drivers (consult tables and set correct addresses)

5.9 Daktronics Exchange and Repair and Return Programs

To serve customers' repair and maintenance needs, Daktronics offers both an Exchange Program and a Repair and Return Program.

Exchange Program

Daktronics unique Exchange Program is a quick, economical service for replacing key parts in need of repair. If a part requires repair or replacement, Daktronics sends the customer a replacement, and the customer sends the problem part to Daktronics. This not only saves money, but also decreases display downtime.

To participate in the Exchange Program, follow these steps.

1. **Call Daktronics Customer Service:** 877-605-1115 (toll-free) or 605-697-4036

2. **When the new exchange part is received, mail the old part to Daktronics.**
   If the replacement part fixes the problem, send in the problem part, which is being replaced.
   a. Package the old part in the same shipping materials in which the replacement part arrived.
   b. Fill out and attach the enclosed UPS shipping document.
   c. Ship the part to Daktronics.

3. **You will be billed for the replacement part immediately, unless you have a qualifying service agreement in place.**
   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.

4. **You must send the problem part to Daktronics within 30 days.**
   If you do not ship it to Daktronics within 30 working days from the invoice date, Daktronics assumes you are purchasing the replacement part outright with no exchange. You will therefore be invoiced for the replacement part at the full purchase price, with the balance due upon receipt. The second invoice represents the difference between the exchange price (billed previously) and the full purchase price of the part. 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.

Note: Second invoice policies also apply to customers with qualifying service agreements in place. **To avoid a restocking charge, return the part, which has been replaced within 30 days of the invoice date.**

5. **If the replacement part does not solve the problem, return the part within 30 working days or you will be billed for it at full purchase price.**
   If, after you make the exchange, the equipment still causes problems, please contact our Customer Service immediately. Daktronics expects *immediate return* of an exchange part if it does not solve the problem. The company also reserves the right to refuse parts that have been damaged due to acts of nature or causes other than normal wear and tear.

Repair and Return Program

For items not subject to exchange, Daktronics offers a Repair and Return Program. To send a part for repair, follow these steps.

1. **Call Daktronics Customer Service:** at 877-605-1115 (toll-free) or 605-697-4036.

2. **Receive a Return Materials Authorization (RMA) number before shipping.**
   This expedites repair of your part.

3. **Package and pad the item carefully to prevent damage during shipment.**
   Electronic components, such as printed circuit boards, should be placed in an antistatic bag before boxing.

4. **Enclose:**
   - your name
   - address
   - phone number
   - the RMA number
   - a clear description of symptoms

How to reach us

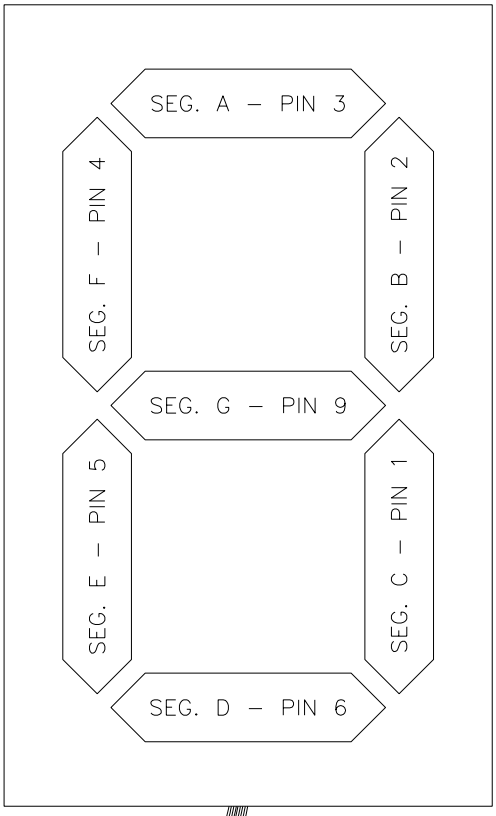
Mail: Customer Service, Daktronics Inc.
PO Box 5128
331 32nd Ave
Brookings, SD 57006

Phone: Daktronics Customer Service:
877-605-1115 (toll-free) or 605-697-4036

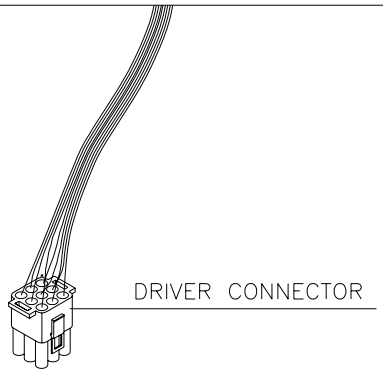
Daktronics Warranty and Limitation of Liability

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

Appendix A: Reference Drawings



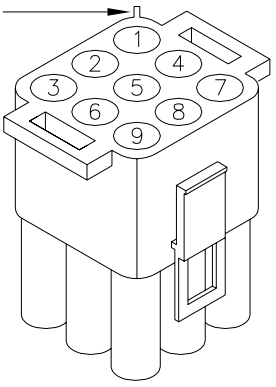
7 SEGMENT BAR DIGIT
FRONT VIEW



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

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

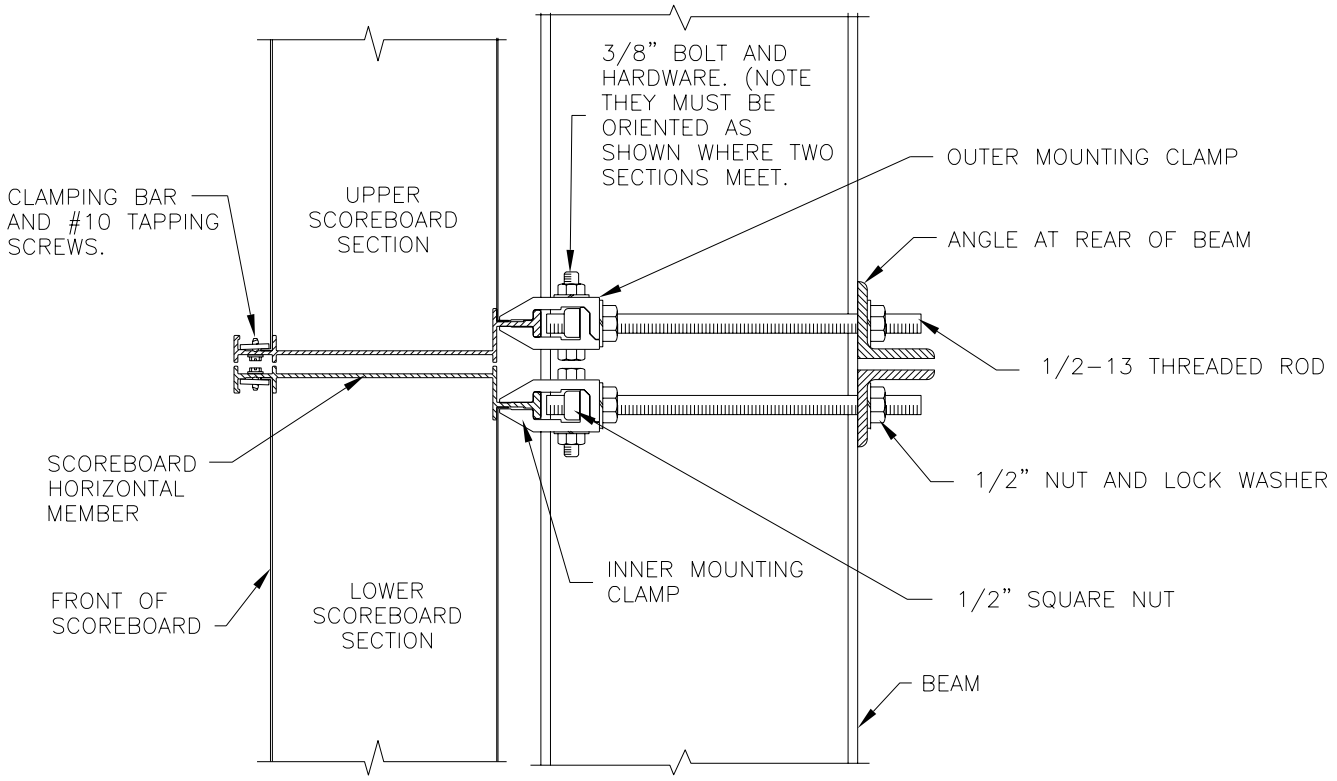
CONNECTOR PIN NUMBERING
NOTE SPLINE NEAR NO. 1



DAKTRONICS, INC. BROOKINGS, SD 57006

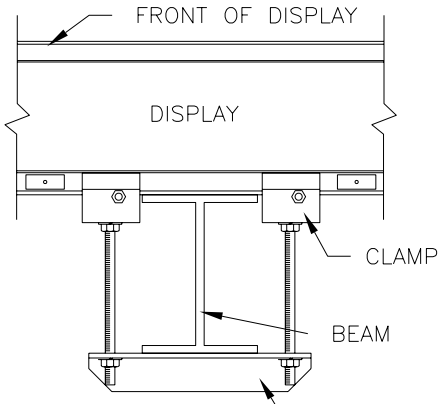
REV.	DATE	DESCRIPTION	BY	APPR.
2	30 APR 97	ADDED SEGMENT DESIGNATIONS TO DIGIT FIGURE.	AVB	AVB
1	2 JAN 92	CHANGED FROM B-SIZE TO A-SIZE DWG.	C FICK	

PROJ: BASKETBALL
TITLE: SEGMENTATION, 7 SEGMENT BAR DIGIT
DES. BY: DRAWN BY: HEIDERSCHEIDT DATE: 5 JUN 89
REVISION 02
APPR. BY: AVB
SCALE: 1=4
1009-R04A-38532

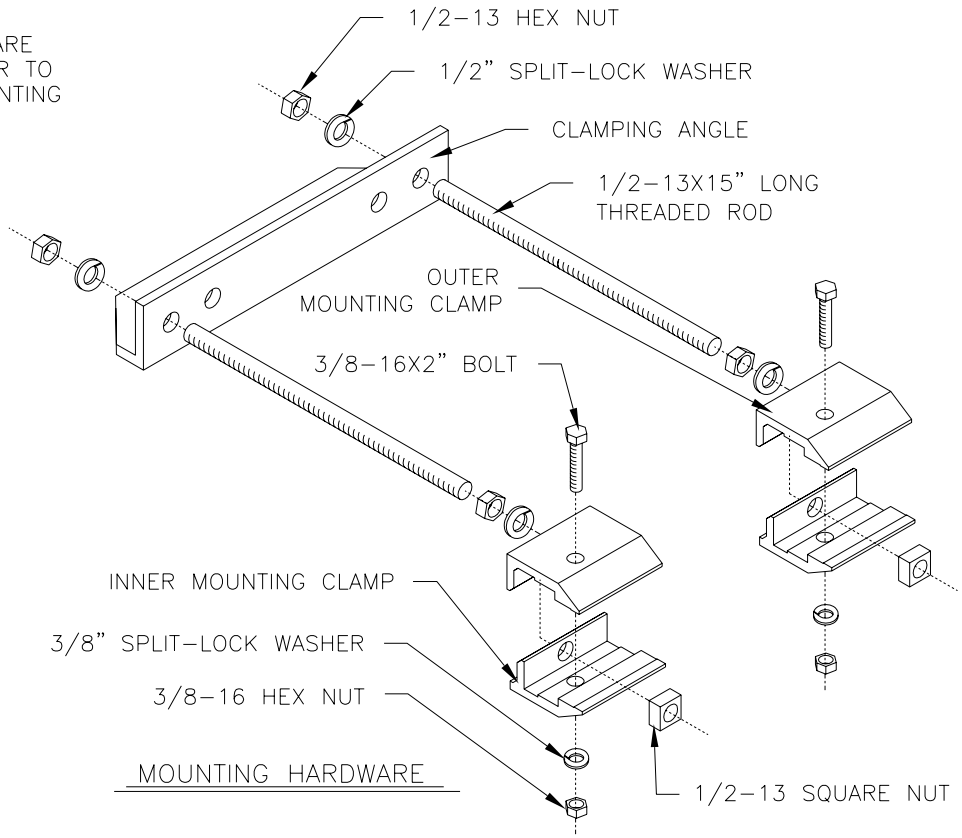


SIDE VIEW

NOTE: CLAMPING BARS AND HARDWARE MAY HAVE TO BE REMOVED IN ORDER TO INSTALL THE INNER AND OUTER MOUNTING CLAMPS.



TOP VIEW
1=10



MOUNTING HARDWARE

- THREADED RODS RUN ALONG BOTH SIDES OF BEAM.
- THEY DO NOT PASS THROUGH THE FLANGES OF THE BEAM.
- NO DRILLING IS NECESSARY.

REV.	DATE	DESCRIPTION	BY	APPR.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR SCOREBOARDS

TITLE: DISPLAY MOUNTING

DES. BY: JHEIDER DRAWN BY: JHEIDER DATE: 29 AUG 90

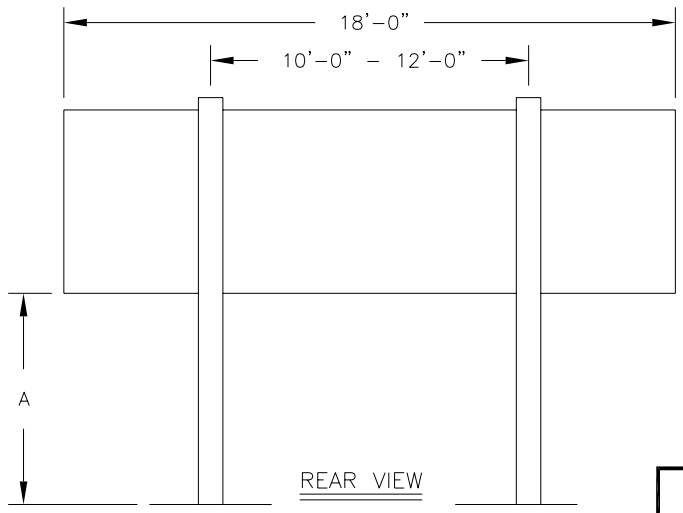
REVISION 00 | APPR. BY: | SCALE: 1=5

1091-R10A-44412

MODELS FB–1424/1524/1624/2007

DISTANCE TO BOTTOM OF SCOREBOARD (FT) A	DOES SCOREBOARD HAVE ATTACHED AD PANEL?	DESIGN WIND VELOCITY (MPH) 70	80	90	100
10	NO	W8x28 *3.00 X 5.60*	W8x31 *3.00 X 6.20*	W10x33 *3.00 X 6.80*	W8x35 *3.00 X 7.30*
	YES	W10x39 *3.00 X 6.80*	W12x45 *3.00 X 7.50*	W8x48 *3.00 X 8.20*	W12x53 *3.00 X 8.80*
12	NO	W8x31 *3.00 X 5.90*	W10x33 *3.00 X 6.50*	W10x39 *3.00 X 7.10*	W8x40 *3.00 X 7.60*
	YES	W12x45 *3.00 X 7.10*	W8x48 *3.00 X 7.80*	W12x53 *3.00 X 8.50*	W12x58 *3.00 X 9.20*
14	NO	W8x35 *3.00 X 6.20*	W10x39 *3.00 X 6.80*	W12x45 *3.00 X 7.40*	W8x48 *3.00 X 8.00*
	YES	W8x48 *3.00 X 7.4*	W12x53 *3.00 X 8.10*	W12x58 *3.00 X 8.80*	W12x65 *3.00 X 9.60*
16	NO	W10x39 *3.00 X 6.40*	W12x45 *3.00 X 7.10*	W8x48 *3.00 X 7.70*	W12x53 *3.00 X 8.30*
	YES	W10x49 *3.00 X 7.60*	W12x58 *3.00 X 8.40*	W12x65 *3.00 X 9.10*	W12x72 *3.00 X 9.80*
18	NO	W12x45 *3.00 X 6.60*	W8x48 *3.00 X 7.30*	W12x53 *3.00 X 8.00*	W12x58 *3.00 X 8.60*
	YES	W10x54 *3.00 X 7.80*	W12x65 *3.00 X 8.60*	W12x72 *3.00 X 9.40*	W10x77 *3.00 X 10.10*
20	NO	W8x48 *3.00 X 6.90*	W10x49 *3.00 X 7.60*	W12x58 *3.00 X 8.30*	W12x65 *3.00 X 8.90*
	YES	W10x60 *3.00 X 8.10*	W10x68 *3.00 X 8.90*	W10x77 *3.00 X 9.70*	W12x87 *3.00 X 10.50*

W6x12 ← RECOMMENDED BEAM SECTION FOR MOUNTING SCOREBOARD
2.00 X 4.25 ← *RECOMMENDED FOOTINGS IN FEET (DIAMETER X DEPTH)*



NOTE:
RECOMMENDATIONS FOR A DISPLAY WITH AN ATTACHED AD PANEL WERE CALCULATED USING A 48" TALL AD PANEL.

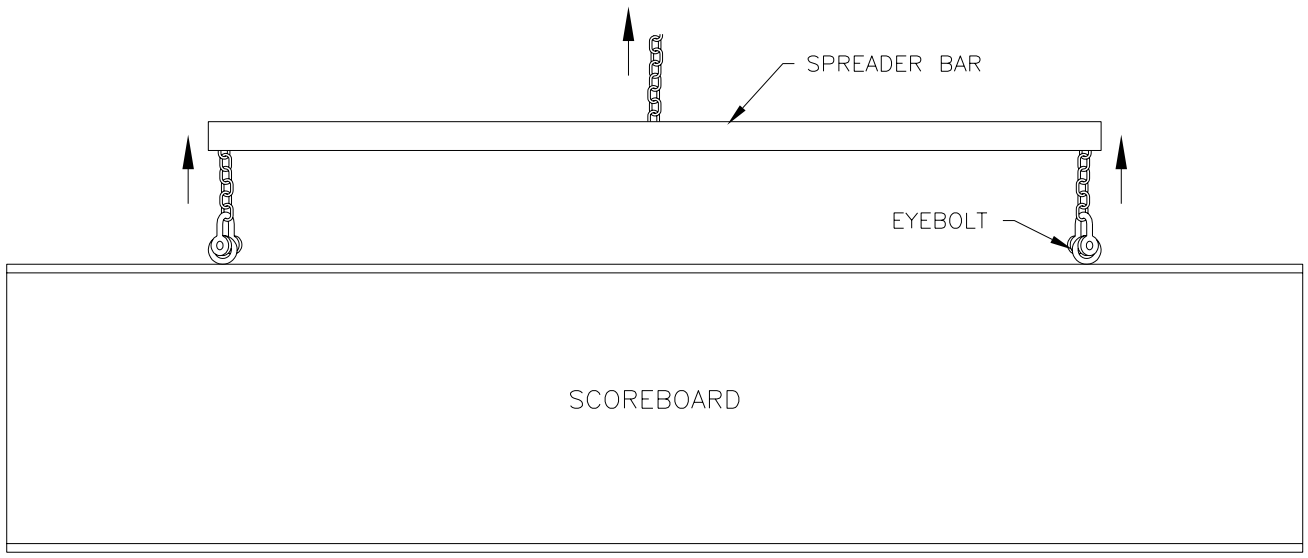
INFORMATION GIVEN IS FOR ESTIMATING PURPOSES ONLY. COLUMNS AND FOOTINGS MUST BE DESIGNED BY A STATE LICENSED ENGINEER. DAKTRONICS DOES NOT ASSUME ANY LIABILITY FOR ANY INSTALLATIONS DERIVED FROM THIS INFORMATION OR DESIGNED AND INSTALLED BY OTHERS.

REV.	DATE	DESCRIPTION	BY	APPR.
03	07MAY04	ADDED MODEL FB–2007	MCOPL	
2	13JUL00	REVISED BEAM SECTIONS & FOOTINGS. ADDED FB–1624 TO MODELS.	MVD	
1	23MAR98	ADDED DISCLAIMER ABOUT FOOTING AND BEAM LIABILITY.	TWEBER	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: FOOTBALL SCOREBOARDS
TITLE: BEAM & FOOTING RECOMMENDATIONS, FB–XX24
DES. BY: JHEIDERSCHEIDT DRAWN BY: JHEIDERSCHEIDT DATE: 07SEP90
REVISION 03 APPR. BY:
SCALE: NONE

1091-R08A-44514

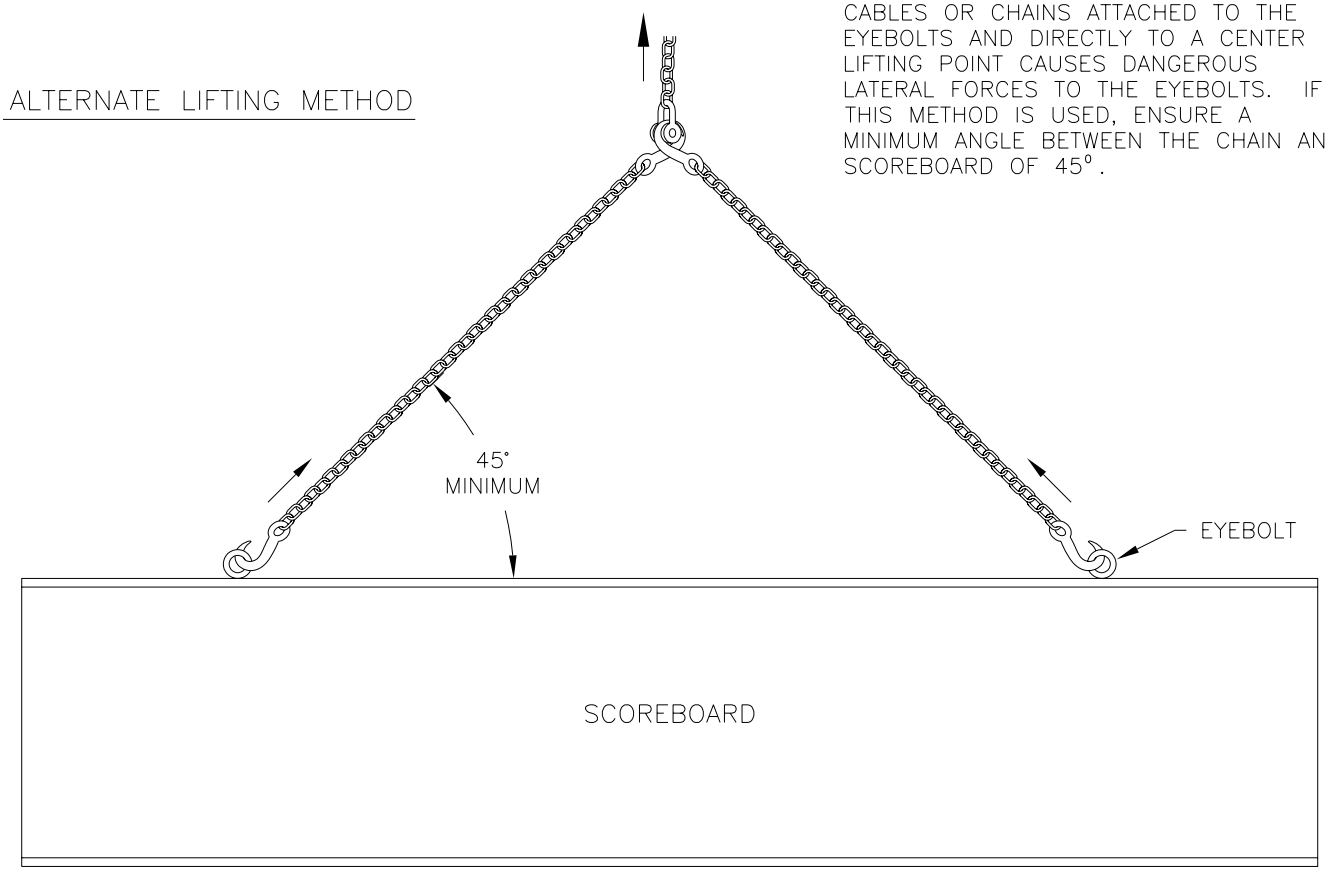


PREFERRED LIFTING METHOD

USE A SPREADER BAR SO THAT THE FORCE ON THE EYEBOLTS IS STRAIGHT UP.

ALTERNATE LIFTING METHOD

CABLES OR CHAINS ATTACHED TO THE EYEBOLTS AND DIRECTLY TO A CENTER LIFTING POINT CAUSES DANGEROUS LATERAL FORCES TO THE EYEBOLTS. IF THIS METHOD IS USED, ENSURE A MINIMUM ANGLE BETWEEN THE CHAIN AND SCOREBOARD OF 45°.



DAKTRONICS, INC. BROOKINGS, SD 57006

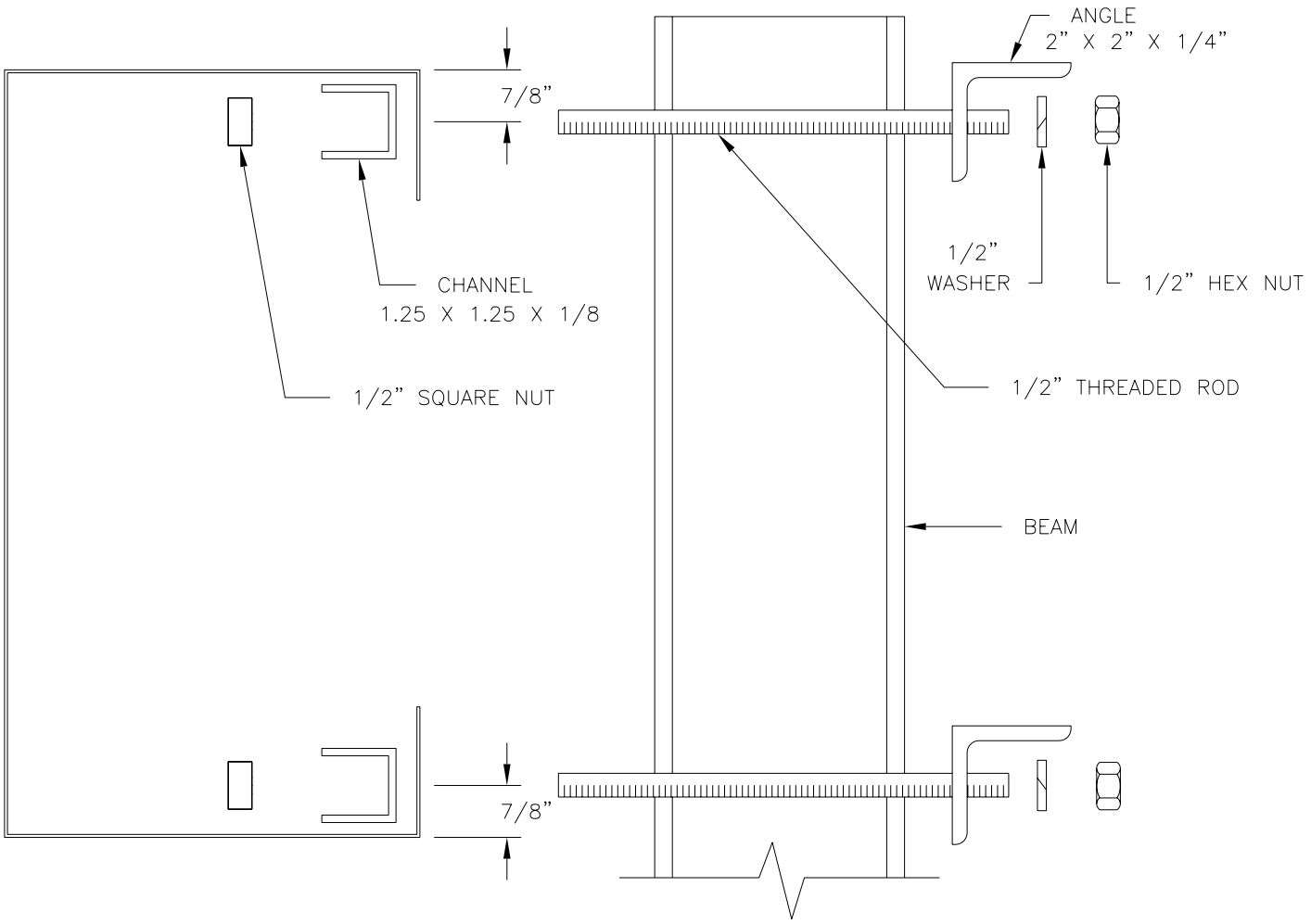
PROJ: OUTDOOR SCOREBOARDS

TITLE: LIFTING SCOREBOARD

DES. BY: DRAWN BY: AVB DATE: 12SEP90

REVISION 01 | APPR. BY: | SCALE: NONE | 1091-R10A-44548

REV.	DATE	DESCRIPTION	BY	APPR.
01	17 MAY 01	ADDED MINIMUM ANGLE TO ALTERNATE LIFTING METHOD; CHANGED CORRECT TO PREFERRED METHOD AND WRONG TO ALTERNATE METHOD	TWEBER	



MOUNTING INSTRUCTIONS:

1. USE THE MOUNTING CHANNEL TO DETERMINE WHICH HOLE COMBINATION SHOULD BE USED. BE SURE TO KEEP THE BOLTS AS CLOSE TO THE BEAM AS POSSIBLE.
2. USING THE MOUNTING CHANNEL AS A TEMPLATE, DRILL 9/16" HOLES IN THE UPPER AND LOWER REAR FLANGE OF AD PANEL WHERE THE SUPPORTS WILL GO.
3. PLACE SQUARE NUTS INSIDE CHANNEL AND THREAD BOLTS THROUGH.
4. LIFT AD PANEL INTO POSITION WITH BOLTS STILL IN PLACE.
5. PLACE MOUNTING ANGLES OVER EACH PAIR OF BOLTS AND SECURE WITH LOCK WASHERS AND HEX NUTS.
6. WHEN PANEL IS ADJUSTED TO FINAL DESIRED POSITION, TIGHTEN HEX NUTS FIRMLY.

MOUNTING INSTRUCTIONS: FOR AD PANELS WITH BACKSHEETS.

1. USE THE MOUNTING CHANNEL TO DETERMINE WHICH HOLE COMBINATION SHOULD BE USED. BE SURE TO KEEP THE BOLTS AS CLOSE TO THE BEAM AS POSSIBLE.
2. USING THE MOUNTING CHANNEL AS A TEMPLATE, DRILL 9/16" HOLES IN THE UPPER AND LOWER REAR FLANGE OF AD PANEL WHERE THE SUPPORTS WILL GO.
3. REMOVE BACKSHEETS IN AREAS ABOVE AND BELOW HOLES DRILLED IN STEP 2.
4. PLACE SQUARE NUTS INSIDE CHANNEL AND THREAD BOLTS THROUGH.
5. REPLACE BACKSHEETS REMOVED IN STEP 3.
6. LIFT AD PANEL INTO POSITION WITH BOLTS STILL IN PLACE.
7. PLACE MOUNTING ANGLES OVER EACH PAIR OF BOLTS AND SECURE WITH LOCK WASHERS AND HEX NUTS.
8. WHEN PANEL IS ADJUSTED TO FINAL DESIRED POSITION, TIGHTEN HEX NUTS FIRMLY.

REV.	DATE	DESCRIPTION	BY	APPR.
2	13AUG97	INCLUDED INSTRUCTIONS FOR AD PANELS WITH BACKSHEETS.	JAA	
1	26MAY93	ADDED DESCRIPTION TEXT TO PARTS.	MGG	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR SCOREBOARDS

TITLE: AD PANEL MOUNTING

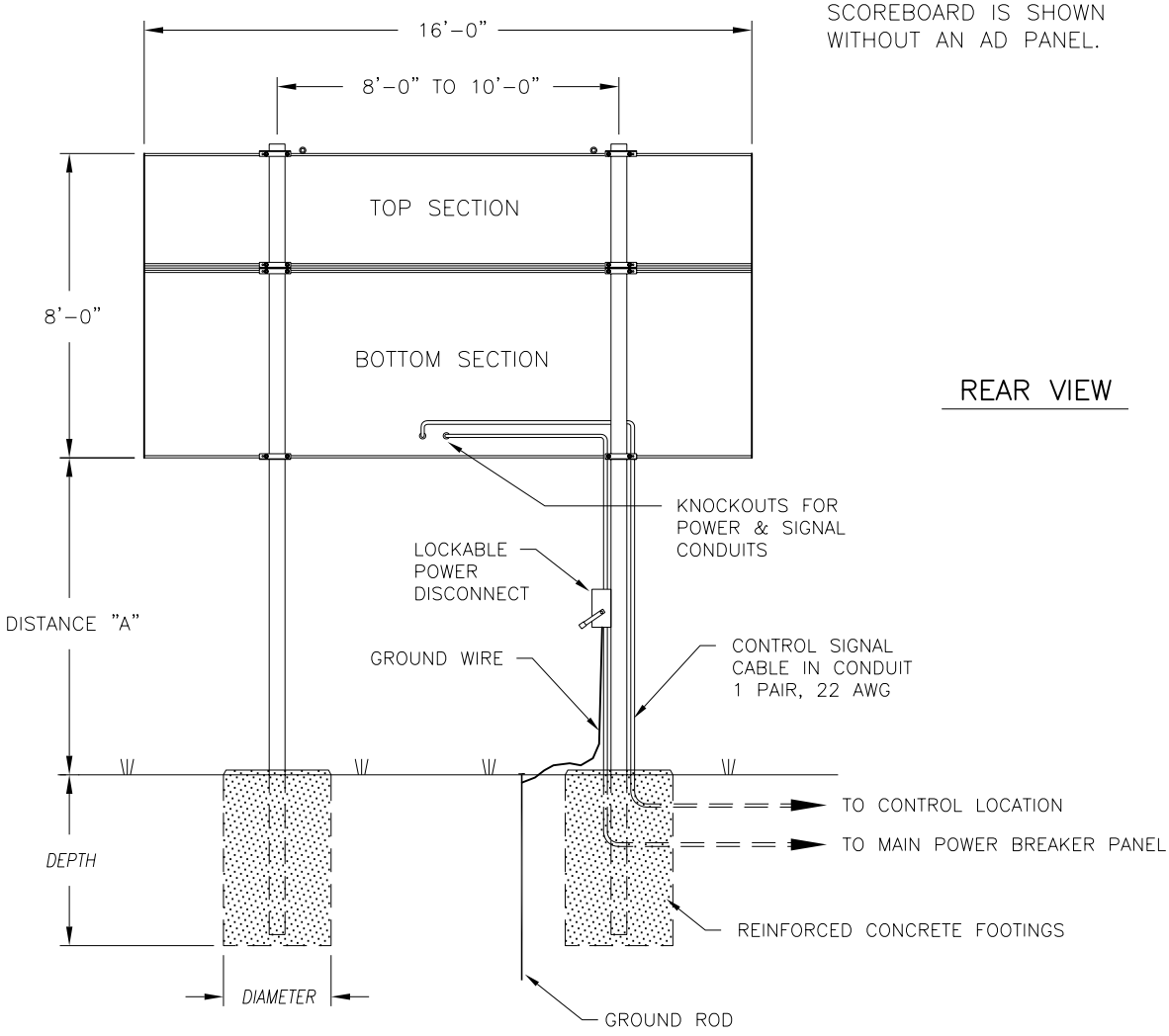
DES. BY: . DRAWN BY: MGUNDERSON DATE: 09JUL92

REVISION APPR. BY:

SCALE: NONE

1091-R10A-52187

SCOREBOARD IS SHOWN WITHOUT AN AD PANEL.



MODEL BA–1518 WITHOUT AD PANEL					
DISTANCE "A" (SEE FIGURE)	TOTAL DISPLAY SIZE		DESIGN WIND VELOCITY		
			70 MPH	80 MPH	100 MPH
10'–0"	16'–0" x 8'–0"	BEAM *FOOTING*	W8x24 *3.0' x 5.4'*	W8x28 *3.0' x 6.0'*	W8x35 *3.0' x 7.0'*
12'–0"	16'–0" x 8'–0"	BEAM *FOOTING*	W8x28 *3.0' x 5.6'*	W8x31 *3.0' x 6.2'*	W10x39 *3.0' x 7.3'*
14'–0"	16'–0" x 8'–0"	BEAM *FOOTING*	W8x31 *3.0' x 5.9'*	W8x35 *3.0' x 6.5'*	W10x45 *3.0' x 7.7'*

MODEL BA–1518 WITH 30"–HIGH AD PANEL					
DISTANCE "A" (SEE FIGURE)	TOTAL DISPLAY SIZE		DESIGN WIND VELOCITY		
			70 MPH	80 MPH	100 MPH
10'–0"	16'–0" x 10'–6"	BEAM *FOOTING*	W8x31 *3.0' x 6.1'*	W8x35 *3.0' x 6.7'*	W12x45 *3.0' x 7.9'*
12'–0"	16'–0" x 10'–6"	BEAM *FOOTING*	W8x35 *3.0' x 6.4'*	W8x40 *3.0' x 7.0'*	W8x48 *3.0' x 8.3'*
14'–0"	16'–0" x 10'–6"	BEAM *FOOTING*	W10x39 *3.0' x 6.6'*	W10x45 *3.0' x 7.3'*	W10x54 *3.0' x 8.6'*

FOOTING = DIAMETER X DEPTH

FOOTING DIMENSIONS ARE SUGGESTIONS ONLY, PROVIDED TO ASSIST WITH ESTIMATING INSTALLATION COSTS AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES.

FOOTING DIMENSIONS ARE BASED ON ASSUMED SOIL BEARING PRESSURE OF 2000 LB/FT ^{2}

ACTUAL FOOTING DEPTH AND DIAMETER FOR A PARTICULAR INSTALLATION MUST BE DETERMINED BY A QUALIFIED STRUCTURAL ENGINEER, USING DATA FROM A SOIL SAMPLE TEST AT THE SITE.

DAKTRONICS, INC. IS NOT RESPONSIBLE FOR STRUCTURES DESIGNED AND INSTALLED BY OTHERS.

REV.	DATE	DESCRIPTION	BY	APPR.
2	19DEC00	REVISED COLUMN SECTIONS & FOOTINGS.	MVD	
1	01 SEPT 99	UPDATE FOOTING AND BEAM SPECS FOR 2000 LB/FT2.	JNILSE	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR SCOREBOARDS

TITLE: INSTALLATION SPECIFICATIONS, BA–1518

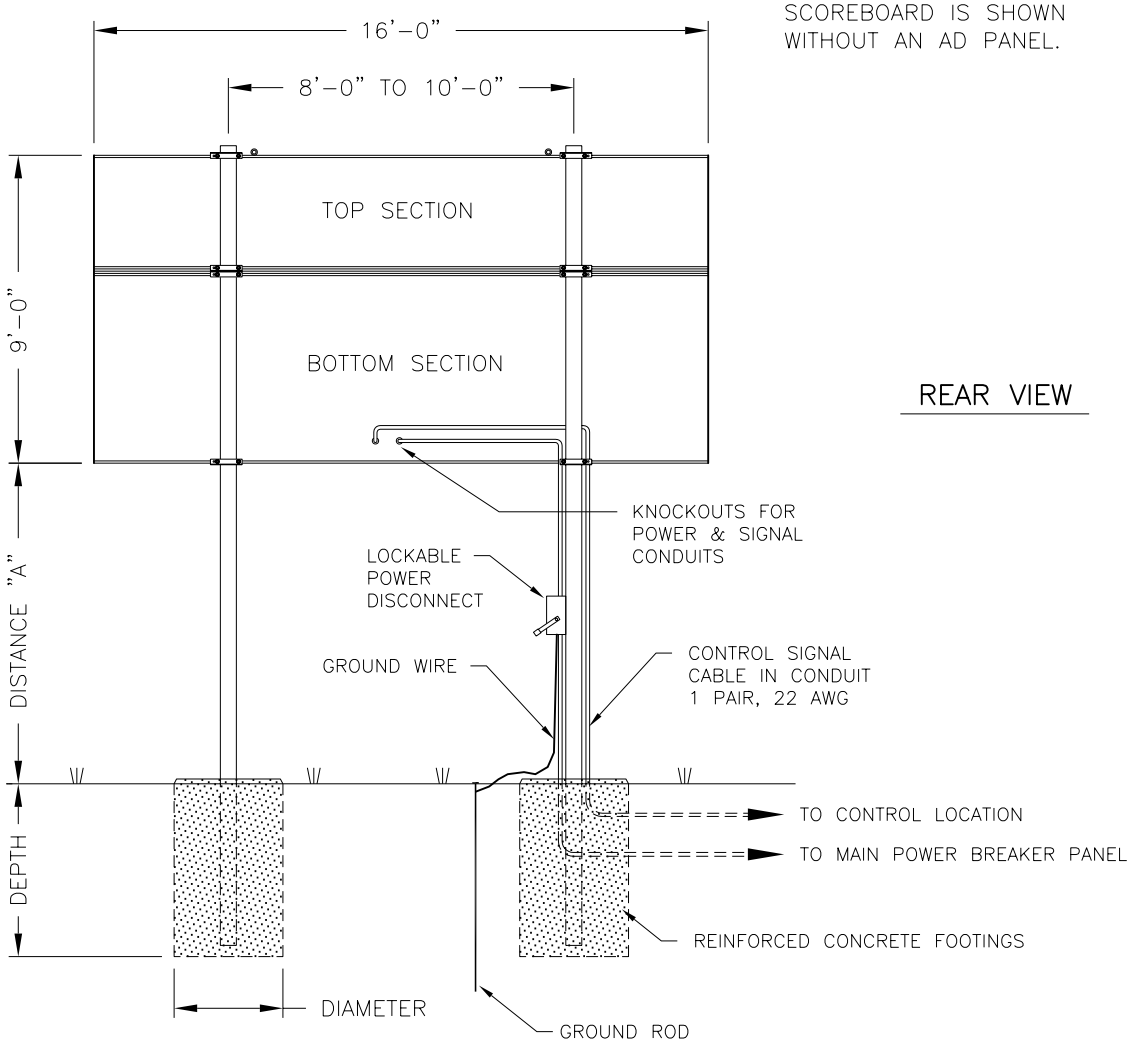
DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 04FEB93

REVISION APPR. BY:

SCALE: 1=60

1091-R10A-55008

SCOREBOARD IS SHOWN
WITHOUT AN AD PANEL.



REAR VIEW

MODEL BA–1524 WITHOUT AD PANEL					
DISTANCE "A" (SEE FIGURE)	TOTAL DISPLAY SIZE		DESIGN WIND VELOCITY		
			70 MPH	80 MPH	100 MPH
10'–0"	16'–0" x 9'–0"	BEAM *FOOTING*	W8x28 *4.0' x 5.1'*	W8x31 *4.0' x 5.6'*	W10x39 *4.0' x 6.7'*
12'–0"	16'–0" x 9'–0"	BEAM *FOOTING*	W8x31 *4.0' x 5.4'*	W8x35 *4.0' x 5.9'*	W12x45 *4.0' x 6.9'*
14'–0"	16'–0" x 9'–0"	BEAM *FOOTING*	W8x35 *4.0' x 5.6'*	W10x39 *4.0' x 6.2'*	W8x48 *4.0' x 7.3'*

MODEL BA–1524 WITH 30"–HIGH AD PANEL					
DISTANCE "A" (SEE FIGURE)	TOTAL DISPLAY SIZE		DESIGN WIND VELOCITY		
			70 MPH	80 MPH	100 MPH
10'–0"	16'–0" x 11'–6"	BEAM *FOOTING*	W8x35 *4.0' x 5.7'*	W10x39 *4.0' x 6.3'*	W8x48 *4.0' x 7.4'*
12'–0"	16'–0" x 11'–6"	BEAM *FOOTING*	W10x39 *4.0' x 6.0'*	W12x45 *4.0' x 6.6'*	W12x53 *4.0' x 7.7'*
14'–0"	16'–0" x 11'–6"	BEAM *FOOTING*	W12x45 *4.0' x 6.2'*	W8x48 *4.0' x 6.9'*	W10x60 *4.0' x 8.1'*

FOOTING = DIAMETER X DEPTH

FOOTING DIMENSIONS ARE SUGGESTIONS ONLY, PROVIDED TO ASSIST WITH ESTIMATING INSTALLATION COSTS AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES.

FOOTING DIMENSIONS ARE BASED ON ASSUMED SOIL BEARING PRESSURE OF 2000 LB/FT ^{2}

ACTUAL FOOTING DEPTH AND DIAMETER FOR A PARTICULAR INSTALLATION MUST BE DETERMINED BY A QUALIFIED STRUCTURAL ENGINEER, USING DATA FROM A SOIL SAMPLE TEST AT THE SITE.

DAKTRONICS, INC. IS NOT RESPONSIBLE FOR STRUCTURES DESIGNED AND INSTALLED BY OTHERS.

REV.	DATE	DESCRIPTION	BY	APPR.
2	15AUG01	CORRECTED VERTICAL DIMENSION OF SCBD FROM 8'–0" TO 9'–0".	KJB	
1	20DEC00	REVISED COLUMN SECTIONS & FOOTINGS	MVD	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR SCOREBOARDS

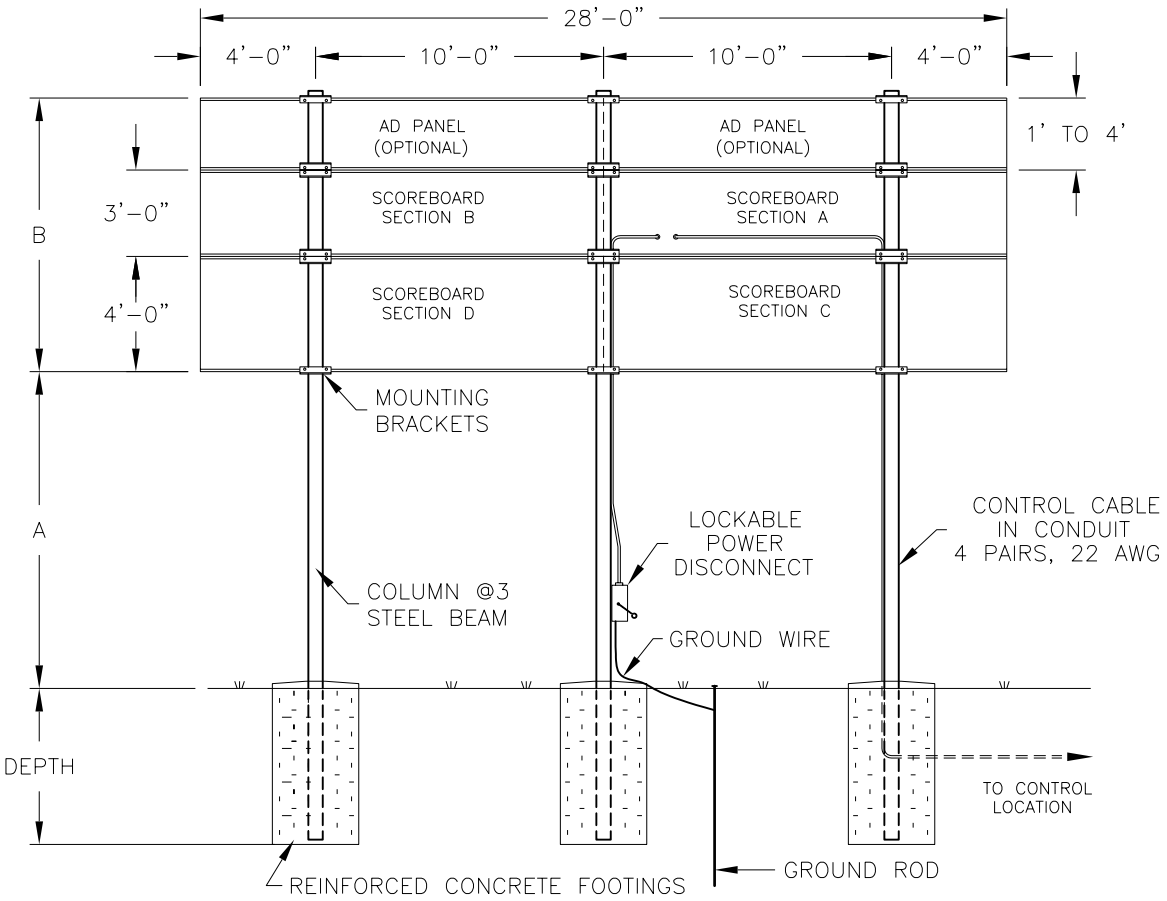
TITLE: INSTALLATION SPECIFICATIONS, BA–1524

DES. BY: TWEBER DRAWN BY: JNILSEN DATE: 26 AUG 99

REVISION APPR. BY:

SCALE: 1=60

1091-R10A-120972



REAR VIEW
BA-3718

ELECTRICAL

POWER CABLE MUST HAVE A SEPERATE GROUND CONDUCTOR. SCOREBOARD MUST BE CONNECTED TO A GROUND ROD AT SCOREBOARD LOCATION.

FOOTING DIMENSIONS ARE SUGGESTIONS ONLY, PROVIDED TO ASSIST WITH ESTIMATING INSTALLATION COSTS, AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES.

COLUMNS AND FOOTINGS MUST BE DESIGNED BY A STATE LICENCED ENGINEER. DAKTRONICS DOES NOT ASSUME ANY LIABILITY FOR ANY INSTALLATIONS DERIVED FROM THIS INFORMATION OR DESIGNED AND INSTALLED BY OTHERS.

MODEL BA-3718

VERTICAL DISTANCE (A)	AD PANEL HEIGHT	COMBINED HEIGHT (B)		DESIGN WIND VELOCITY 70 MPH	80 MPH	100 MPH
10 FT	NONE	7 FT	BEAM	W8x24	W8x28	W8x35
			FOOTING	*3'x5.5'*	*3'x6.1'*	*3'x7.2'*
	2 FT	9 FT	BEAM	W8x31	W8x35	W12x45
			FOOTING	*3'x6.2'*	*3'x6.8'*	*3'x8.0'*
	4 FT	11 FT	BEAM	W8x35	W8x40	W10x49
			FOOTING	*3'x6.8'*	*3'x7.5'*	*3'x8.8'*
14 FT	NONE	7 FT	BEAM	W8x31	W8x35	W10x45
			FOOTING	*3'x6.1'*	*3'x6.7'*	*3'x7.9'*
	2 FT	9 FT	BEAM	W10x39	W12x45	W12x53
			FOOTING	*3'x6.7'*	*3'x7.4'*	*3'x8.8'*
	4 FT	11 FT	BEAM	W10x45	W10x49	W12x65
			FOOTING	*3'x7.3'*	*3'x8.0'*	*3'x9.5'*
18 FT	NONE	7 FT	BEAM	W10x39	W10x45	W10x54
			FOOTING	*3'x6.5'*	*3'x7.2'*	*3'x8.4'*
	2 FT	9 FT	BEAM	W8x48	W12x53	W12x65
			FOOTING	*3'x7.2'*	*3'x8.0'*	*3'x9.4'*
	4 FT	11 FT	BEAM	W10x54	W10x60	W10x77
			FOOTING	*3'x7.8'*	*3'x8.6'*	*3'x10.1'*

FOOTING = DIAMETER X DEPTH

A NOTE ABOUT BEAM NOMENCLATURE:

For a typical beam, W12x30 for example, "W" stands for "Wide-Flange Beam". The first number (12) is the approximate front to rear dimension of the beam in inches. The second number (30) is the weight per foot in pounds. This numbering is standard in the steel industry. Widths vary from 4 to 8 inches in this chart.

REV.	DATE	DESCRIPTION	BY	APPR.
02	30 AUG 07	REMOVED FAN HOODS REVISED BEAM SECTIONS & FOOTINGS.	KDD	
01	17JUL00	REVISED BEAM SECTIONS & FOOTINGS.	MVD	

DAKTRONICS, INC. BROOKINGS, SD 57006

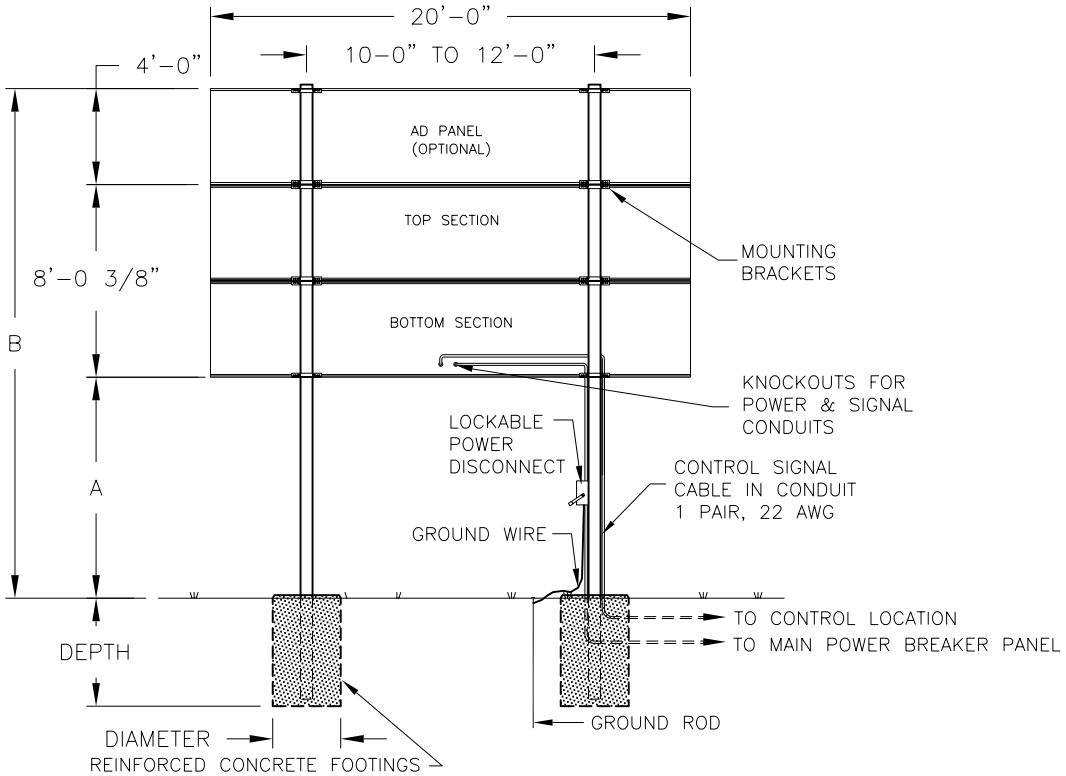
PROJ: OUTDOOR INCANDESCENT SCOREBOARDS

TITLE: INSTALLATION SPECIFICATIONS, BA-3718

DES. BY: BPETERSON DRAWN BY: MVANDYK DATE: 12JAN00

REVISION 02 | APPR. BY: | SCALE: 1=80

1091-R10A-126455



REAR VIEW

FB-2002 & FB-2003

ELECTRICAL

POWER CABLE MUST HAVE A SEPERATE GROUND CONDUCTOR. SCOREBOARD MUST BE CONNECTED TO A GROUND ROD AT SCOREBOARD LOCATION.

FB-2002 & FB-2003

VERTICAL DISTANCE (A)	AD PANEL HEIGHT	COMBINED HEIGHT (B)		DESIGN WIND VELOCITY 70 MPH	80 MPH	90 MPH	100 MPH
10 FT	NONE	18'-0"	BEAM	W8x28	W8x31	W8x35	W10x39
			FOOTING	*3.0'x5.8'*	*3.0'x6.4'*	*3.0'x7.0*	*3.0'x7.6'*
	4 FT	22'-0"	BEAM	W10x39	W10x45	W10x49	W10x54
			FOOTING	*3.0'x7.0'*	*3.0'x7.8'*	*3.0'x8.5'*	*3.0'x9.2'*
12 FT	NONE	20'-0"	BEAM	W8x31	W8x35	W10x39	W12x45
			FOOTING	*3.0'x6.1'*	*3.0'x6.7'*	*3.0'x7.7'*	*3.0'x7.9'*
	4 FT	24'-0"	BEAM	W10x45	W10x49	10x54	W10x60
			FOOTING	*3.0'x7.3'*	*3.0'x8.1'*	*3.0'x8.8'*	*3.0'x9.5'*
14 FT	NONE	22'-0"	BEAM	W8x35	W8x40	W10x45	W8x48
			FOOTING	*3.0'x6.4*	*3.0'x7.0'*	*3.0'x7.7'*	*3.0'x8.3'*
	4 FT	26'-0"	BEAM	W8x48	W10x54	W10x60	W10x68
			FOOTING	*3.0'x7.6'*	*3.0'x8.4'*	*3.0'x9.2'*	*3.0'x9.9'*
16 FT	NONE	24'-0"	BEAM	W10x39	W10x45	W10x49	W10x54
			FOOTING	*3.0'x6.7'*	*3.0'x7.3'*	*3.0'x8.0'*	*3.0'x8.6'*
	4 FT	28'-0"	BEAM	W12x53	W10x60	W12x65	W10x77
			FOOTING	*3.0'x7.9'*	*3.0'x8.7'*	*3.0'x9.5'*	*3.0'x10.2'*
18FT	NONE	26'-0"	BEAM	W12x45	W8x48	W10x54	W10x60
			FOOTING	*3.0'x6.9'*	*3.0'x7.6'*	*3.0'x8.2'*	*3.0'x8.9'*
	4 FT	30'-0"	BEAM	W12x58	W12x65	W12x72	W12x87
			FOOTING	*3.0'x8.1'*	*3.0'x8.9'*	*3.0'x9.7'*	*3.0'x10.5'*
20 FT	NONE	28'-0"	BEAM	W8x48	W12x53	W10x60	W12x65
			FOOTING	*3.0'x7.1'*	*3.0'x7.8'*	*3.0'x8.5'*	*3.0'x9.2'*
	4 FT	32'-0"	BEAM	W12x65	W12x72	W12x79	W14x90
			FOOTING	*3.0'x8.4'*	*3.0'x9.2'*	*3.0'x10.1'*	*3.0'x10.9'*

FOOTING = DIAMETER X DEPTH

FOOTING DIMENSIONS ARE SUGGESTIONS ONLY, PROVIDED TO ASSIST WITH ESTIMATING INSTALLATION COSTS, AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES.

COLUMNS AND FOOTINGS MUST BE DESIGNED BY A STATE LICENCED ENGINEER. DAKTRONICS DOES NOT ASSUME ANY LIABILITY FOR ANY INSTALLATIONS DERIVED FROM THIS INFORMATION OR DESIGNED AND INSTALLED BY OTHERS.

A NOTE ABOUT BEAM NOMENCLATURE:

For a typical beam, W12x30 for example, "W" stands for "Wide-Flange Beam". The first number (12) is the approximate front to rear dimension of the beam in inches. The second number (30) is the weight per foot in pounds. This numbering is standard in the steel industry. Widths vary from 8 to 14 inches in this chart.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR INCANCESCENT SCOREBOARDS

TITLE: INSTALLATION SPECIFICATIONS, FB-2002 & FB-2003

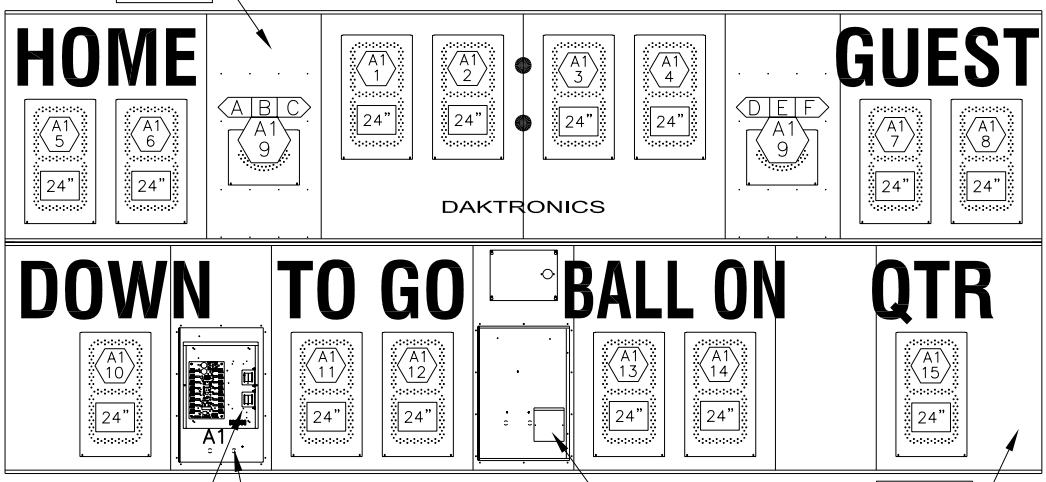
DES. BY: MVANDYK DRAWN BY: MVANDYK DATE: 15JAN01

REVISION 02 APPR. BY: SCALE: 1/8"=1'

1091-E10A-128044

REV.	DATE	DESCRIPTION	BY	APPR.
02	9 NOV 05	CHANGED POLE SPACING TO 10' - 12'	JKU	
01	06AUG01	REMOVED CONDUIT TO TOP SECTION	MCOPL	

FB–1424–31



FRONT VIEW

A1 / 1 = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

A B C = SEGMENT DESIGNATIONS

24" = DIGIT SIZE

HINGED ACCESS DOORS REMOVED TO SHOW THE LED DRIVER AND THE POWER/SIGNAL ENCLOSURE.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: COMPONENT LOCATIONS; FB–1424–31, G3

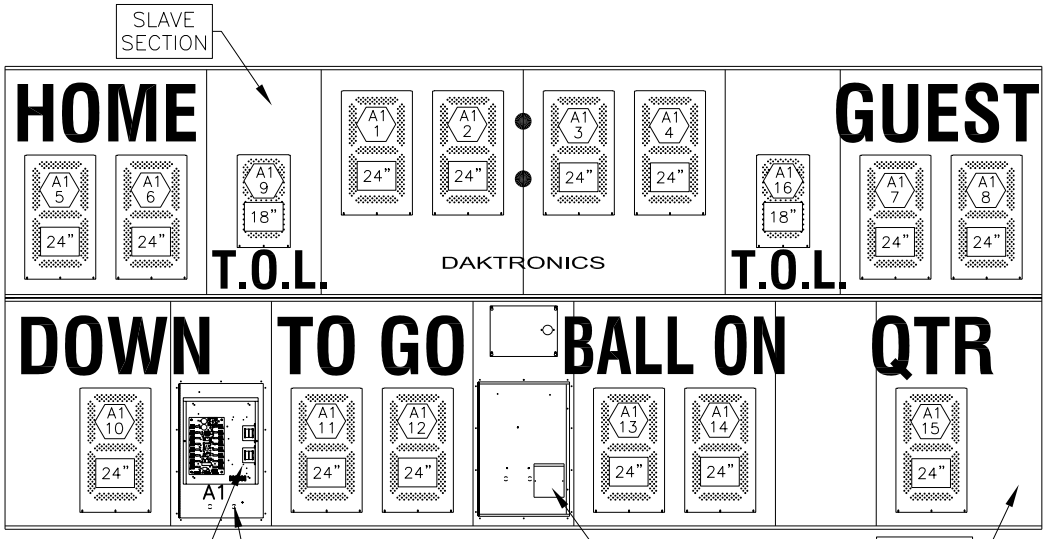
DES. BY: MCOPLAN DRAWN BY: MCOPLAN DATE: 06JUL04

REVISION 00 APPR. BY: SCALE: 1=40

1192-R08A-217809

REV.	DATE	DESCRIPTION	BY	APPR.

FB–2007–31



FRONT VIEW

A1 / 1 = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

24" = DIGIT SIZE

HINGED ACCESS DOORS REMOVED TO SHOW THE LED DRIVER AND THE POWER/SIGNAL ENCLOSURE.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: COMPONENT LOCATIONS; FB–2007–31, G3

DES. BY: MCOPLAN DRAWN BY: MCOPLAN DATE: 23NOV04

REV.	DATE	DESCRIPTION	BY	APPR.

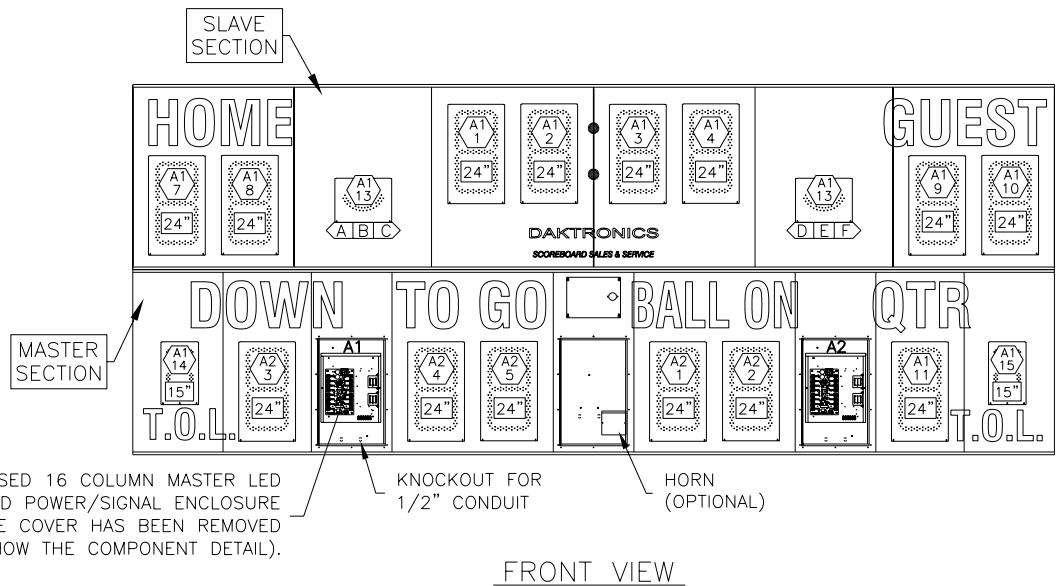
REVISION 00

APPR. BY:

SCALE: 1=40

1192-R08A-227207

FB−2002−31



FRONT VIEW

A1 / 1 = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

24" = DIGIT SIZE

A | B | C = SEGMENT DESIGNATIONS

HINGED ACCESS DOORS REMOVED TO SHOW THE LED DRIVER AND THE POWER/SIGNAL ENCLOSURE.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: COMPONENT LOCATIONS; FB−2002−31, G3

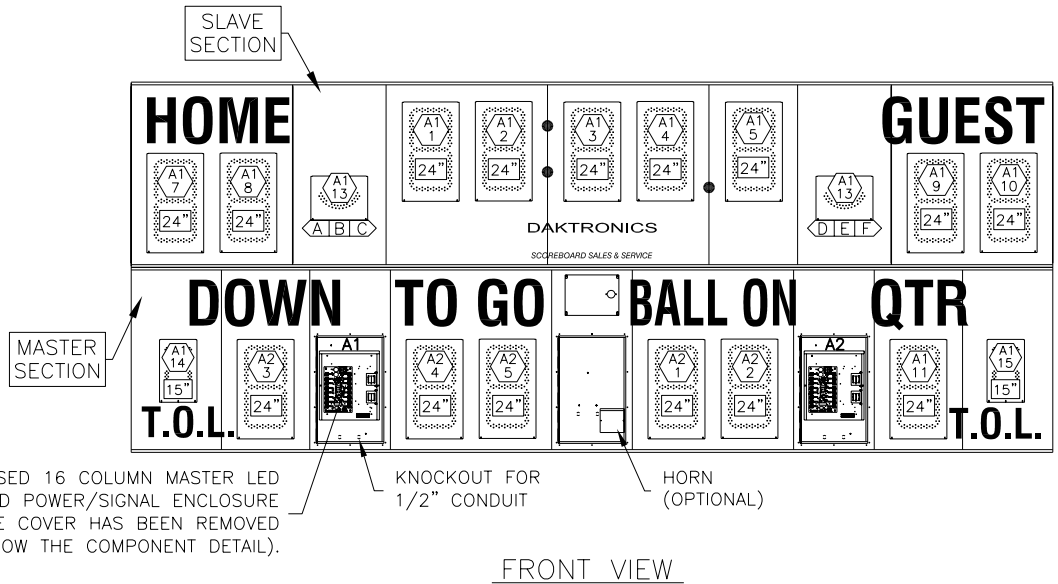
DES. BY: MCOPLAN DRAWN BY: MCOPLAN DATE: 10DEC04

REVISION 00 | APPR. BY: | SCALE: 1=50

1192-R08A-229305

REV.	DATE	DESCRIPTION	BY	APPR.

FB–2003–31



FRONT VIEW

A1 1 = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

24" = DIGIT SIZE

A|B|C = SEGMENT DESIGNATIONS

HINGED ACCESS DOORS REMOVED TO SHOW THE LED DRIVER AND THE POWER/SIGNAL ENCLOSURE.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: COMPONENT LOCATIONS; FB–2003–31, G3

DES. BY: MCOPLAN DRAWN BY: MCOPLAN DATE: 10DEC04

REV.	DATE	DESCRIPTION	BY	APPR.

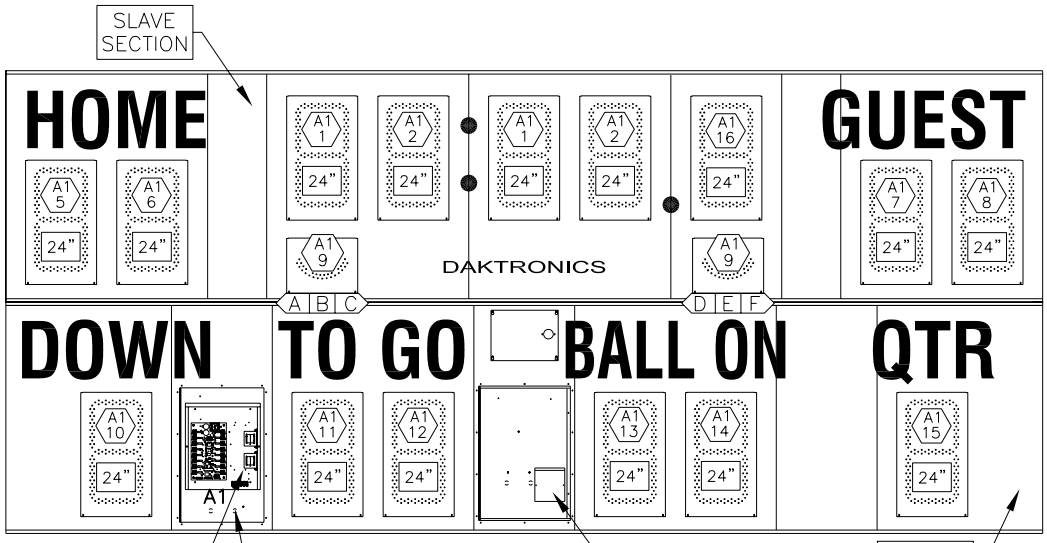
REVISION 02

APPR. BY:

SCALE: 1=50

1192-R08A-229308

FB–1524–31



FRONT VIEW

A1 1 = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

A B C = SEGMENT DESIGNATIONS

24" = DIGIT SIZE

HINGED ACCESS DOORS REMOVED TO SHOW THE LED DRIVER AND THE POWER/SIGNAL ENCLOSURE.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: COMPONENT LOCATIONS; FB–1524–31, G3

DES. BY: MCOPLAN DRAWN BY: MCOPLAN DATE: 10DEC04

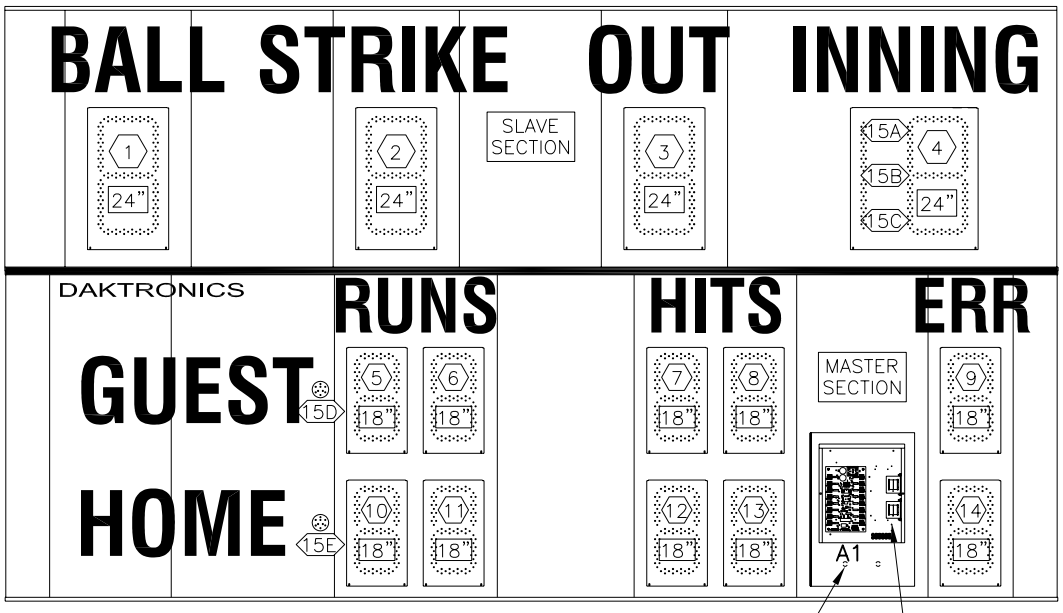
REV.	DATE	DESCRIPTION	BY	APPR.
REVISION 00				

APPR. BY:

SCALE: 1=40

1192-R08A-229261

BA-1524-31



KNOCKOUTS FOR 1/2" CONDUIT

ENCLOSED 16 COLUMN LED DRIVER AND POWER/SIGNAL ENCLOSURE. (THE COVER HAS BEEN REMOVED TO SHOW THE COMPONENT DETAIL).

FRONT VIEW

⟨12⟩ = LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

[18"] = DIGIT SIZE

⟨15A⟩ = LED DRIVER CONNECTOR AND SEGMENT (PIN) NO. WIRED TO THAT INDICATOR

HINGED ACCESS DOORS REMOVED TO SHOW THE LED DRIVER AND POWER/SIGNAL ENCLOSURE.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: COMPONENT LOCATIONS; BA-1524-31, FD, G3

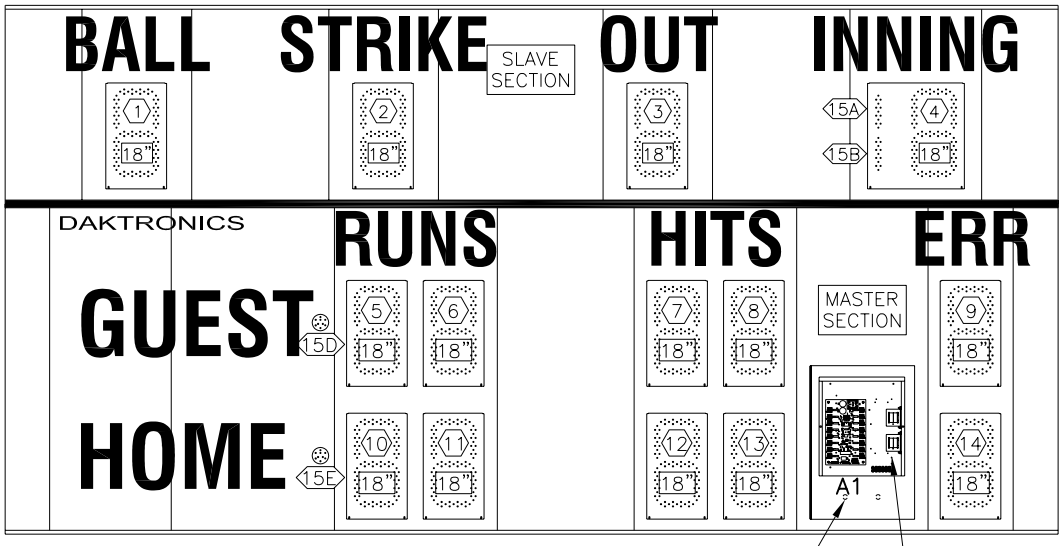
DES. BY: MCOPLAN DRAWN BY: MCOPLAN DATE: 10DEC04

REVISION 00 | APPR. BY: | SCALE: 1=35

1192-R08A-229300

REV.	DATE	DESCRIPTION	BY	APPR.

BA–1518–31



KNOCKOUTS FOR 1/2" CONDUIT

ENCLOSED 16 COLUMN LED DRIVER AND POWER/SIGNAL ENCLOSURE. (THE COVER HAS BEEN REMOVED TO SHOW THE COMPONENT DETAIL).

FRONT VIEW

⟨12⟩ = LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

[18"] = DIGIT SIZE

⟨15A⟩ = LED DRIVER CONNECTOR AND SEGMENT (PIN) NO. WIRED TO THAT INDICATOR

HINGED ACCESS DOORS REMOVED TO SHOW THE LED DRIVER AND POWER/SIGNAL ENCLOSURE.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

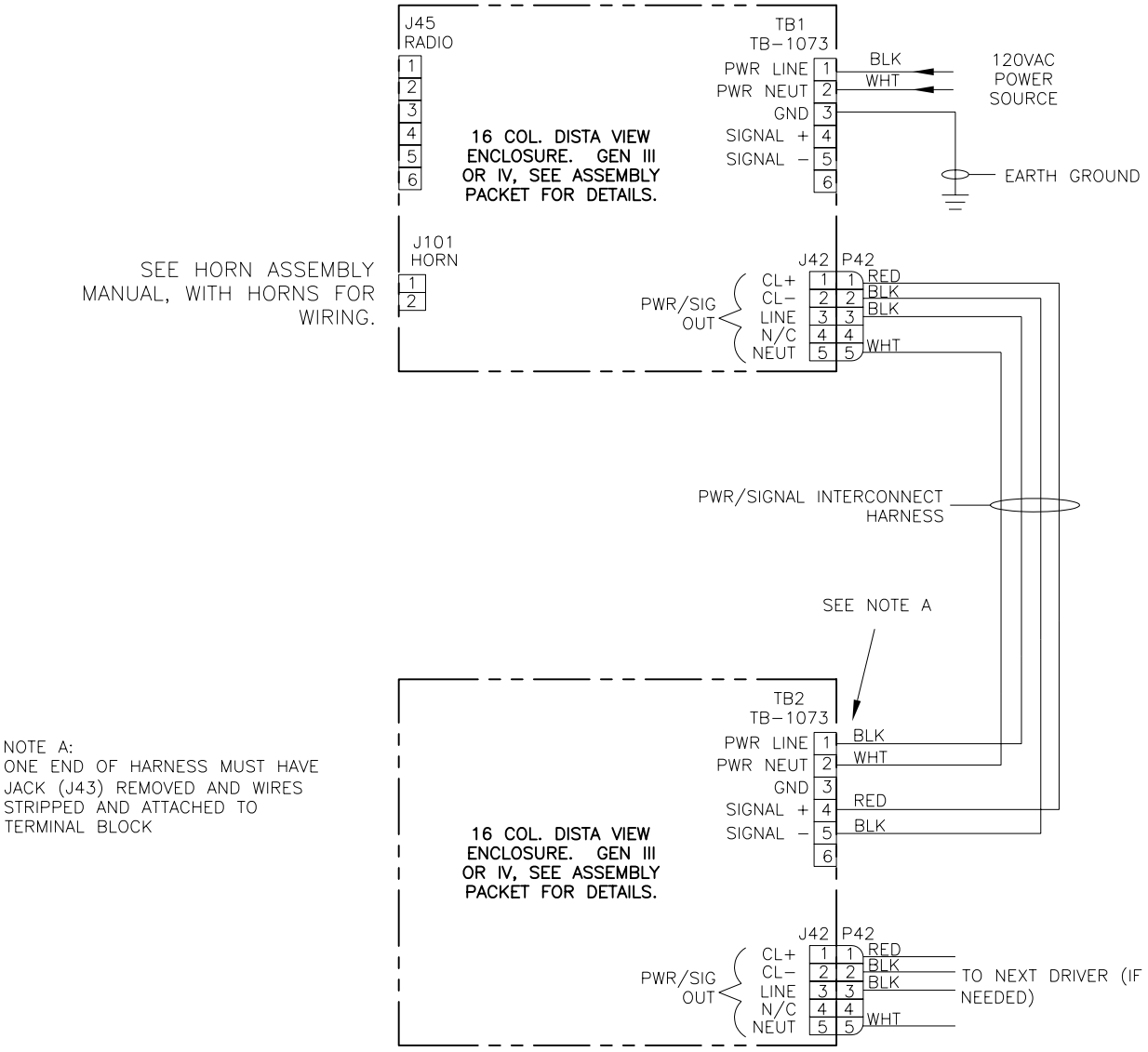
TITLE: COMPONENT LOCATIONS; BA–1518–31, FD, G3

DES. BY: MCOPLAN DRAWN BY: MCOPLAN DATE: 10DEC04

REV.	DATE	DESCRIPTION	BY	APPR.

REVISION 00 APPR. BY: SCALE: 1=35

1192-R08A-229302



NOTE A:
ONE END OF HARNESS MUST HAVE JACK (J43) REMOVED AND WIRES STRIPPED AND ATTACHED TO TERMINAL BLOCK

PWR/SIG INTERCONNECT HARNESS

PART NUMBER	LENGTH
0A-1192-1028	4'
0A-1192-1029	8'
0A-1192-1030	10'
0A-1192-1031	12'
0A-1192-1032	16'
0A-1192-1033	22'
0A-1192-1034	26'
0A-1192-1083	30'
0A-1192-1084	35'

THIS SCHEMATIC REPRESENTS THE INTERCONNECT OF THE MASTER DRIVER TO OTHER DRIVERS/TNMC'S IN A MULTI DRIVER SCOREBOARD CONFIGURATION. SEE THE PRE-PAINT ASSEMBLY DRAWING AND/OR THE FINAL ASSEMBLY DRAWING FOR THE PART NUMBERS OF THE INTERCONNECT HARNESSES NEEDED AND INSTALLATION INSTRUCTIONS.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: LED SCOREBOARDS

TITLE: SCHEMATIC; DISTA VIEW; O.D. LED, MULTI DRIVER DISPLAY

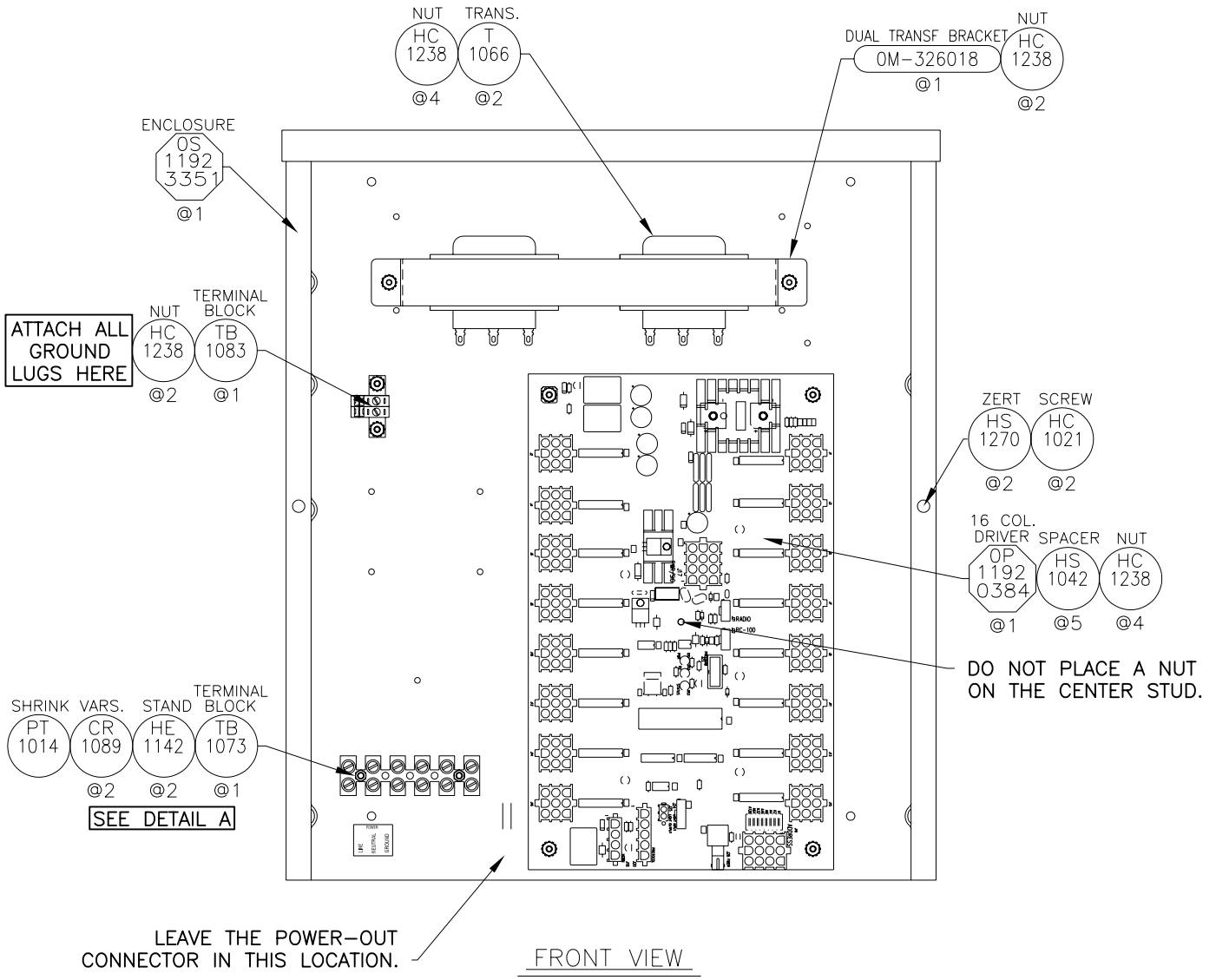
DES. BY: MMILLER DRAWN BY: KBIERBA DATE: 10 MAR 05

REVISION 00 APPR. BY:

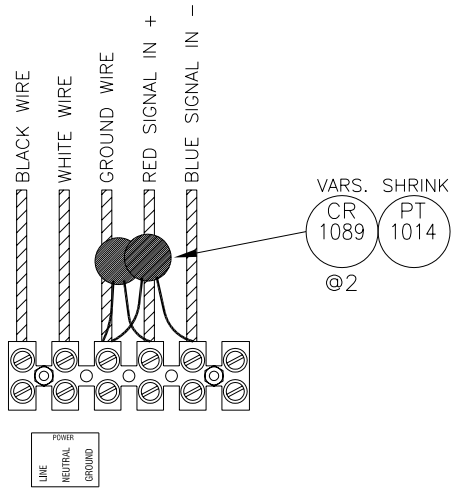
SCALE: NONE

1192-E03A-229706

REV.	DATE	DESCRIPTION	BY	APPR.



FRONT VIEW



DETAIL: A
(SCALE 1=1.5)

ASSEMBLY PACKETS

0A-1192-4255...DRIVER; GEN IV LC OUTDOOR LED, 16 COL
.0S-1192-3351...ENCLOSURE; GEN IV OUTDOOR LED DRIVER

REV.	DATE	DESCRIPTION	BY	APPR.
05	22 APR 08	ADDED VARISTORS AND SHRINK PER ECO049764	AMG	
04	08 APR 08	UPDATED DETAIL A PER ECO49817	KZB	

DAKTRONICS, INC. BROOKINGS, SD 57006

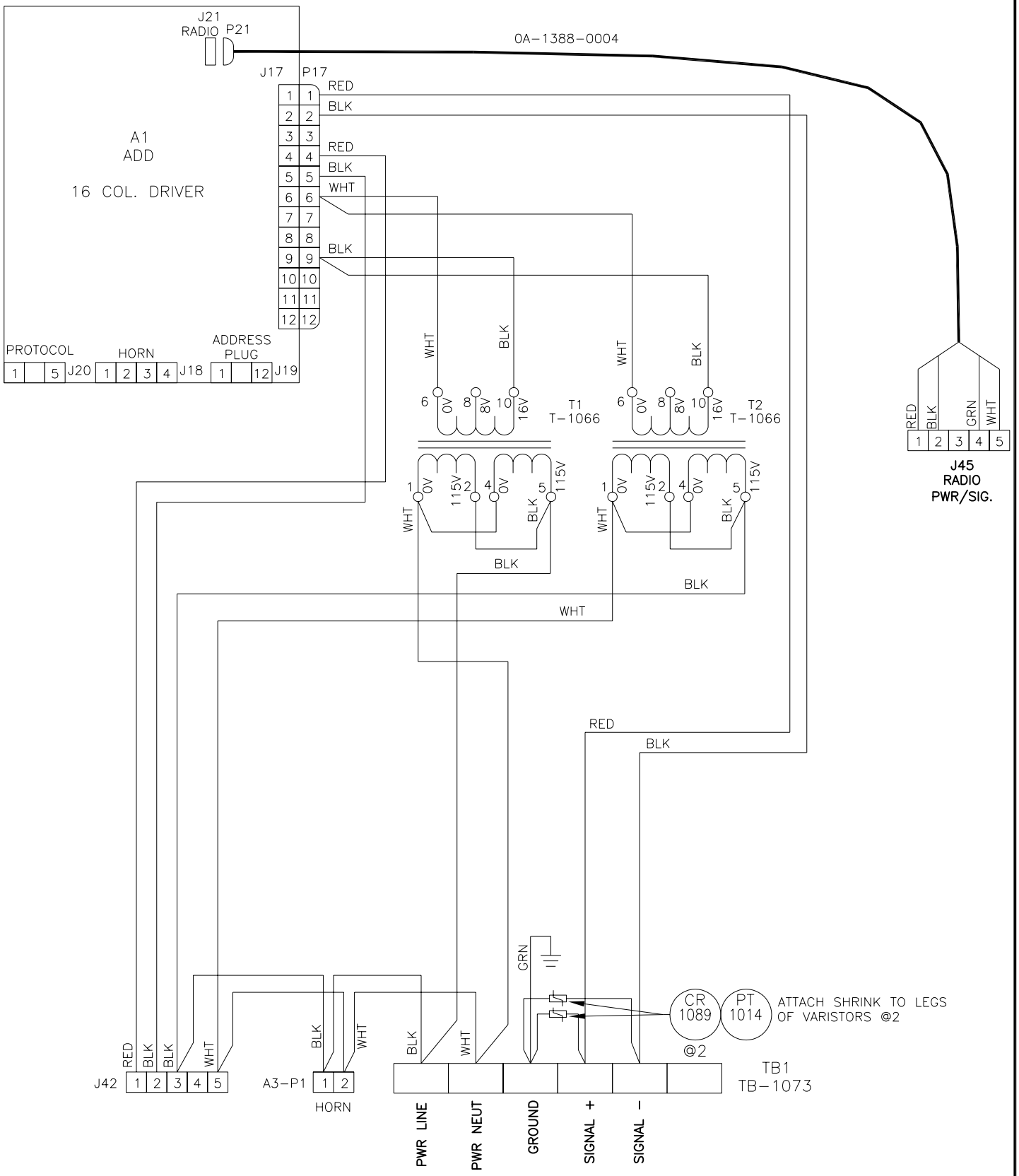
PROJ: OUTDOOR LED SCOREBOARDS

TITLE: DRIVER: GEN IV LC OUTDOOR LED- 16 COL

DES. BY: BCURTIS DRAWN BY: BCURTIS DATE: 21 SEPT 06

REVISION 05 | APPR. BY: | SCALE: 1=4

1192-E10A-285469



DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: SCHEMATIC: XFMR 16 COL- GEN IV- DISTAVIEW LED

DES. BY: DRAWN BY: DDINING DATE: 5 OCT 06

REVISION 01 | APPR. BY: MMILLER | SCALE: NONE

1192-R03A-286657

REV.	DATE	DESCRIPTION	BY	APPR.
01	22 APR 08	ADDED PT-1014 PER ECO 049764	AMG	

LED DRIVER IV
0P-1192-0383, 16 COL
0P-1192-0384, 16 COL, AC

J1-16 DIGIT JACKS

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

J17 PWR/SIG

PIN	FUNCTION
1	SIG-P
2	SIG-N (232-IN)
3	SIG 2-P(232-GND)
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

J22 RC-100 RADIO

PIN	FUNCTION
1	+UNREG-P
2	GND-N
3	GND-N
4	RX_INPUT-P

J21 2.4GHz RADIO

PIN	FUNCTION
1	+UNREG-P
2	GND-N
3	GND-N
4	RX_INPUT-P

J23 PROGRAM

PIN	FUNCTION
1	DATA
2	/RESET
3	N/C
4	GND-N
5	CLK
6	GND-N
7	N/C
8	+5V-P
9	N/C
10	+5V-P

REFER TO DWGS
A-115078 & A-115079
FOR ADDRESS SETTINGS

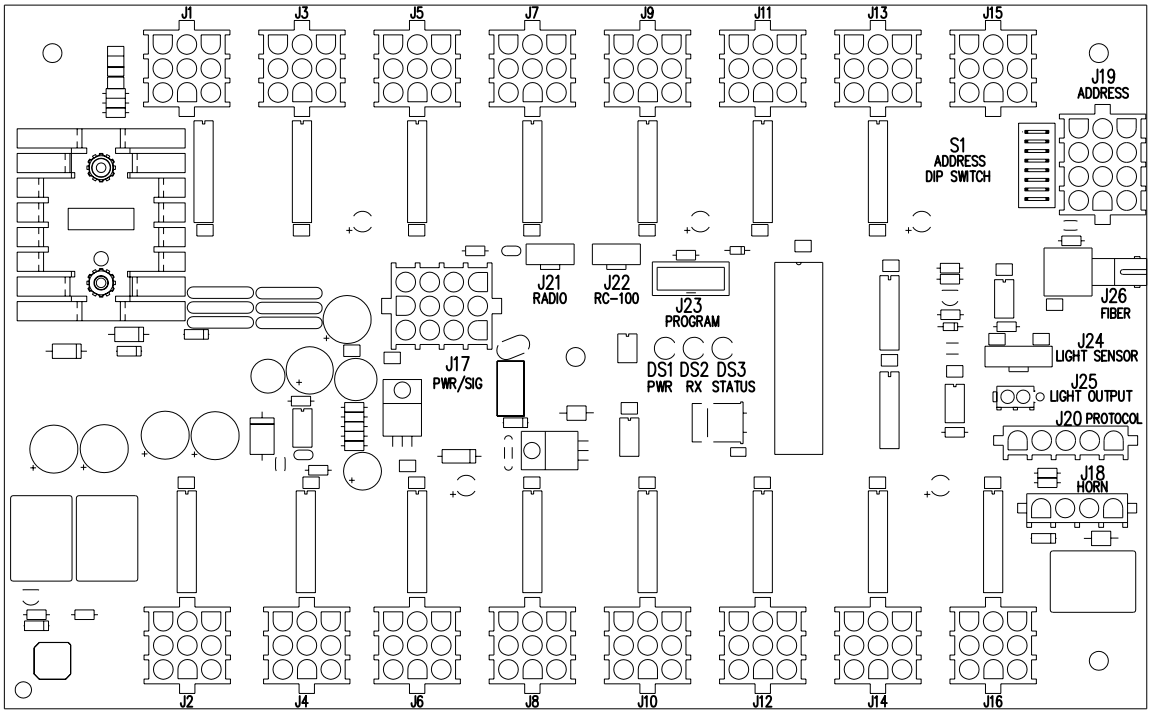
J19 ADDRESS

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

REFER TO DWGS
A-290261 & A-290689

S1 ADDRESS DIP SWITCH PACKAGE

SW #	FUNCTION
1	ADD0
2	ADD1
3	ADD2
4	ADD3
5	ADD4
6	ADD5
7	ADD6
8	ADD7



J26 FIBER RX

PIN	FUNCTION
1	N/C
2	+5V-P
3	GND-N
4	N/C
5	N/C
6	RX_INPUT-P
7	GND-N
8	N/C

J24 LIGHT SENSOR

PIN	FUNCTION
1	LIGHT_IN-P
2	LIGHT_IN-N
3	+5V-P
4	GND-N
5	GND-N
6	N/C

J25 LIGHT OUT- NEXT DRIVER

PIN	FUNCTION
1	LIGHT_OUT-P
2	LIGHT_OUT-N

REFER TO DWG A-115081
FOR PROTOCAL SETTINGS

J20 PROTOCOL

PIN	FUNCTION
1	GND-N
2	PR0-N
3	PR1-N
4	PR2-N
5	PR3-N (TOD)

J18 HORN

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

NOTES:

-WITH NO ADDRESS SELECTED, DRIVER WILL DEFAULT TO A/S 4000 PROTOCOL.
-GREEN LED DS1 INDICATES THAT THE DRIVER HAS POWER.
-RED LED DS2 WILL FLICKER WHEN THE DRIVER RECEIVES SIGNAL.
-AMBER LED DS3 WILL BLINK WHEN THE DRIVER IS RUNNING.
-IF DS3 IS ON OR OFF CONTINUOUSLY THE MICROCONTROLLER IS NOT WORKING.
-REFER TO DRAWING A-128429 FOR CURRENT LOOP REDRIVE SPECIFICATIONS.
-REFER TO DRAWING A-115081 FOR J20 PROTOCOL SETTINGS.
-REFER TO DRAWINGS A-115078,115079 FOR J19 ADDRESS SETTINGS.

DAKTRONICS, INC. BROOKINGS, SD 57006

REV.	DATE	DESCRIPTION	BY	APPR.
02	30 NOV 06	ADDED ADDRESS SWITCH S1 TO DRAWING	DJU	
01	26 OCT 06	RESIZED TEXT SO THAT IT WAS EASIER TO READ, AND CLARIFIED FUNCTIONS OF EACH JACK.	AFL	

PROJ:
TITLE: SPECIFICATIONS; LED DRIVER IV, 16 COL
DES. BY: DRAWN BY: DULSCHM DATE: 09 OCT 06
REVISION 02 APPR. BY:
SCALE: 1 = 2
1192-R04A-288137

DIP SWITCH ADDRESS SETTING

DECIMAL ADDRESS	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	SW 1
01	0	0	0	0	0	0	0	1
02	0	0	0	0	0	0	1	0
03	0	0	0	0	0	0	1	1
04	0	0	0	0	0	1	0	0
05	0	0	0	0	0	1	0	1
06	0	0	0	0	0	1	1	0
07	0	0	0	0	0	1	1	1
08	0	0	0	0	1	0	0	0
09	0	0	0	0	1	0	0	1
10	0	0	0	0	1	0	1	0
11	0	0	0	0	1	0	1	1
12	0	0	0	0	1	1	0	0
13	0	0	0	0	1	1	0	1
14	0	0	0	0	1	1	1	0
15	0	0	0	0	1	1	1	1
16	0	0	0	1	0	0	0	0

DIP SWITCH ADDRESS SETTING

DECIMAL ADDRESS	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	SW 1
33	0	0	1	0	0	0	0	1
34	0	0	1	0	0	0	1	0
35	0	0	1	0	0	0	1	1
36	0	0	1	0	0	1	0	0
37	0	0	1	0	0	1	0	1
38	0	0	1	0	0	1	1	0
39	0	0	1	0	0	1	1	1
40	0	0	1	0	1	0	0	0
41	0	0	1	0	1	0	0	1
42	0	0	1	0	1	0	1	0
43	0	0	1	0	1	0	1	1
44	0	0	1	0	1	1	0	0
45	0	0	1	0	1	1	0	1
46	0	0	1	0	1	1	1	0
47	0	0	1	0	1	1	1	1
48	0	0	1	1	0	0	0	0

DIP SWITCH ADDRESS SETTING

DECIMAL ADDRESS	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	SW 1
65	0	1	0	0	0	0	0	1
66	0	1	0	0	0	0	1	0
67	0	1	0	0	0	0	1	1
68	0	1	0	0	0	1	0	0
69	0	1	0	0	0	1	0	1
70	0	1	0	0	0	1	1	0
71	0	1	0	0	0	1	1	1
72	0	1	0	0	1	0	0	0
73	0	1	0	0	1	0	0	1
74	0	1	0	0	1	0	1	0
75	0	1	0	0	1	0	1	1
76	0	1	0	0	1	1	0	0
77	0	1	0	0	1	1	0	1
78	0	1	0	0	1	1	1	0
79	0	1	0	0	1	1	1	1
80	0	1	0	1	0	0	0	0

DIP SWITCH ADDRESS SETTING

DECIMAL ADDRESS	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	SW 1
97	0	1	1	0	0	0	0	1
98	0	1	1	0	0	0	1	0
99	0	1	1	0	0	0	1	1
100	0	1	1	0	0	1	0	0
101	0	1	1	0	0	1	0	1
102	0	1	1	0	0	1	1	0
103	0	1	1	0	0	1	1	1
104	0	1	1	0	1	0	0	0
105	0	1	1	0	1	0	0	1
106	0	1	1	0	1	0	1	0
107	0	1	1	0	1	0	1	1
108	0	1	1	0	1	1	0	0
109	0	1	1	0	1	1	0	1
110	0	1	1	0	1	1	1	0
111	0	1	1	0	1	1	1	1
112	0	1	1	1	0	0	0	0

DIP SWITCH ADDRESS SETTING

DECIMAL ADDRESS	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	SW 1
17	0	0	0	1	0	0	0	1
18	0	0	0	1	0	0	1	0
19	0	0	0	1	0	0	1	1
20	0	0	0	1	0	1	0	0
21	0	0	0	1	0	1	0	1
22	0	0	0	1	0	1	1	0
23	0	0	0	1	0	1	1	1
24	0	0	0	1	1	0	0	0
25	0	0	0	1	1	0	0	1
26	0	0	0	1	1	0	1	0
27	0	0	0	1	1	0	1	1
28	0	0	0	1	1	1	0	0
29	0	0	0	1	1	1	0	1
30	0	0	0	1	1	1	1	0
31	0	0	0	1	1	1	1	1
32	0	0	1	0	0	0	0	0

DIP SWITCH ADDRESS SETTING

DECIMAL ADDRESS	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	SW 1
49	0	0	1	1	0	0	0	1
50	0	0	1	1	0	0	1	0
51	0	0	1	1	0	0	1	1
52	0	0	1	1	0	1	0	0
53	0	0	1	1	0	1	0	1
54	0	0	1	1	0	1	1	0
55	0	0	1	1	0	1	1	1
56	0	0	1	1	1	0	0	0
57	0	0	1	1	1	0	0	1
58	0	0	1	1	1	0	1	0
59	0	0	1	1	1	0	1	1
60	0	0	1	1	1	1	0	0
61	0	0	1	1	1	1	0	1
62	0	0	1	1	1	1	1	0
63	0	0	1	1	1	1	1	1
64	0	1	0	0	0	0	0	0

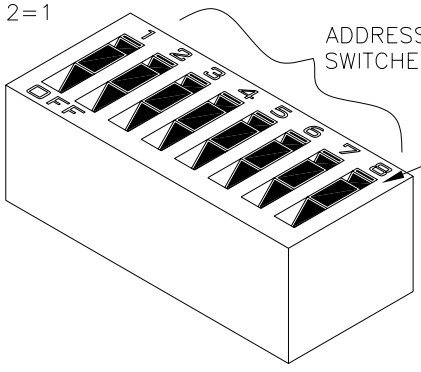
DIP SWITCH ADDRESS SETTING

DECIMAL ADDRESS	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	SW 1
81	0	1	0	1	0	0	0	1
82	0	1	0	1	0	0	1	0
83	0	1	0	1	0	0	1	1
84	0	1	0	1	0	1	0	0
85	0	1	0	1	0	1	0	1
86	0	1	0	1	0	1	1	0
87	0	1	0	1	0	1	1	1
88	0	1	0	1	1	0	0	0
89	0	1	0	1	1	0	0	1
90	0	1	0	1	1	0	1	0
91	0	1	0	1	1	0	1	1
92	0	1	0	1	1	1	0	0
93	0	1	0	1	1	1	0	1
94	0	1	0	1	1	1	1	0
95	0	1	0	1	1	1	1	1
96	0	1	1	0	0	0	0	0

DIP SWITCH ADDRESS SETTING

DECIMAL ADDRESS	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	SW 1
113	0	1	1	1	0	0	0	1
114	0	1	1	1	0	0	1	0
115	0	1	1	1	0	0	1	1
116	0	1	1	1	0	1	0	0
117	0	1	1	1	0	1	0	1
118	0	1	1	1	0	1	1	0
119	0	1	1	1	0	1	1	1
120	0	1	1	1	1	0	0	0
121	0	1	1	1	1	0	0	1
122	0	1	1	1	1	0	1	0
123	0	1	1	1	1	0	1	1
124	0	1	1	1	1	1	0	0
125	0	1	1	1	1	1	0	1
126	0	1	1	1	1	1	1	0
127	0	1	1	1	1	1	1	1
128	1	0	0	0	0	0	0	0

S1–ADDRESS DIP SWITCH
SCALE 2=1



NOTES:

0 = OFF, 1 = ON.

TO TURN SWITCH ON, PRESS DOWN ON THE TOP SIDE OF THE SWITCH ROCKING IT TO THE OTHER POSITION.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: ADDRESS TABLE 1; GEN IV DRIVER ADDRESS DIP SWITCH

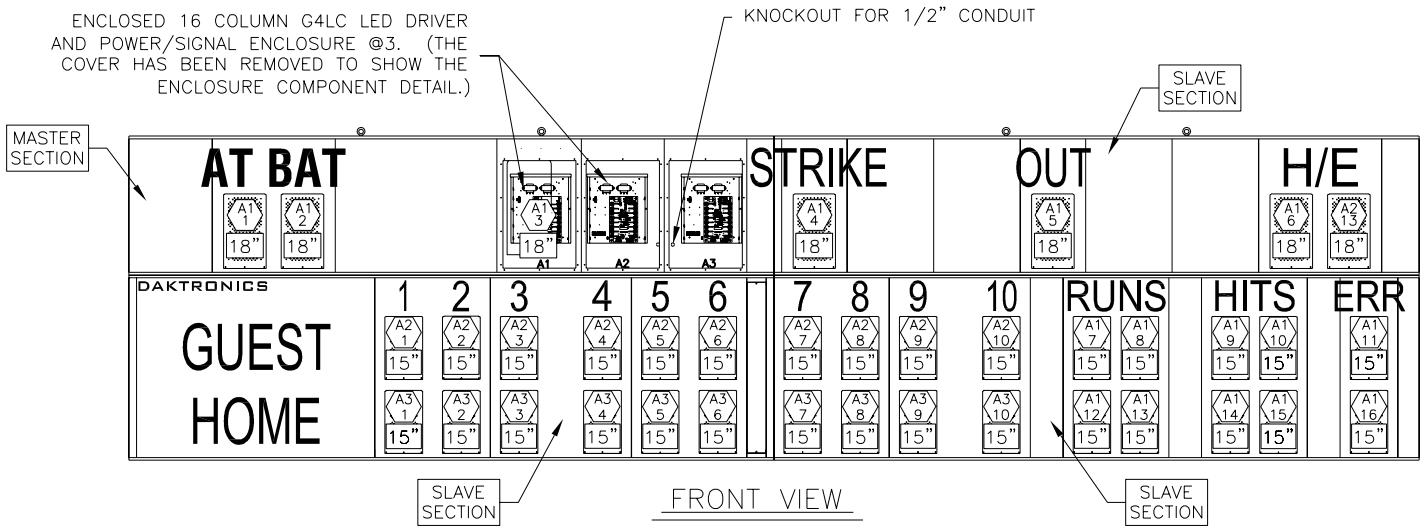
DES. BY: MMILLER DRAWN BY: MMILLER DATE: 16 NOV 06

REVISION 00 | APPR. BY: | SCALE: 1 = 1

1192-R10A-290261

REV.	DATE	DESCRIPTION	BY	APPR.

BA-3718-31



FRONT VIEW

A1 1 = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

18" = DIGIT SIZE

HINGED ACCESS DOORS REMOVED TO SHOW LED DRIVER AND THE POWER/SIGNAL ENCLOSURE.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: COMPONENT LOCATIONS; BA-3718-31, G4

DES. BY: BCURTIS DRAWN BY: BCURTIS DATE: 13 DEC 06

REVISION 00 APPR. BY:

SCALE: 1=50

1192-R08A-292344

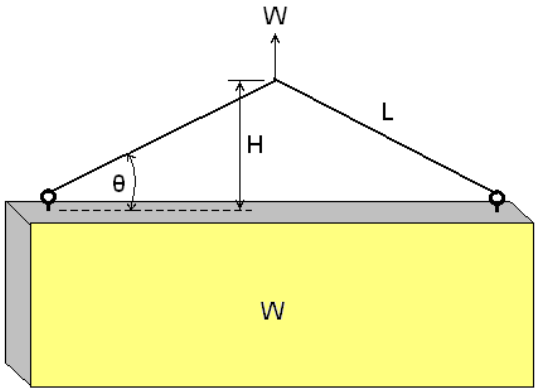
REV.	DATE	DESCRIPTION	BY	APPR.

Appendix B: Eyebolts

Eyebolts

Almost every display that leaves Daktronics is equipped with eyebolts for lifting the display. There are two standard sizes of eyebolts: ½″ and ⅝″.

Load Increase Factor: The load increases as the lift angle (θ) decreases. The allowable load on the eyebolts also decreases with the lift angle due the bending stress on the eyebolts. In sum, the smaller the angle between the cable and the top of the display, the lighter the sign must be to safely lift it. *Do NOT attempt to lift the display when the lift angle is less than 30 degrees.*



W= Weight of sign or Section

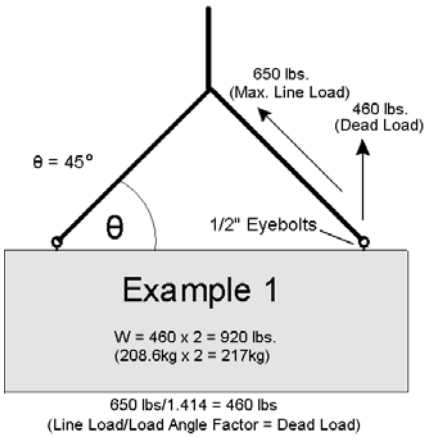
H= Distance between top of sign and lift point

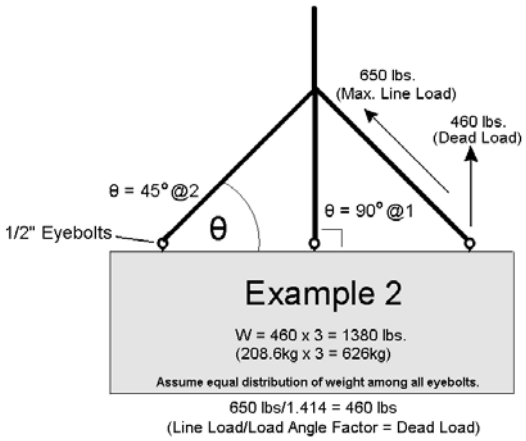
L= Length of cable on one side

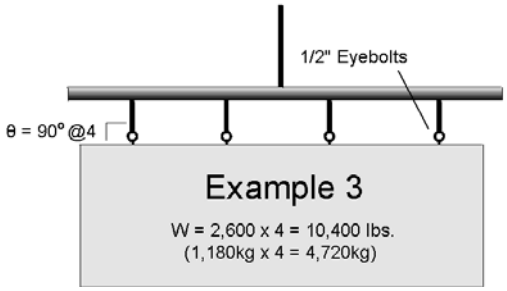
θ = Angle between sign and cable

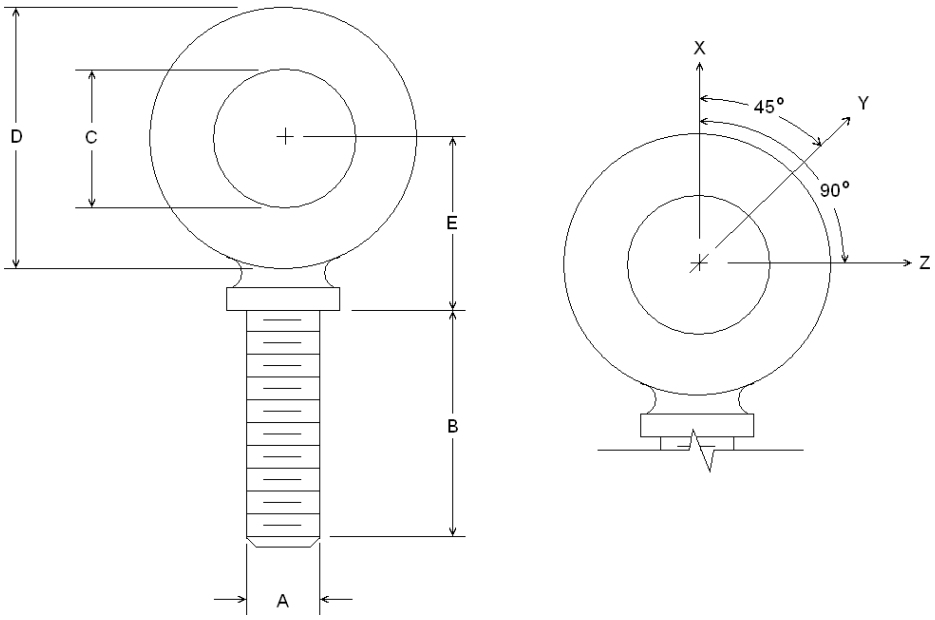
Horizontal Angle	Load Angle Factor (L/H)
90	1.00
60	1.155
50	1.305
45	1.414
30	2.00

	½"		⅝"	
θ	Line Load	Weight/ Anchor	Line Load	Weight/ Anchor
90	2600	2600	4000	4000
60	1500	1299	3300	2858
45	650	460	1000	707
30	520	260	800	400









A	B	C	D	E	No.	Min. Proof Load (lbs.)	Min. Break Load (lbs.)	Stocked	Min. Eff. Thrd. Length	Line Loads		
										Wx	Wy	Wz
1/4	1	3/4	1-3/16	25/32	21	600	2,000	Blank 1/4-20	7/8	400	100	80
3/8	1-1/4	1	1-21/32	1-3/16	23	2,100	5,000	Blank 3/8-16	1-1/8	1,400	350	250
1/2	**1-1/2**	**1-3/16**	**2-1/16**	**1-13/32**	**25**	**3,900**	**9,200**	**Blank 1/2-13**	**1-11/32**	**2,600**	**650**	**520**
9/16	1-5/8	1-9/32	2-13/16	1-17/32	26	4,500	11,830	Blank 9/16-12	1-3/8	3,000	750	600
5/8	**1-3/4**	**1-3/8**	**2-1/2**	**1-11/16**	**27**	**6,000**	**14,700**	**Blank 5/8-11**	**1-9/16**	**4,000**	**1,000**	**800**
3/4	2	1-1/2	2-13/16	1-13/16	28	9,000	21,700	Blank 3/4-10	1-5/8	6,000	1,500	1,200
7/8	2-1/4	1-11/16	3-1/4	2-1/16	29	10,000	30,000	Blank 7/8-9	1-13/16	6,600	1,670	1,330
1	2-1/2	1-13/16	3-9/16	2-5/16	30	12,000	39,400	Blank 1-8	2-1/16	8,000	2,000	1,600
1-1/2	3-1/2	2-9/16	5-1/2	3-5/32	34	27,000	91,300	Blank 1-1/2-6	3	17,800	4,500	3,600

A. Do not use eyebolts on angular lifts unless absolutely necessary. For angular lifts, the shoulder pattern eyebolt is preferred.

B. Load should always be applied to eyebolts in the plane of the eye, not at some angle to this plane.

C. Shoulder eyebolts must be properly seated (should bear firmly against the mating part), otherwise the working loads must be reduced to those indicated for regular eyebolts. A washer or spacer may be required to put the plane of the eye in the direction of the load when the shoulder is seated.

D. No load greater than the safe working load listed in the data table should be used.

E. To obtain the greatest strength from the eyebolt, it must fit reasonably tight in its mounting hole to prevent accidental unscrewing due to twist of cable.

F. Eyebolts should never be painted or otherwise coated when used for lifting. Such coatings may cover potential flaws in the eyebolt.

G. To attain the safe working loads listed for regular eyebolts, 90% of the thread length must be engaged.

Appendix C: Daktronics Warranty and Limitation 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 FINTESS 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.