

**TUFF SPORT® AND
COLORSMART®
INDOOR LED SCOREBOARDS**
INSTALLATION MANUAL
P1749/1763

DD2481645
Rev 09
03 August 2021

Models			
BB-2101	BB-2131	BB-3125*	SD-2106
BB-2103	BB-2132	BB-3142*	SD-3101*
BB-2105	BB-2142	CU-2001	SD-3102*
BB-2107	BB-2143	H-2101	SD-3103*
BB-2109	BB-2144	H-2102	SD-3106*
BB-2111	BB-2152	H-2103	SQ-2001
BB-2114	BB-2153	H-2104	TI-2030
BB-2115	BB-2155	H-2106	TI-2101
BB-2116	BB-3101*	H-2108	TI-2102
BB-2117	BB-3103*	H-2111	TI-2103
BB-2119	BB-3105*	H-2114	TI-2200
BB-2121	BB-3107*	H-2115	TI-3103*
BB-2122	BB-3114*	SD-2101	VB-2101
BB-2123	BB-3115*	SD-2102	
BB-2125	BB-3121*	SD-2103	
BB-2130	BB-3123*	SD-2104	

*ColorSmart or compatible model

FCC Statement

Supplier Declaration of Conformity (SDoC)

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Warning: The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Industry Canada Regulatory Information

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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DAKTRONICS

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1 Introduction

This manual explains the installation of Daktronics Tuff Sport® and ColorSmart® Indoor LED Scoreboards, Game/Shot Clocks, Statistics Panels, and Timing Displays. For additional information regarding safety, installation, operation, or service, refer to the telephone numbers listed in **Section 5: Daktronics Exchange and Repair & Return Programs (p.17)**. This manual is not specific to a particular installation.

Important Safeguards

- **Read and understand all instructions before beginning the installation process.**
- **Disconnect the display power when not in use or when servicing.**
- **Disconnect the display power before servicing power supplies to avoid electrical shock. Power supplies run on high voltage and may cause physical injury if touched while powered.**
- **Do not modify the structure or attach any panels or coverings to the display without the express written consent of Daktronics.**
- **Do not disassemble control equipment or electronic controls of the display; failure to follow this safeguard will make the warranty null and void.**
- **Do not drop the control equipment or allow it to get wet.**

Specifications Label

Power specifications as well as serial and model number information can be found on an ID label affixed to the top of the display, similar to the one shown in **Figure 1**.

Note: If something mounted above the display obscures this label, a copy of this label can be found behind the PRIMARY DRIVER access panel.

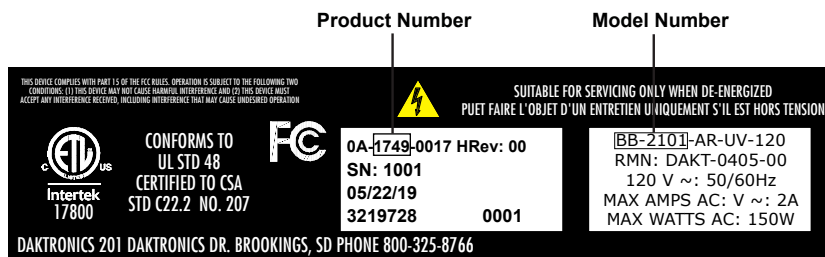
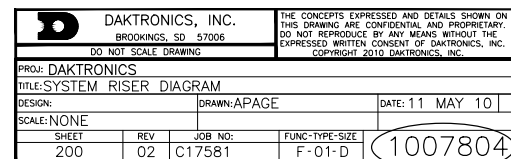


Figure 1: Specifications Label

Please have the assembly number, model number, and the date manufactured on hand when calling Daktronics customer service to ensure the request is serviced as quickly as possible. Knowing the facility name and/or job number will also be helpful. Note that the Product Number(s) are sometimes used to distinguish different generations of displays that have the same model number.

Resources

Figure 2 illustrates a Daktronics drawing label. This manual refers to drawings by listing the last set of digits. In the example, the drawing would be referred to as **DWG-1007804**. All references to drawing numbers, appendices, figures, or other manuals are presented in bold typeface.



Drawing Number

Figure 2: Drawing Label

Any drawings referenced in a section are listed at the beginning of it as shown below:

Reference Drawings:

System Riser Diagram **DWG-1007804**

Daktronics identifies manuals by the DD or ED number located on the cover page.

Listed below are drawing types commonly used by Daktronics, along with the information typically provided. All drawings referenced in this manual are found in the appendices.

- **Schematic Drawings:** describe internal power and signal wiring as well as interconnections between display sections; they may also include digit designations and driver addressing information
- **Shop Drawings:** describe mounting methods to structural elements, access method (front or rear), and power and signal entrance points
- **System Riser Diagrams:** describe power/signal connections between components and the control location; they may also include control room layout and schematic
- **Final Assembly Drawings:** describe internal display component locations and detailed product appearance with part numbers and quantities

Ensure all applicable materials have been gathered before beginning the installation. Contact a Daktronics sales coordinator or project manager.

Troubleshooting

For an extensive troubleshooting guide, instructions on how to replace display components, and detailed schematic drawings, refer to the following manuals, available online at www.daktronics.com/manuals:

- **Tuff Sport Indoor LED Scoreboards Service Manual (DD2481648)**
- **ColorSmart Indoor LED Scoreboards Service Manual (DD2507404)**

Display Controllers

Daktronics Tuff Sport scoreboards are designed for use with the All Sport® 1600 and 5000 series control consoles, and certain models may also be operated with the hand-held RC-200 wireless controller. The consoles use keyboard overlays (sport inserts) to control numerous sports and scoreboard models. Refer to the manuals below for operating instructions. They are provided on a CD with the control console, and they are also available online at www.daktronics.com/manuals.

- **All Sport 1600 Series Control Console Operation Manual (ED-12462)**
- **All Sport 5000 Series Control Console Operation Manual (ED-11976)**
- **Remote Control System RC-200 All Sport Operation Manual (DD3572889)**

The DAK Score app and All Sport MX-1 interface box provide a way to control Daktronics scoreboards using a compatible tablet or mobile device. Visit www.daktronics.com/allsportMXsupport to download the app, view the quick guide below, and access other setup, operation, and troubleshooting information.

- **All Sport MX-1 Quick Guide (DD3667023)**

Daktronics ColorSmart scoreboards are only compatible with the All Sport 5500 series control console. Refer to the manual below:

- **All Sport 5500 Series Control Console Operation Manual (ED-16809)**

Sport Codes

The following table lists common All Sport and RC-200 sport codes. Note that many scoreboards are capable of scoring multiple sports. Refer to the appropriate controller operation manual for a complete listing of sport codes.

Sport	All Sport 5000/5500 Codes	All Sport 1600 Codes	RC-200 Codes
Basketball	1101 (PLAYER-FOUL) 1105 (PLYR/FL/PTS)	21	10
Curling	4501	N/A	N/A
Hockey	4401 (without SOG) 4402 (with SOG)	01	01
Volleyball	2101 (MATCH/GAME) 2105 (PLYR/FL/PTS)	01	01
Wrestling	3101	01	01
Squash	N/A	16	N/A

Product Safety Approval

Daktronics indoor scoreboards are ETL-listed, tested to CSA standards, and CE-labeled for indoor use. Contact Daktronics with any questions regarding testing procedures.

2 Mechanical Installation

Mechanical installation consists of lifting and permanently mounting the display(s). The product specification sheets listed in **Appendix A** include installation specification drawings that show the recommended number and spacing of wall anchors for specific scoreboard models. Be sure that the installation complies with local building codes.

Note: Daktronics assumes no liability for installations derived from the information provided in this manual or installations designed and installed by others.

Lifting

Most displays and display sections ship equipped with at least one 1/2" shoulder-type eyebolt located along the top of the cabinet for the purpose of lifting. Smaller game/shot clocks do not require eyebolts and are not equipped with them.

Note: Daktronics assumes no liability for damages resulting from incorrect setup or lifting methods. Eyebolts are intended for lifting only. Do not attempt to permanently support the display by the eyebolts.

For displays with two eyebolts, use a spreader bar, or lifting bar, to lift the display. Spreader bars ensure force on the eyebolts remains straight up, minimizing lifting stress.

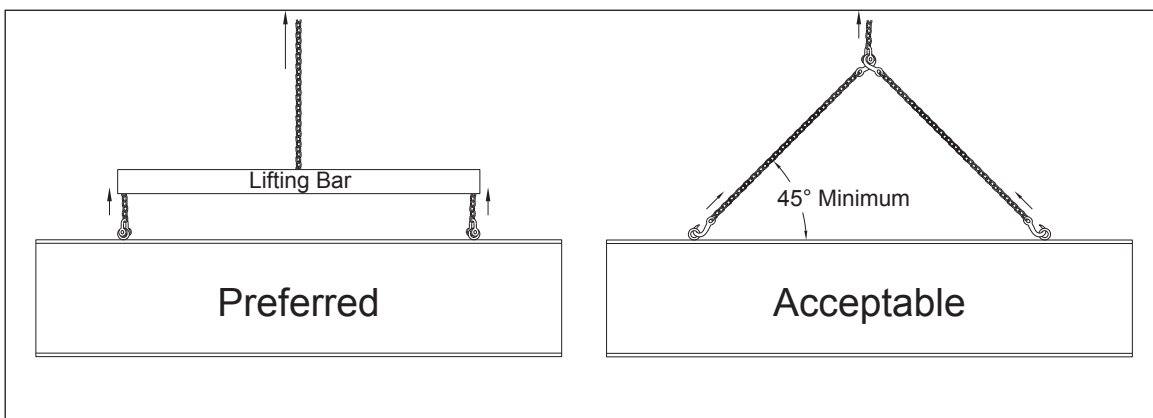


Figure 3: Lifting Methods

Figure 3 illustrates the preferred lifting method on the left and an acceptable alternative lifting method on the right. When lifting the cabinet:

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

Avoid using other lifting methods. Cables and chains attached to the eyebolts and directly to a center lifting point, as shown in the “Acceptable” example in **Figure 3**, can create a dangerous lateral force on the eyebolts and may cause them to fail. The smaller the angle between the cable and the top of the cabinet, the lighter the cabinet must be to safely lift it. If this method must be used, ensure a minimum angle between the chain and cabinet of at least 45°.

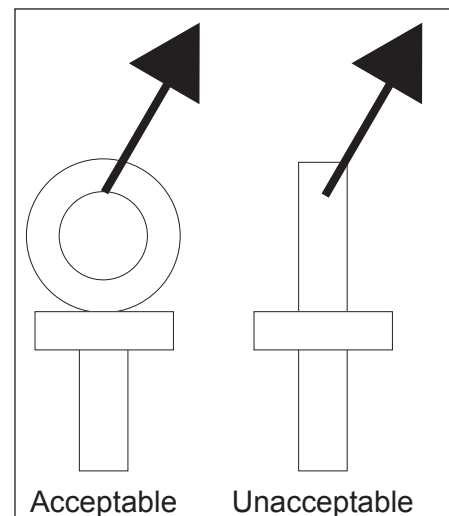


Figure 4: Eyebolt Plane Load

Do NOT attempt to lift the cabinet if the angle is less than 45°. Exceeding load angles or weight limits could cause the bolts in the cabinet to buckle, resulting in serious damage to the equipment or injury to personnel. Also, loads should be applied directly in the plane of the eyebolt as shown in **Figure 4**.

Small displays that are not equipped with eyebolts instead use two lifting straps that encircle the cabinet. The use of a spreader bar with the straps is recommended.

Wall Mounting

Due to the variety of wall materials used in sports facilities, Daktronics cannot anticipate a user's individual installation needs or provide mounting hardware suitable for every installation. Choose a method of installation that will safely support the weight of the display.

Single-Section Displays

1. Use the eyebolt(s) at the top of the display cabinet to lift it into position for mounting.
2. Secure the display to the wall by attaching mounting hardware through all holes on the top and bottom rear flanges of the cabinet to a pre-drilled hole in the wall (**Figure 5**).

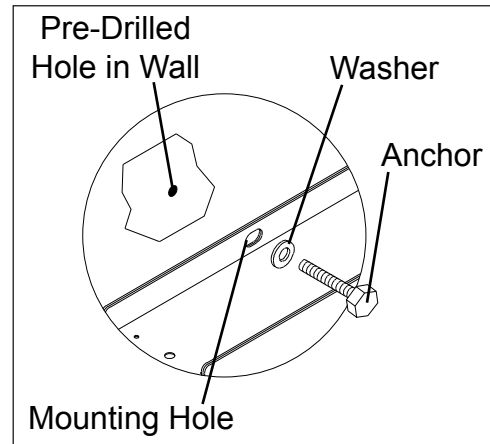


Figure 5: Wall Mounting

Note: For basketball statistic displays or hockey scoring modules, verify the correct HOME or GUEST display by looking at the label on top of the cabinet to determine whether it should be mounted to the left or right of the main display.

For mounting locations, weights and hardware suggestions, refer to the model-specific mechanical specification drawings attached to the product specification sheets listed in **Appendix A**.

Suspension Mounting

Reference Drawings:

Suspension Lift Eye Installation **DWG-1130959**

Rather than being mounted to the wall or in a corner, a display may be suspended using a special lift eye mounting kit. Refer to **DWG-1130959** in **Appendix B** for more information.

Always contact Daktronics about any installation that involves permanently suspending the scoreboard.

Corner Mounting

Reference Drawings:

Corner Mounting **DWG-150831**

Certain indoor displays may be mounted in a corner, rather than flat against the wall, using a special mounting bracket kit. For more information on the corner mounting option, refer to **DWG-150831** in **Appendix B**.

Multi-Section Displays

In typical multi-section installations, the lowest display section is installed first, but be sure to verify with the mounting drawing.

1. Use eyebolts to lift the lowest display section into position on the wall.
2. Ensure the cabinet is level, and secure it to the wall by attaching 1/2" mounting hardware through all obround holes on the bottom rear flange of the cabinet (**Figure 6**).
3. Mounting brackets must be used inside the top cabinet channel as shown in **Figure 7**.
 - a. Line up the outer hole on the bracket with the mounting hole in the top rear flange.
 - b. Using the bracket as a template, drill another hole through the top rear flange.
 - c. Secure the top rear flange and bracket to the wall with 1/2" hardware through the existing and drilled holes.
 - d. Repeat **Steps a-c** for the other mounting bracket(s).
4. Repeat **Steps 1-3** for all other cabinets that will be mounted to the left and right of the first installed section.

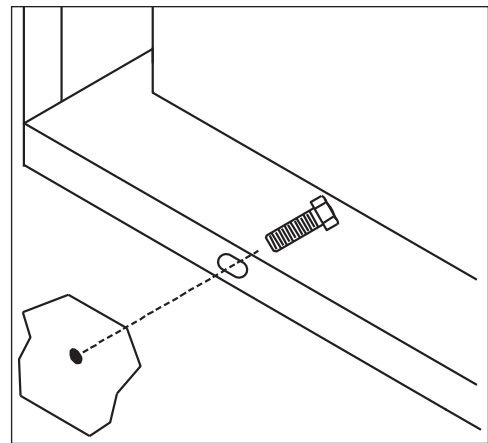


Figure 6: Wall Mounting without Bracket

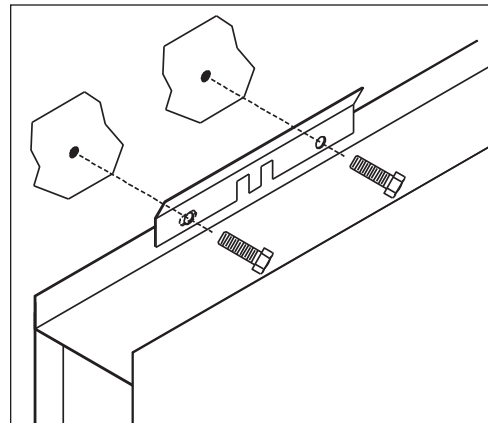


Figure 7: Wall Mounting with Bracket

Note: Before upper cabinet sections are attached, it will be easier to make power and signal connections between each bottom cabinet section. Refer to **Section 3: Electrical Installation (p.8)** for more information on power/signal installation.

5. Remove the eyebolts from the bottom cabinets, and use them to lift the upper cabinets into place. The bottom rear flanges of upper cabinets will not be mounted to the wall; instead, they will rest inside the mounting brackets of the cabinets in the row below. Refer to **Figure 8**.
6. Secure the upper-most sections to the wall by attaching 1/2" mounting hardware through all obround holes on the top rear flange of the cabinet (similar to the bottom flange attachment shown in **Figure 6**).

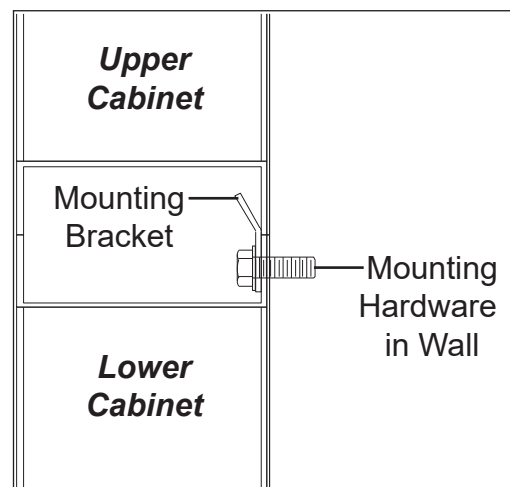


Figure 8: Upper Cabinet Placement

Shot Clock Mounting

Reference Drawings:

Backstop Mounting Suggestions..... **DWG-91230**

Single-sided shot clocks may be mounted to a wall in the same manner as described in **Wall Mounting (p.5)**.

Multi-sided shot clocks are frequently mounted to vertical backstop supports. Refer to **DWG-91230** in **Appendix B** for shot clock mounting information.

Note: Daktronics does not supply the hardware or brackets to mount shot clocks to backstops and is not responsible for the integrity or suitability of mounting systems manufactured and installed by others.

Hockey Scoring Modules

Reference Drawings:

Hockey Scoreboard Configurations..... **DWG-169166**

Hockey scoring modules are small sections that show additional game information, such as penalty times or shots on goal. Modules can be combined with the main scoreboard as well as other modules to form many unique arrangements. For more information on modular scoring configurations, refer to **DWG-169166** in **Appendix B**.

If any modules are to be mounted in a vertical arrangement, the signal cables for the bottom displays must be installed and connected before the upper sections are positioned and secured. Refer to **Statistics Display and Hockey Module Signal Connection (p.12)**.

Ad Panel Mounting

Reference Drawings:

ID or Ad Panel Mounting to Scoreboard..... **DWG-156134**

Ad panels may be mounted to a wall in the same manner as a display described in **Wall Mounting (p.5)**. If an ad panel is to be mounted directly to the top or bottom of a scoreboard cabinet, refer to **DWG-156134** in **Appendix B**.

3 Electrical Installation

CAUTION: Only qualified individuals should perform routing and termination to the display. Electrical contractors are responsible for ensuring that all electrical work meets or exceeds local and national codes. Daktronics engineering staff must approve all changes or the warranty will be void.

Installation Overview

Reference Drawings:

- Block Diagram: AS5000 BB- VB and WR #1 **DWG-124686**
- Block Diagram: AS5000 BB- VB and WR #3..... **DWG-124688**
- Block Diagram, A/S 3000 or 5000 Hockey..... **DWG-124689**

Figure 9 illustrates a wired setup between a scoreboard and controller. Daktronics part numbers are shown in parentheses. **DWG-124686**, **DWG-124688**, and **DWG-124689** in **Appendix B** also show power and signal layouts.

Control signal cable and some junction boxes are not provided as part of this system and can be purchased locally or from Daktronics.

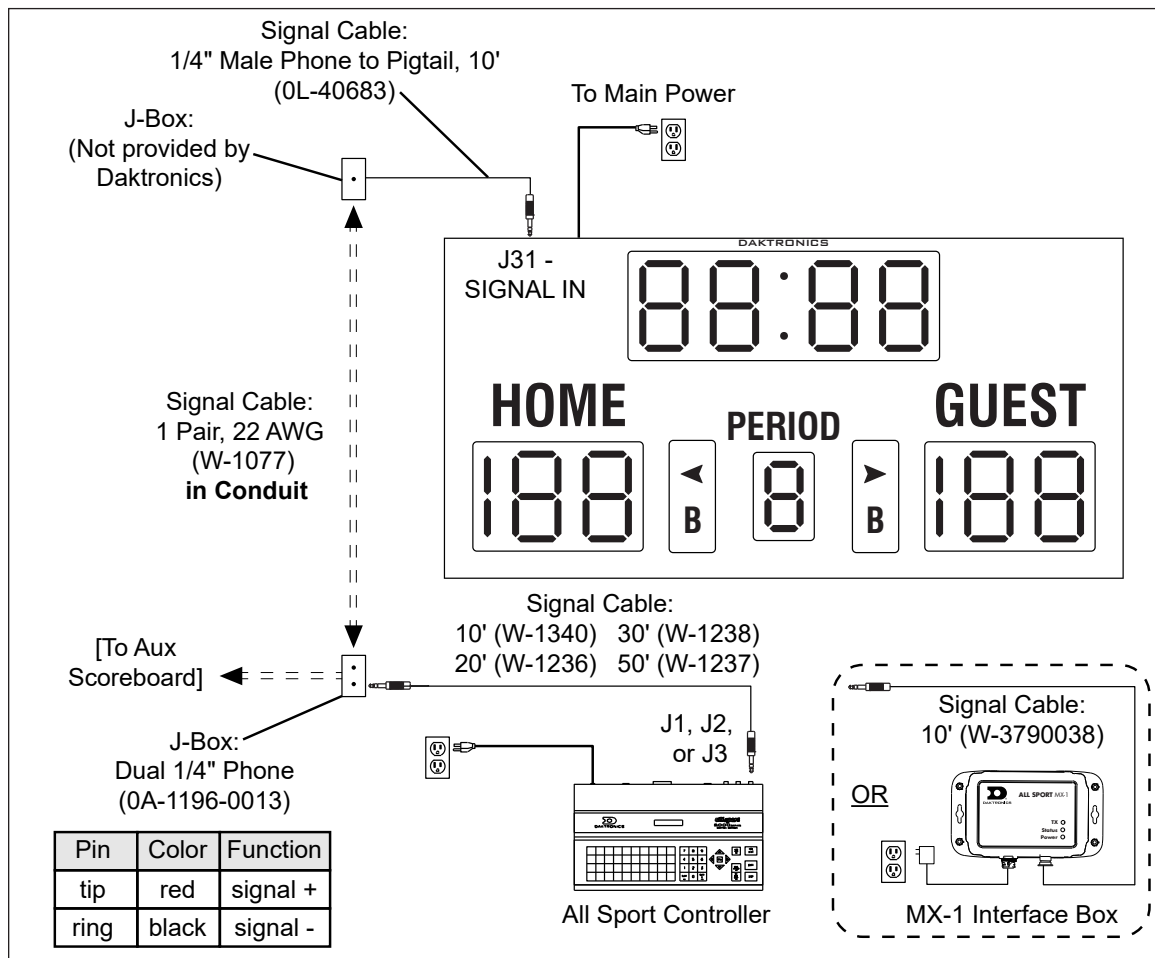


Figure 9: Wired Installation

Figure 10 illustrates a wireless setup between a scoreboard and controller. Refer to **Wireless Signal Connection (p.11)** for more information about the wireless radio option.

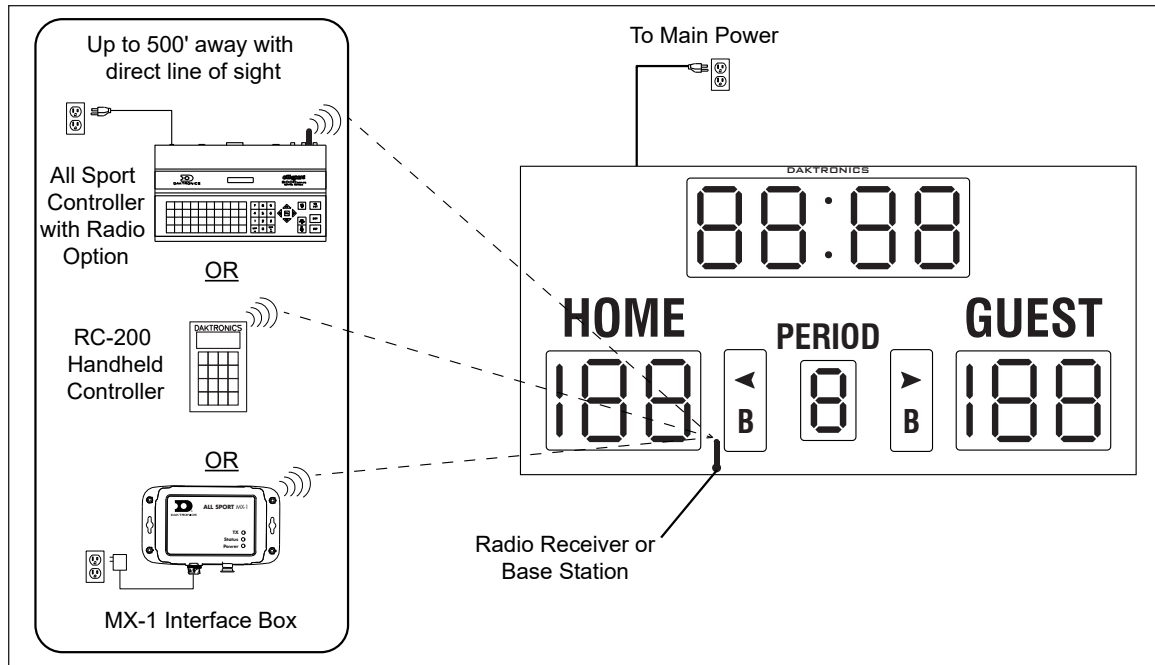


Figure 10: Wireless Installation

Power

Only qualified individuals should complete the electrical installation; untrained personnel should not attempt to install these displays or any of the electrical components. Improper installation can seriously damage the equipment and be hazardous to personnel.

Most displays feature a 120 VAC power cord with a three-prong plug. Install a grounded receptacle nearby so that the power cord can easily reach it. The control console requires a 120/240 VAC receptacle and uses less than 1 A of power.

Note: Several shot clock models do not include a power cord. Also, certain scoring modules require connections to other scoreboards for power and signal. Refer to **Shot Clock Power/Signal Connection (p.13)** and **Statistics Display and Hockey Module Signal Connection (p.12)** for more information.

Displays operating on 240 VAC are also available (excluding ColorSmart models), and they ship equipped with a universal power plug.

Grounding

All components of a display system – including but not limited to displays, control equipment, and connected peripheral equipment – must be electrically grounded. Only qualified individuals may perform electrical work, including verification of ground resistance. Daktronics is not responsible for improper grounding or damage incurred as a result of improper grounding.

Grounding methods must meet the provisions of all applicable local and national codes. Inspect and verify all grounding methods meet the provisions of all applicable local and national codes.

Proper grounding is necessary for reliable equipment operation and general electrical safety. Failure to properly ground the display system may void the warranty, disrupt operation, damage equipment, and cause bodily harm or death.

Lightning Protection

The use of a disconnect near the display to completely cut all current-carrying lines significantly protects the circuits against lightning damage. Local and national electrical codes also may require it. In order for this system to provide protection, the power must be disconnected when the display 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 display components can also damage the console's circuitry.

Power-On Self-Test (POST)

The display performs a self-test each time that power is turned on and the control console is powered off or not connected. If the control console is connected and powered on, the self-test does not run, and data from the control console appears on the display after a few seconds. Each self-test pattern will vary depending on the model, the number of drivers, and types of digits. **Figure 11** shows an example of the LED bar test pattern that each digit performs.

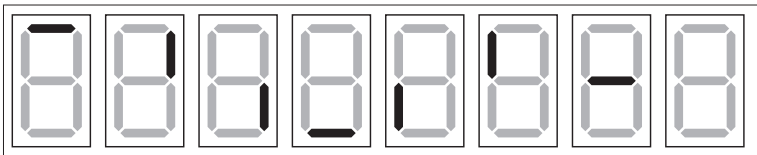


Figure 11: Digit Segment POST

Wired Signal Connection

Reference Drawings:

Signal Connection; Installation	DWG-28124
Schematic; Dual 1/4" Phone J-box w/ Shunt Jack	DWG-125316

Wired signal installation requires routing control cable from the control console to a signal junction box (J-box) near the display. Refer to **Figure 9** for typical signal layout. Refer also to **DWG-28124** and **DWG-125316** in **Appendix B** for signal wire connection. At a minimum, use a paired, 22 AWG shielded cable (Daktronics part # W-1077).

1. Connect the cable to a dual 1/4" J-box at the control console end.

Note: Using a dual J-box for separate Main and Auxiliary scoreboards lets operators control several displays with one controller, and they can also switch jacks to control individual displays using multiple controllers.

2. Route the cable in conduit from the J-box on the control console end to a J-box near the display.
3. Install the 1/4" phone plug (part # 0L-40683) to the display end of the cable. Be sure to connect the cable shielding only in the J-box on this end. DO NOT connect cable shielding at the J-box near the control console.
4. Insert the plug into the **J31 – SIGNAL IN** jack located on the top of the display.
5. Connect a signal cable from the J-box on the control console end to the **J1, J2, or J3** jack on the back of the All Sport 5000/5500 console (or **J1/J2** on the All Sport 1600).

Note: For DAK Score control, connect the 10' (3.05 m) cable (part # W-3790038) between the MX-1 Interface Box and this J-box.

6. If using a Main Clock Start/Stop Switch (0A-1166-0003), connect it to the **J4** jack on the All Sport 5000/5500 console.

BB-2117 and BB-2119 Power/Signal Connection

Route the interconnect cable (**P51**) located in the left side of the BB-2117/BB-2119 up through the hole in the top of the cabinet into the hole in the bottom of the BB-2116 and connect to a mating interconnect cable (**J51**).

Wireless Signal Connection

All Sport Radio Control

A wireless radio system requires a radio receiver plugged into the 6-pin **J21** jack on the primary driver and mounted internally to the front panel of the display. For more information, refer to the **Gen VI Radio Installation Manual (DD2362277)**, provided with the receiver unit and available online at www.daktronics.com/manuals.

RC-200 Control

A hand-held RC-200 wireless radio control system requires a base station receiver plugged into the 6-pin **J21** jack on the primary driver and mounted internally to the front panel of the display. For more information, refer to the appropriate manual listed in **Display Controllers (p.2)**.

If an All Sport radio receiver and an RC-200 base station are both installed in the same display, the wireless device that takes precedence is the one that the receiver finds active first; it will control the display until the signal is no longer present.

Radio Settings

With an All Sport radio receiver or RC-200 base station installed, watch for the radio Broadcast settings ("b1") and Channel settings ("C1") in the clock digits or Home and Guest scores during the **Power-On Self-Test (POST) (p.10)**. Refer to **Figure 12**.

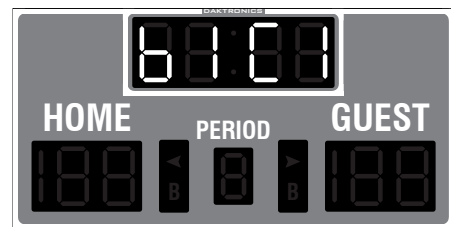
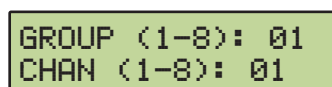


Figure 12: Radio Settings in Clock Digits

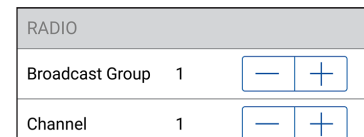
These values must match the settings in the control console/scoring app. Refer to the controller screens below and the manual listed in **Display Controllers (p.2)**.



All Sport Radio Settings



RC-200 Radio Settings



DAK Score App Settings

If the radio receiver channel and broadcast settings match those set in the console/scoring app but the console does not control the display, there may be radio interference. This can occur when a nearby display also uses radio control. In this case, change the settings of the wireless radio receiver inside the display as described in the appropriate controller or radio installation manual.

Statistics Display and Hockey Module Signal Connection

Reference Drawings:

Block Diagram: AS5000 BB- VB and WR #3..... **DWG-124688**

Figure 13 shows the connections required between a scoreboard and two statistics displays. The same signal cable routing applies to hockey scoring modules. Refer to **Figure 9** for more information about connecting the signal wiring that runs from the scoreboard to the controller. Refer also to **DWG-124688** in **Appendix B**.

1. For wired signal connection to the main scoreboard, first follow **Steps 1–6** in **Wired Signal Connection (p.10)**.

Note: For wireless setups, refer to **Wireless Signal Connection (p.11)**.

2. Connect a 1/4" phone plug cable between the **J32 – SIGNAL OUT** jack on top of the main scoreboard to the **J31 – SIGNAL IN** jack on top of the right (GUEST) stat panel or scoring module.
3. Connect another 1/4" phone plug cable between the **J32 – SIGNAL OUT** jack on top of the right (GUEST) stat panel or scoring module to the **J31 – SIGNAL IN** jack on top of the left (HOME) stat panel or scoring module.

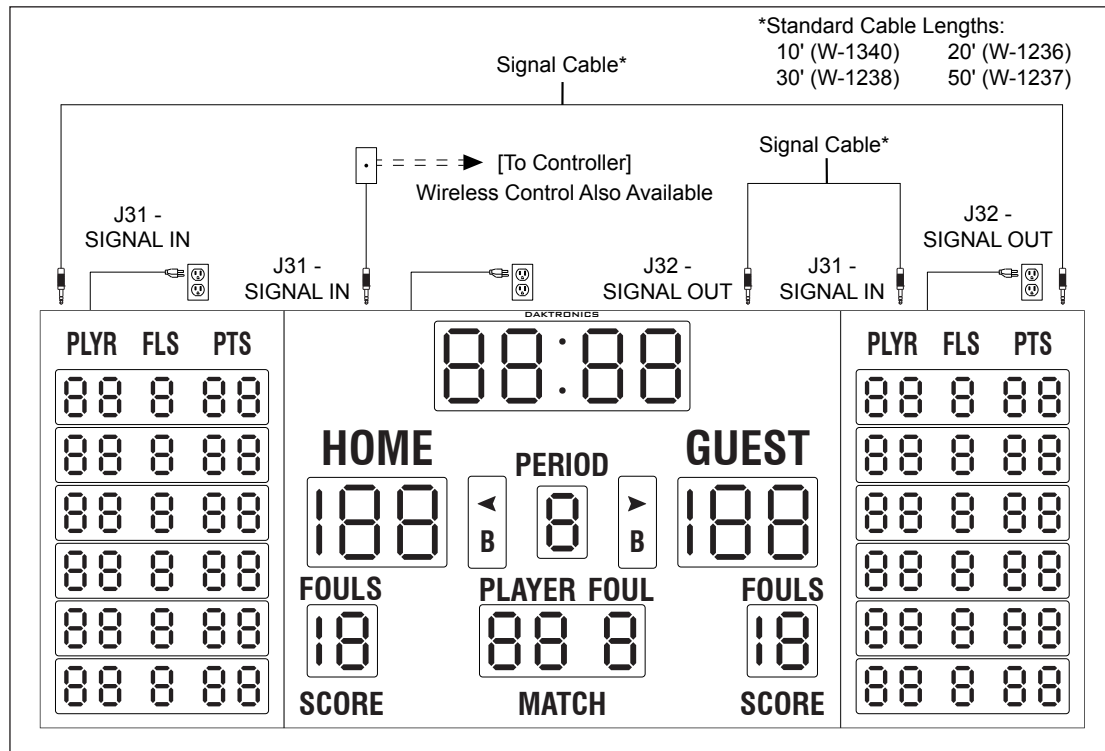


Figure 13: Statistic Display Installation

Note: If any scoring modules are to be mounted below the main scoreboard, ensure the right (GUEST) scoring module has a signal cable connected to the **SIGNAL IN** jack and another cable running from the **SIGNAL OUT** jack to the **SIGNAL IN** jack of the left (HOME) scoring module prior to securing the upper scoreboard cabinet(s).

H-2103 Connection

H-2103 hockey scoring modules must connect to an H-2102 or H-2115. H-2103 modules may be placed above, below, or beside other scoreboard sections and are equipped with digit jacks on both the top and the bottom of the cabinet. Connect the two **DIGIT INPUT** jacks (**J11** and **J12**) to the matching **DIGIT OUTPUT** jacks (**J11** and **J12**) using the included 9-pin to 9-pin cables.

Shot Clock Power/Signal Connection

Reference Drawings:

Wiring for Shot Clock on Portable Backstop..... **DWG-98293**

Block Diagram: AS5000 BB- VB and WR #3..... **DWG-124688**

For wiring of permanent or portable shot clocks, refer to **DWG-124688** in **Appendix B**. For a typical installation of a shot clock mounted to a portable backstop structure, refer to **DWG-98293**.

Some shot clock models include a power cord while others include a twist-lock plug for connection to the shot clock's power inlet; the cord itself must be sourced locally and terminated between the shot clock and grounded receptacle.

Shot clocks may be controlled via radio rather than wired signal connection. Refer to **Wireless Signal Connection (p.11)**.

4 Scoreboard Options

Time of Day Mode

Time of Day (TOD) mode allows the scoreboard to function as a clock when no All Sport signal is present. The instructions below DO NOT apply to ColorSmart models.

Note: TOD mode is available on scoreboards with driver firmware version 1.0 or higher. Also, the scoreboard must have at least four clock digits.

To enable Time of Day mode:

1. **Unplug the power cord from the scoreboard.**
2. Access the scoreboard driver to which the clock digits are connected. Refer to the component location drawings attached to the product specification sheets listed in **Appendix A**.

3. At the bottom of the driver are two address switches labeled "H" and "L."

Record the position of both switches here as they will need to be returned to their exact positions later:

H	
L	

4. Use a small flathead screwdriver to move both H and L address switches to the "F" position (**Figure 14**). This will set the scoreboard driver to Diagnostics Mode.

5. Reapply power to the scoreboard. If the driver has successfully entered Diagnostics Mode, the "RUN" LED (DS2) will be blinking at a fast rate, about four times per second.

6. Rotate the L address switch to the "0" position (**Figure 15**). The "232" LED (DS1) will blink to show a change has been made:

- Three blinks = Time of Day Enabled
- Two blinks = Time of Day Disabled

7. To exit Diagnostics Mode, rotate the High address switch (H) to any value other than "F."

THIS STEP MUST BE PERFORMED TO SAVE THE TIME OF DAY SETTING!

8. Set both address switches back to their original positions as recorded in **Step 3**. Note that the "RUN" LED (DS2) will now be blinking slower, about once per second, and the scoreboard will finish the power-up sequence to operate as normal.

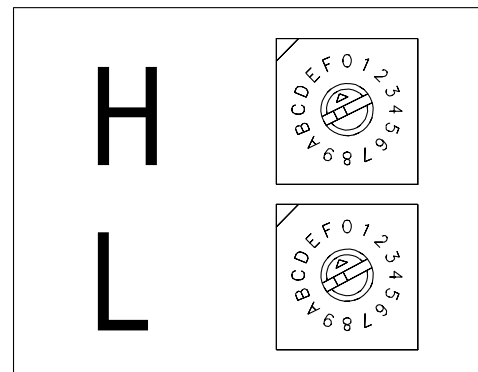


Figure 14: Address Switch Settings – Diagnostic Mode

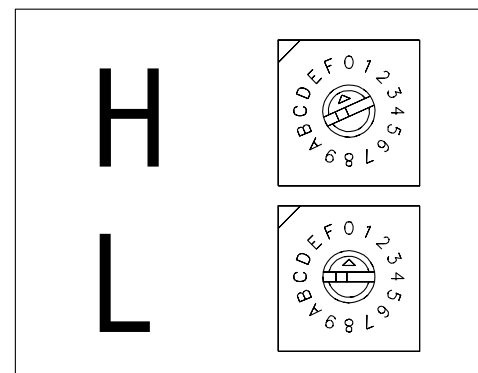


Figure 15: Address Switch Settings – Time Of Day Mode Enable

To adjust the Time of Day settings, refer to the All Sport control console operation manual.

Team Name Message Centers and Electronic Captions

Team Name Message Centers (TNMCs) are programmable LED displays that allow scoreboards to show custom Home and Guest names. Electronic captions, on the other hand, are pre-programmed to only show specific labels to match the captions for a particular sport mode, making it much simpler to switch between sports. TNMCs and electronic captions are typically factory-installed, but they can also be added later, after the scoreboard has been mounted. For more information about TNMCs or electronic captions, contact a Daktronics representative or refer to the service manual listed in **Troubleshooting (p.2)**.

Horns

Reference Drawings:

12V DC Horn Option Installation **DWG-148960**

Daktronics indoor scoreboards are equipped with a 120 VAC vibrating horn mounted behind the cabinet face. The horn sounds automatically when the period clock counts down to zero, or when manually triggered by the operator using the control console.

Installation of an optional 12 VDC horn is detailed in **DWG-148960** in **Appendix B**. Louder trumpet horns are also available. Contact Daktronics for information and pricing.

Adjusting Horn Volume

CAUTION: The horn is a 120 VAC device. Turn off power before adjusting the horn.

The volume for the electronic, buzzer-type horn is set at its maximum level at the factory. If the horn is too loud, reduce its volume by adjusting the setscrew mounted in the front of the horn. A plastic tip on the screw touches the horn's diaphragm, reducing the volume. Turn the screw clockwise and test the volume by operating the horn from the scoreboard control console. Continue adjusting and testing until the desired volume level is obtained.

Note that with spectator noise, the horn will not seem as loud as when it is being tested in an empty area. Be sure to set the volume according to the acoustics of the facility.

Visual Horn Indicator (VHI)

In addition to the horn, Daktronics offers a visual horn indicator (VHI) that lights up when the buzzer sounds. To install a VHI, the existing horn wiring must be tapped into in order to provide power and signal. For more information about installing the VHI option, including details on the inputs, outputs, and switches of a shot clock relay board that controls when the VHI should be turned on, refer to the **VHI (ED-13397)** or **BB-2133 (ED-13806)** **Installation Instructions**.

Light Strips

LED light strips are a common option for backstops to indicate the end of the period or to show that the shot clock time has expired. For installations that use backstop LED light strips, refer to the **LED End-of-Period Basketball Lighting Display Manual (ED-13652)**.

Double Bonus Indicators

All of the clock/score basketball scoreboards in this manual have the option to include double-bonus indicators, which are factory installed. This option is illustrated in the component location drawings attached to the product specification sheets listed in **Appendix A**.

Time Outs Left (TOL) Digits

Reference Drawings:

T.O.L. Option Installation **DWG-149030**

Certain scoreboards have the option to add a time outs left (TOL) digit for both the home and guest teams. These digits are installed by simply unscrewing the blank face panel, connecting and securing the digit, and manually applying the "T.O.L." caption. Refer to **DWG-149030** in **Appendix B** for more information.

Changeable Caption Kits

Reference Drawings:

Changeable Team Name Caption Installation **DWG-1132576**

Team name and statistics caption kits contain hardware for one caption only and consist of an upper caption retainer, a lower caption retainer, a changeable caption panel and screws. The standard HOME and GUEST captions are applied directly to the face of the scoreboard. Team name captions are on changeable panels that fit into retainers mounted above and below the standard captions. If these retainers are not already present, attach the retainers included with the caption kit. Caption kits are also available for certain statistics display models to switch between basketball, volleyball, wrestling, and hockey modes.

Refer to **DWG-1132576** in **Appendix B** for changeable caption installation instructions.

Goal Lights

To install optional hockey goal lights, refer to the **Indoor Hockey Goal Lights Manual (ED-13358)**.

Protective Devices

Daktronics indoor displays have been designed so that indoor sports balls impact will not damage the LEDs or display cabinet, reducing the need for protective devices. However, Daktronics also makes optional protective devices, including screens and netting, to help prevent damage to the display due to normal ball impacts. Refer to the **Protective Screen Installation Instructions (ED-5423)** for more information about installing protective devices.

Note: Some customers may choose to install devices to protect the display from projectiles. Protective devices not provided by Daktronics must be approved by Daktronics prior to installation. Failure to follow this approval procedure will void the warranty.

5 Daktronics Exchange and Repair & Return Programs

Exchange Program

The Daktronics Exchange Program is a service for quickly replacing key components in need of repair. If a component fails, Daktronics sends a replacement part to the customer who, in turn, returns the failed component to Daktronics. This decreases equipment downtime. Customers who follow the program guidelines explained below will receive this service.

Before contacting Daktronics, identify these important numbers:

Display Serial Number: _____

Display Model Number: _____

Job/Contract Number: _____

Date Manufactured/Installed: _____

Daktronics Customer ID Number: _____

To participate in the Exchange Program, follow these steps:

1. Call Daktronics Customer Service.

United States & Canada: 1-800-DAK-TRON (325-8766)

Outside the U.S. & Canada: +1-605-275-1040

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 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. The defective or unused parts must be returned to Daktronics within 5 weeks of initial order shipment.

If any part is not returned within five (5) weeks, a non-refundable invoice will be presented to the customer for the costs of replenishing the exchange parts inventory with a new part. Daktronics reserves the right to refuse parts that have been damaged due to acts of nature or causes other than normal wear and tear.

Repair & Return Program

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

1. Call Daktronics Customer Service.

United States & Canada: 1-800-DAK-TRON (325-8766)

Outside the U.S. & Canada: +1-605-275-1040

2. Receive a case number before shipping.

This expedites repair of the 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. Daktronics does not recommend using packing peanuts when shipping.

4. Enclose:

- name
- address
- phone number
- the case number
- a clear description of symptoms

5. Ship to:

Daktronics Customer Service

[Case #]

201 Daktronics Drive, Dock E

Brookings, SD 57006

Daktronics Warranty & Limitation of Liability

The Daktronics Warranty & Limitation of Liability is located at the end of this manual. The Warranty is independent of Extended Service agreements and is the authority in matters of service, repair, and display operation.

A Specifications

All of the product specification sheets for the displays in this manual are listed below. Product-specific installation and component location drawings are included with each spec sheet.

Note: Refer to **Figure 1** to determine a display's model number.

Viewing Product Specifications Online:

If a specification sheet is incorrect or missing, they are all available for download online.

- When viewing the digital version of this manual, simply click a link below to open it.
- When referencing the printed version of this manual, open an Internet browser and go to www.daktronics.com/Web%20Documents/HSPR-Documents/DD#####.pdf (replace "DD#####" with one of the Spec Sheet numbers shown below).

Model	Spec Sheet	Model	Spec Sheet	Model	Spec Sheet	Model	Spec Sheet
BB-2101	DD2481847	BB-2131	DD2481917	BB-3125	DD2506580	SD-2106	DD2481964
BB-2103	DD2481852	BB-2132	DD2481921	BB-3142	DD2506587	SD-3101	DD2506601
BB-2105	DD2481855	BB-2142	DD2481922	CU-2001	DD1862875	SD-3102	DD2506604
BB-2107	DD2481865	BB-2143	DD2481927	H-2101	DD2541481	SD-3103	DD2506606
BB-2109	DD2481869	BB-2144	DD2481929	H-2102	DD2541488	SD-3106	DD3451128
BB-2111	DD2481872	BB-2152	DD2061941	H-2103	DD2541491	SQ-2001	DD2962304
BB-2114	DD2481873	BB-2153	DD2213495	H-2104	DD2541494	TI-2030	DD1747844
BB-2115	DD2481875	BB-2155	DD2457495	H-2106	DD2541499	TI-2101	DD2594852
BB-2116	DD2481881	BB-3101	DD2506515	H-2108	DD2541505	TI-2102	DD2594853
BB-2117	DD2481884	BB-3103	DD2506529	H-2111	DD2541518	TI-2103	DD2889079
BB-2119	DD2481889	BB-3105	DD2506535	H-2114	DD2541521	TI-2200	DD2594855
BB-2121	DD2481893	BB-3107	DD2506542	H-2115	DD2541522	TI-3103	DD3264172
BB-2122	DD2481896	BB-3114	DD2506553	SD-2101	DD2481954	VB-2101	DD2568754
BB-2123	DD2481901	BB-3115	DD2506570	SD-2102	DD2481956		
BB-2125	DD2481911	BB-3121	DD2506571	SD-2103	DD2481959		
BB-2130	DD2481915	BB-3123	DD2506573	SD-2104	DD2481962		

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B Reference Drawings

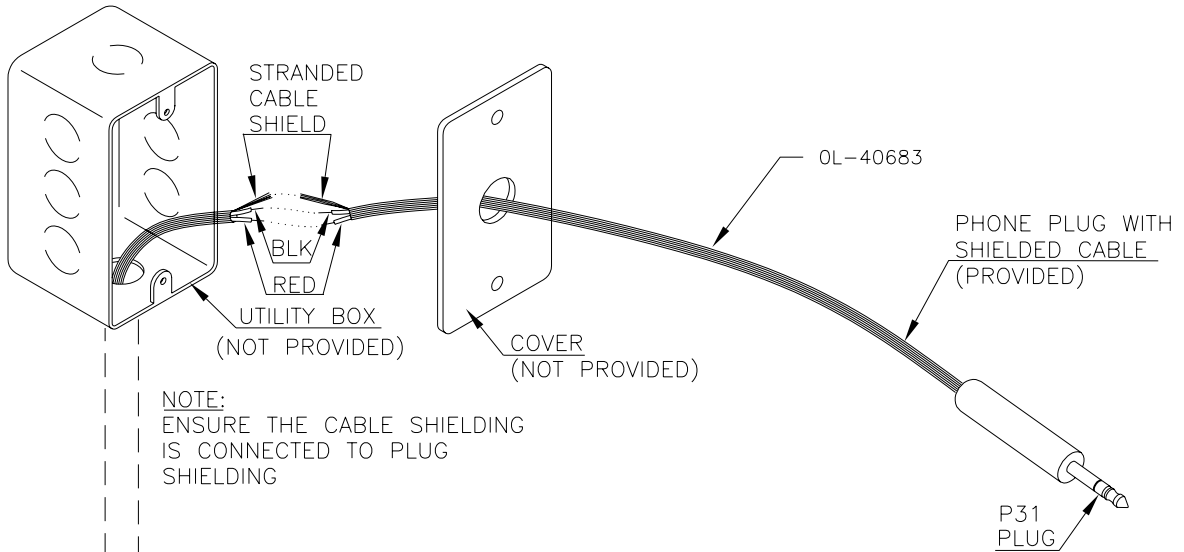
Refer to **Resources (p.1)** for information regarding how to read the drawing number. Any contract-specific drawings take precedence over the general drawings.

Reference Drawings:

- Signal Connection; Installation **DWG-28124**
- Backstop Mounting Suggestions..... **DWG-91230**
- Wiring for Shot Clock on Portable Backstop..... **DWG-98293**
- Block Diagram: AS5000 BB- VB and WR #1 **DWG-124686**
- Block Diagram: AS5000 BB- VB and WR #3..... **DWG-124688**
- Block Diagram, A/S 3000 or 5000 Hockey..... **DWG-124689**
- Schematic; Dual 1/4" Phone J-box w/ Shunt Jack **DWG-125316**
- 12V DC Horn Option Installation **DWG-148960**
- T.O.L. Option Installation **DWG-149030**
- Corner Mounting **DWG-150831**
- ID or Ad Panel Mounting to Scoreboard **DWG-156134**
- Hockey Scoreboard Configurations..... **DWG-169166**
- Suspension Lift Eye Installation **DWG-1130959**
- Changeable Team Name Caption Installation..... **DWG-1132576**

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DISPLAY LOCATION



NOTE:
ENSURE THE CABLE SHIELDING
IS CONNECTED TO PLUG
SHIELDING

PROCEDURE

1. ROUTE CONDUIT BETWEEN CONTROL AND DISPLAY LOCATIONS.
2. MOUNT BOXES.
3. PULL CABLE THROUGH CONDUIT.
4. CONNECT CABLE TO J31 AND P31

J31: USE CONNECTORS PROVIDED.
INSERT WIRES INTO CONNECTOR
AND SQUEEZE CONTACT
DOWN WITH PLIERS. SNAP PLASTIC
COVER SHUT.

P31: CONNECT WIRES TO CABLE AS
FOLLOWS:

- J31 RED TO P31 RED (+)
- J31 BLK TO P31 BLK (-)
- J31 SHIELD TO P31 SHIELD

NOTE!!

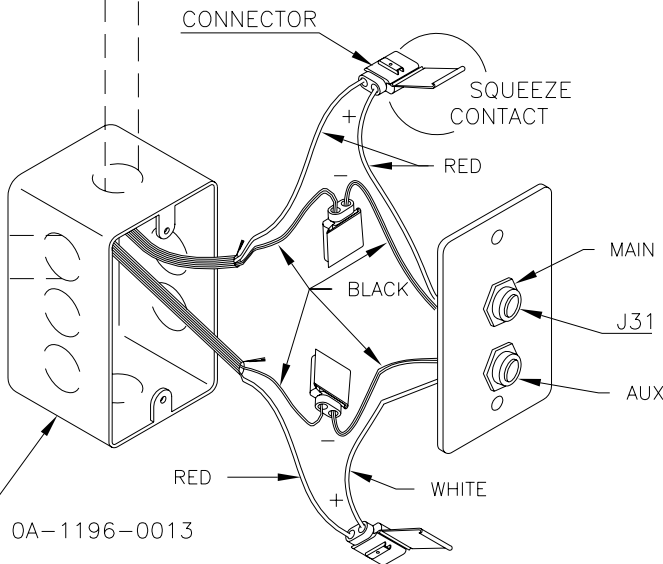
DO NOT CONNECT
CABLE SHIELD AT
CONTROL CONSOLE END

SHIELDED CABLE
IN CONDUIT
(NOT PROVIDED)

TO MAIN BOARD

TO AUX BOARD

J-BOX
(PROVIDED)

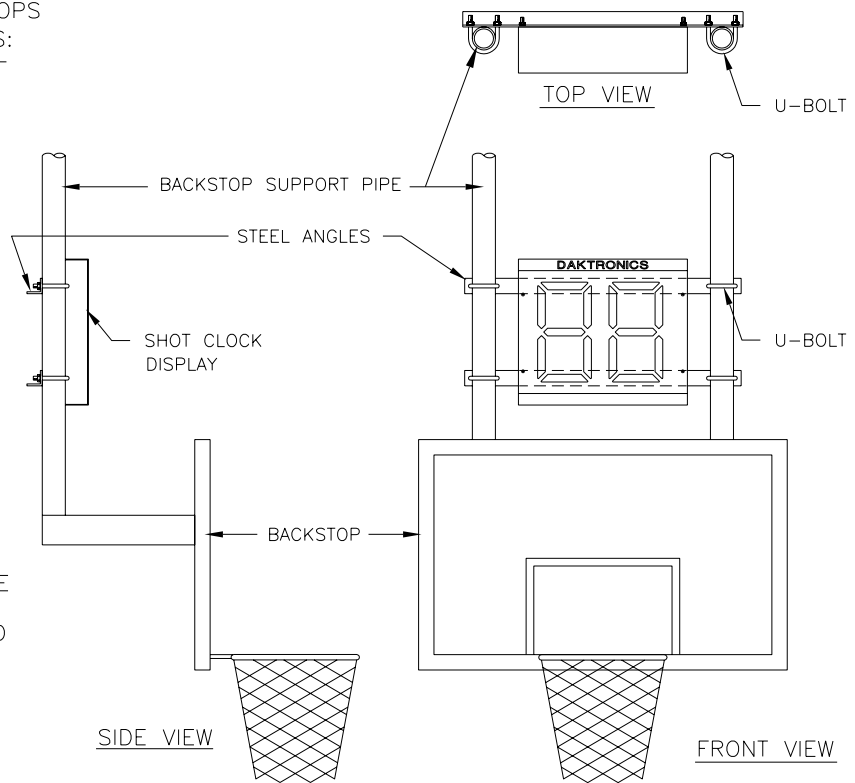


CONTROL LOCATION

05	30 JUL 03	BOLD FACED GROUNDING NOTE	TLH	
04	17 JUN 03	CHANGED GROUNDING PROCEDURES	JJC	MWM
3	17 JAN 02	ADDED AUX TO J-BOX	JJS	
2	25 MAR 92	CHANGED WHITE TO RED	JTC	
1	05 NOV 91	REDREW ON A-SIZE ON ACAD.	JLH	
REV.	DATE	DESCRIPTION	BY	APPR.

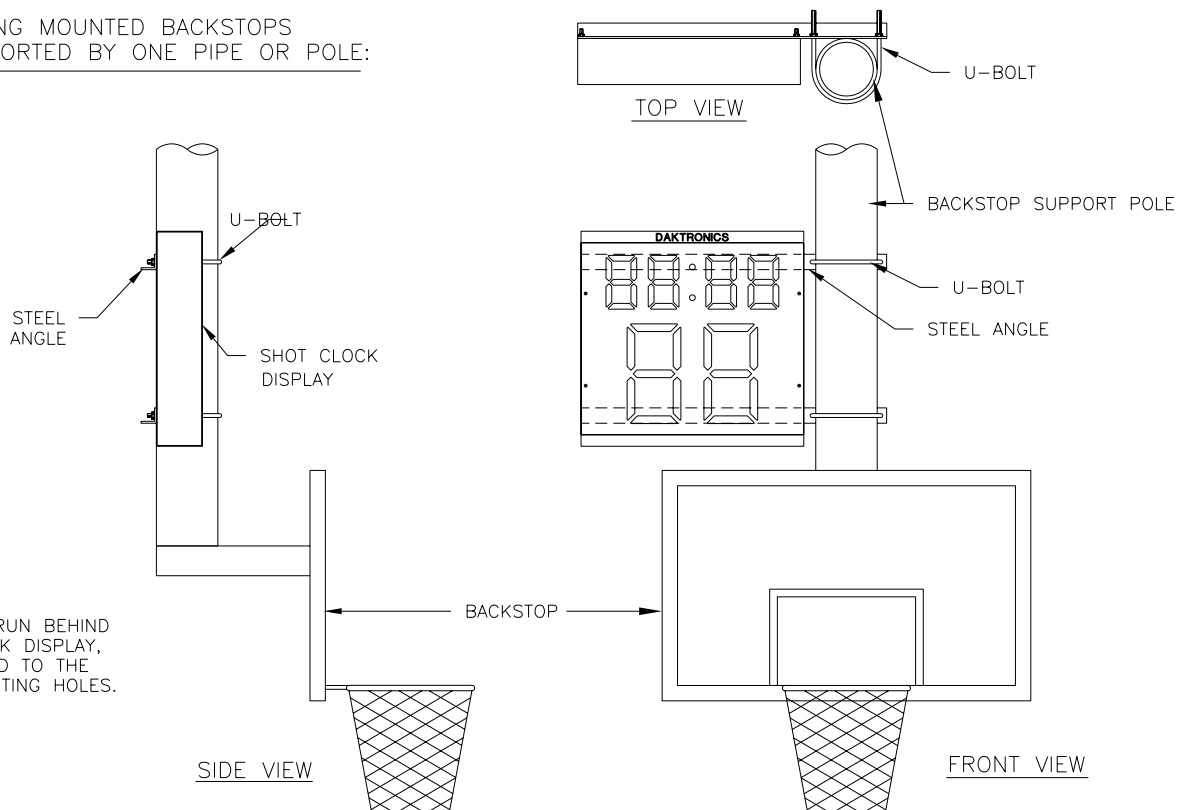
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: BASKETBALL			
TITLE: SIGNAL CONNECTION; INSTALLATION			
DES. BY: AVB		DRAWN BY: MHART	
		DATE: 15SEP86	
REVISION	APPR. BY: AVB	1009-R10A-28124	
05	SCALE: NONE		

CEILING MOUNTED BACKSTOPS
SUPPORTED BY TWO PIPES:



DAKTRONICS DOES NOT SUPPLY THE HARDWARE OR BRACKETS TO MOUNT SHOT CLOCK DISPLAYS TO BACKSTOPS. THE METHODS SHOWN ARE SUGGESTIONS FOR TWO COMMON BACKSTOP TYPES. DAKTRONICS, INC. IS NOT RESPONSIBLE FOR THE INTEGRITY OR SUITABILITY OF MOUNTING SYSTEMS MANUFACTURED AND INSTALLED BY OTHERS.

CEILING MOUNTED BACKSTOPS
SUPPORTED BY ONE PIPE OR POLE:



STEEL ANGLES RUN BEHIND THE SHOT CLOCK DISPLAY, AND ARE BOLTED TO THE DISPLAY'S MOUNTING HOLES.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: BACKSTOP MOUNTING SUGGESTIONS

DES. BY:

DRAWN BY: A VANBEMMEL

DATE: 13 MAR 97

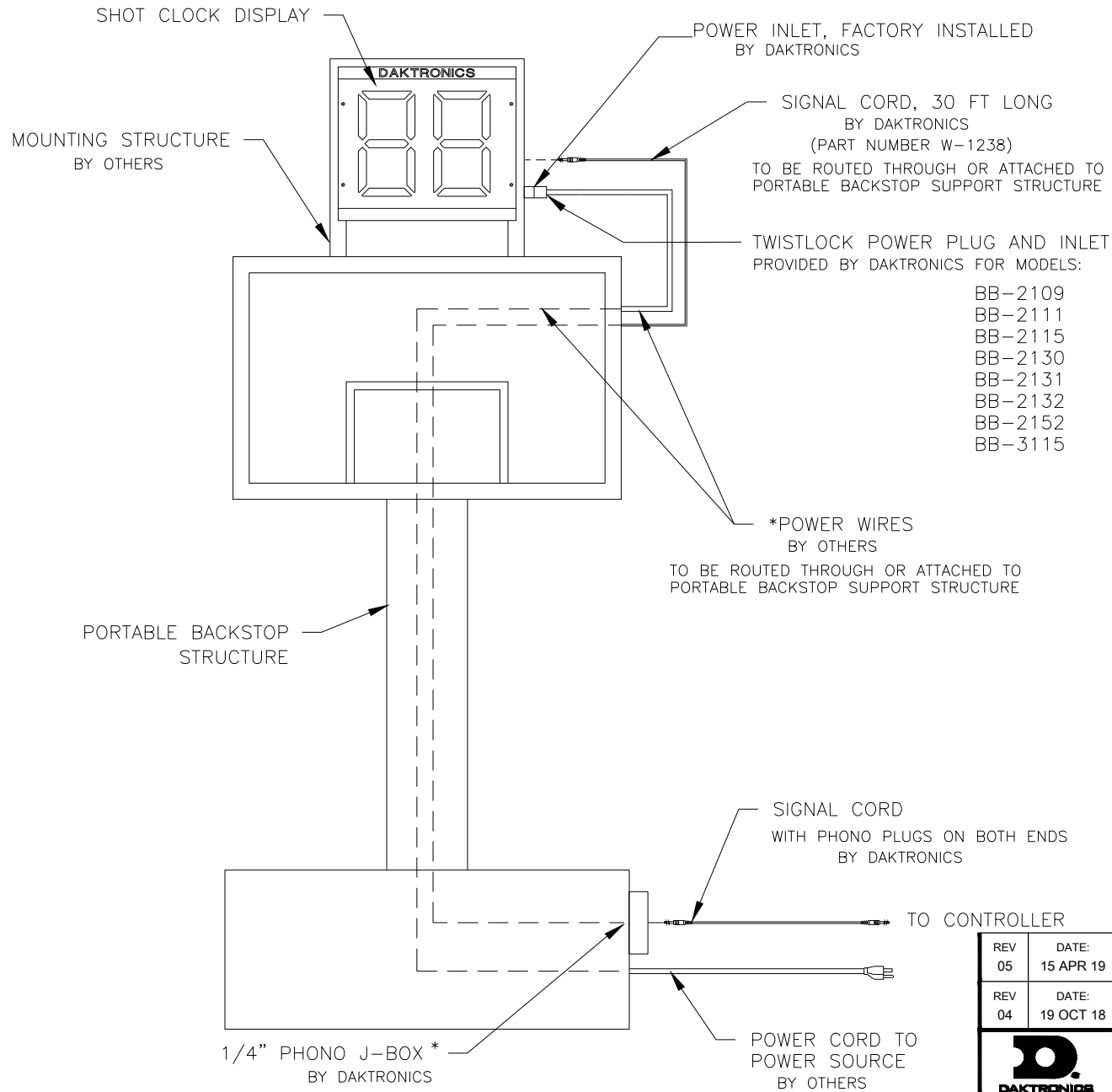
REVISION

APPR. BY:

SCALE: NONE

1009-R10A-91230

REV.	DATE	DESCRIPTION	BY	APPR.



- BB-2109
- BB-2111
- BB-2115
- BB-2130
- BB-2131
- BB-2132
- BB-2152
- BB-3115

* SIGNAL CONNECTORS ARE 1/4" PHONO PLUGS.

REV 05	DATE: 15 APR 19	REMOVED BB-2114/BB-3114 FROM LIST	BY: KDM
REV 04	DATE: 19 OCT 18	UPDATED MODELS THAT USE TWISTLOCK POWER PLUG TO INCLUDE BB-2114, BB-3114, BB-3115, BB-2152, BB-2131	BY: KDM

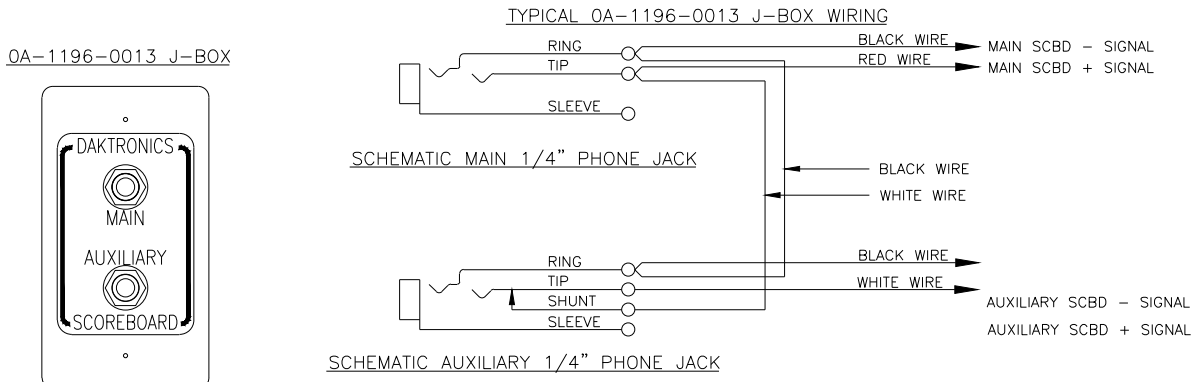
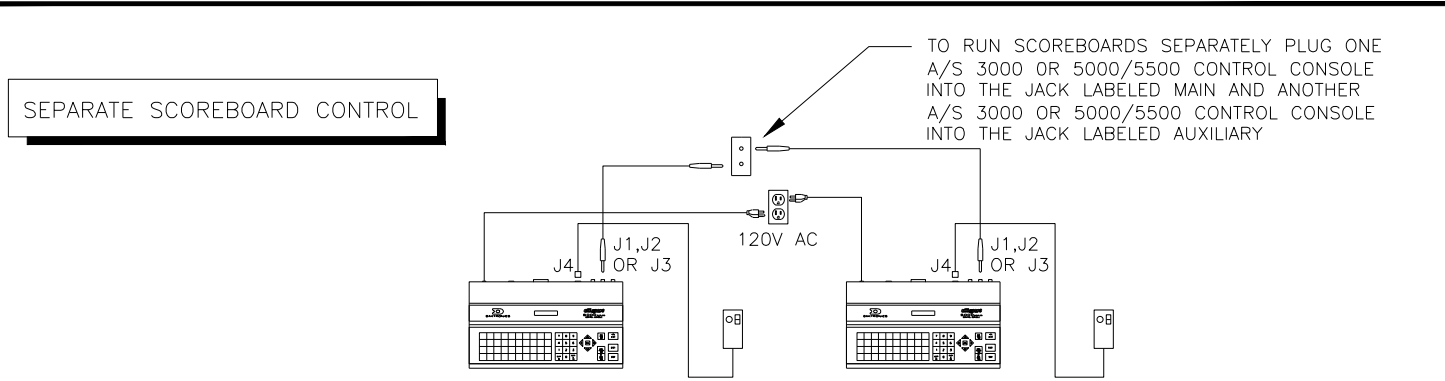
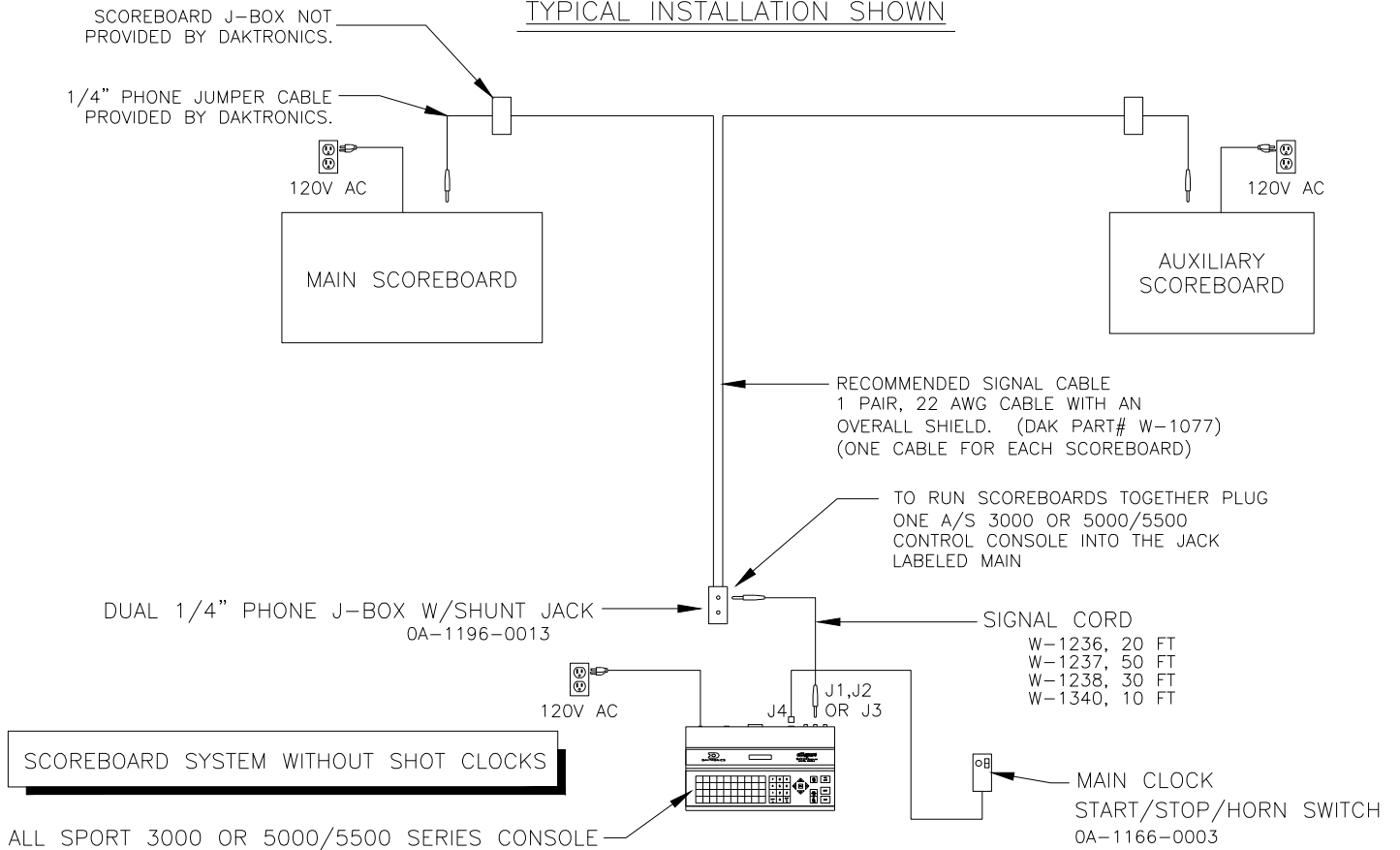
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THIRD ANGLE PROJECTION

PROJECT: BASKETBALL SCOREBOARDS		SHEET		REV
TITLE: WIRING FOR SHOT CLOCK ON PORTABLE BACKSTOP				
DATE: 07 NOV 97	DIM UNITS: INCHES [MILLIMETERS]		SHEET	REV
SCALE: NONE	DO NOT SCALE DRAWING			05
DESIGN: AVB	JOB NO. P1009	FUNC - TYPE - SIZE R - 04 - A		98293
DRAWN: A VANBEMMEL				

NO.	DATE	DESCRIPTION	BY
1			
2			
3			

TYPICAL INSTALLATION SHOWN



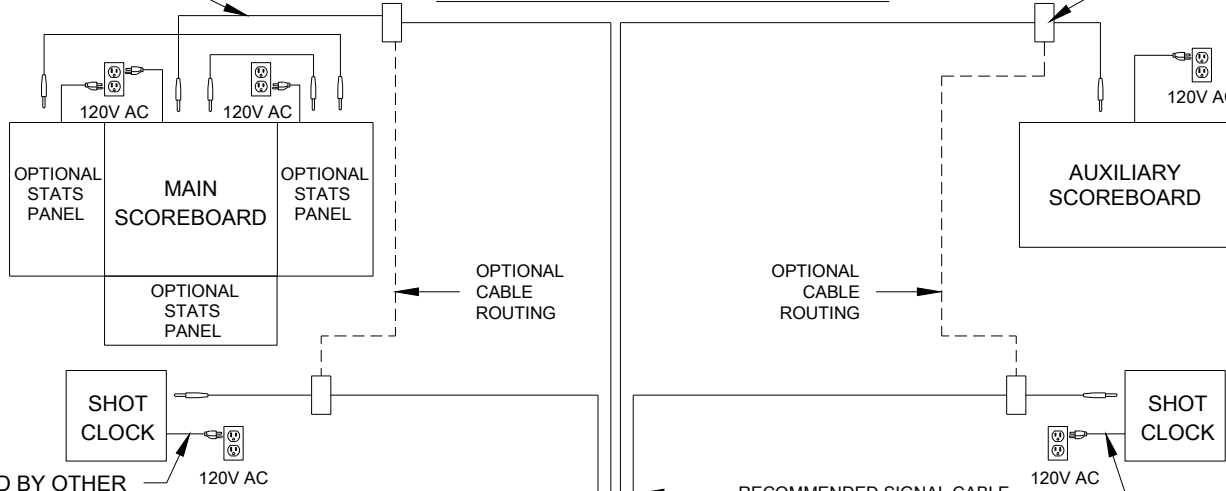
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	DO NOT SCALE DRAWING	
PROJ: ALL SPORT 5000/5500		
TITLE: BLOCK DIAGRAM: AS5000 BB- VB AND WR #1		
DESIGN:	DRAWN: E BRAVEK	DATE: 29 NOV 99
SCALE: NONE		
SHEET	REV	JOB NO:
01	02	P1196
FUNC-TYPE-SIZE		124686
R-04-A		

REV 02	DATE: 17 AUG 11	UPDATED THE BOARDER AND TITLE BLOCK UPDATED TEXT TO INCLUDE 5500 SERIES	BY: JYL
REV 01	DATE: 26 APR 00	ADDED A/S 3000	BY: DKD

TYPICAL INSTALLATION SHOWN

1/4" PHONE JUMPER CABLE PROVIDED BY DAKTRONICS.

SCOREBOARD J-BOXES NOT PROVIDED BY DAKTRONICS.



* POWER CORD INCLUDED ON MODELS BB-2114 AND BB-3114 ONLY

*POWER CORD PROVIDED BY OTHER

*SIGNAL INSTRUCTIONS FOR SCOREBOARD WITH STATS PANELS:

- SIGNAL FROM SOURCE LANDS TO MAIN BASKETBALL SCOREBOARD.
- THEN OUT FROM SCOREBOARD TO IN ON STATS PANEL.
- AND OUT FROM STATS PANEL TO IN ON OTHER STATS PANEL.

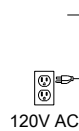
RECOMMENDED SIGNAL CABLE
1 PAIR, 22 AWG CABLE WITH AN OVERALL SHIELD. (DAK PART# W-1077)
(ONE CABLE FOR EACH SCOREBOARD)

TO RUN SCOREBOARDS TOGETHER PLUG ONE A/S 5000/5500 CONTROL CONSOLE INTO THE JACK LABELED MAIN

DUAL 1/4" PHONE J-BOX W/SHUNT JACK
0A-1196-0013

SCOREBOARD SYSTEM WITH SHOT CLOCKS

ALL SPORT 5000/5500 SERIES CONSOLE

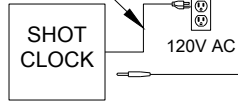


SIGNAL CORD
W-1236, 20 FT
W-1237, 50 FT
W-1238, 30 FT
W-1340, 10 FT

SHOT CLOCK CONTROL
0A-1196-0031

MAIN CLOCK
START/STOP/HORN SWITCH
0A-1166-0003

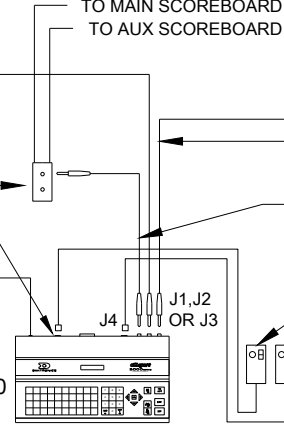
POWER CORD PROVIDED BY OTHER



DUAL 1/4" PHONE J-BOX W/SHUNT JACK
0A-1196-0013

PORTABLE SHOT CLOCK CABLING

ALL SPORT 5000/5500 SERIES CONSOLE

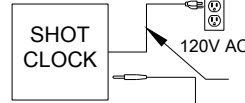


SHOT CLOCK SIGNAL CABLES
W-1381, 100 FT

SIGNAL CORD
W-1236, 20 FT
W-1237, 50 FT
W-1238, 30 FT
W-1340, 10 FT

SHOT CLOCK CONTROL
0A-1196-0031

MAIN CLOCK
START/STOP/HORN SWITCH
0A-1166-0003



POWER CORD PROVIDED BY OTHERS

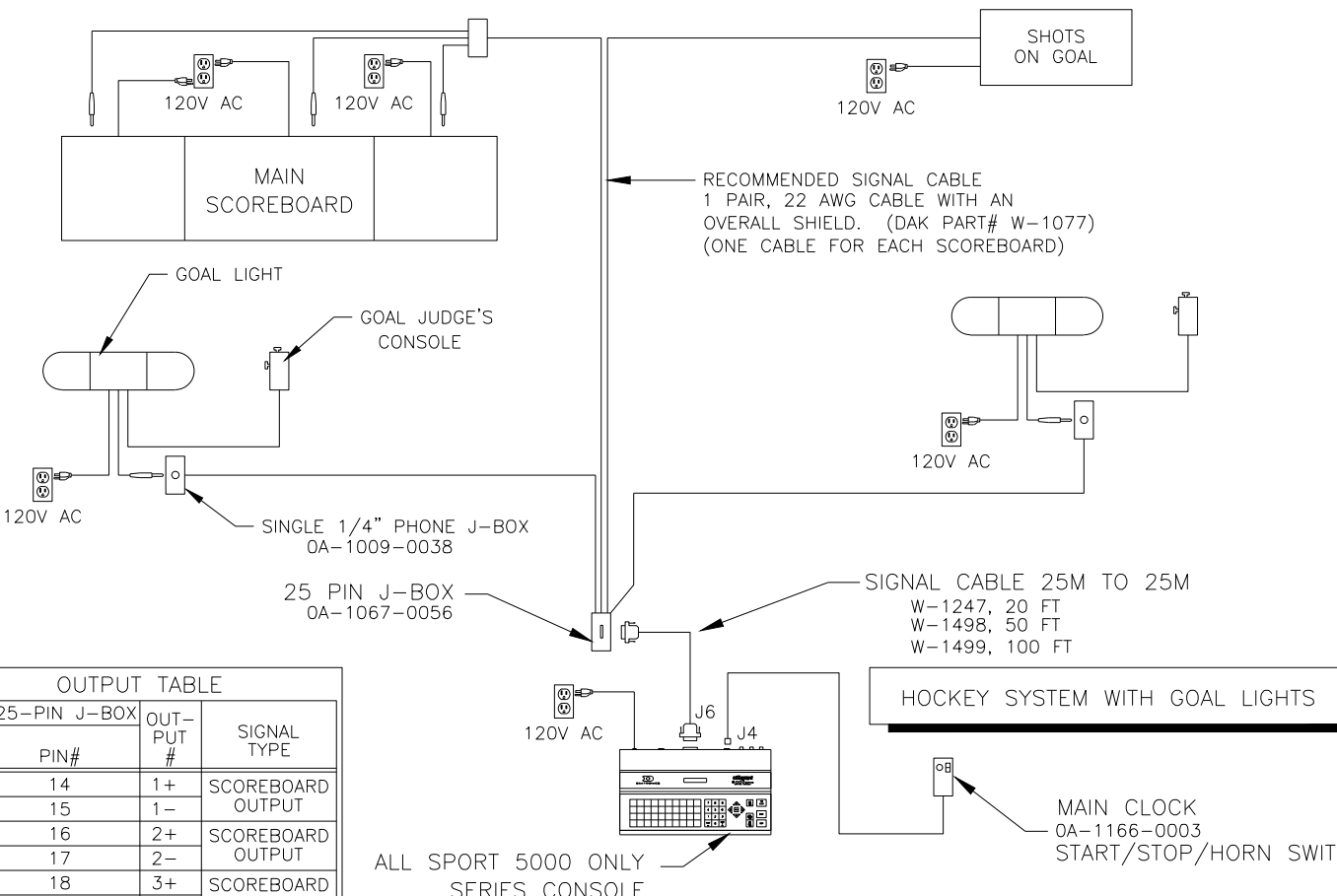
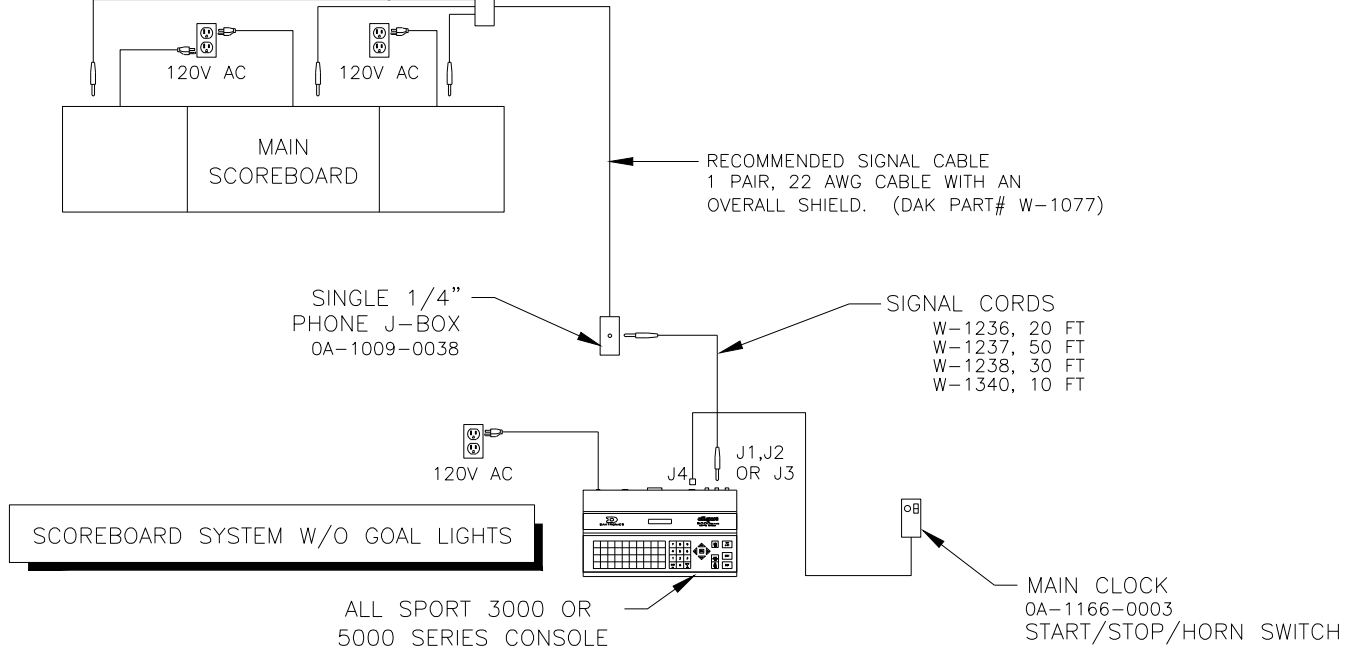
REV 08	DATE: 15 APR 19	ADDED NOTE THAT BB-2114/BB-3114 INCLUDE POWER CORDS	BY: KDM
REV 07	DATE: 28 NOV 18	ADDED NOTE THAT SHOT CLOCK POWER CORDS ARE PROVIDED BY OTHER	BY: KDM

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PROJECT: ALLSPORT 5000/5500		THIRD ANGLE PROJECTION	
TITLE: BLOCK DIAGRAM: AS5000 BB- VB AND WR #3			
DATE: 29 NOV 99	DIM UNITS: INCHES [MILLIMETERS]	SHEET	REV 08
SCALE: NONE		DO NOT SCALE DRAWING	
DESIGN: E BRAVEK	JOB NO. P1196	FUNC - TYPE - SIZE R - 04 - A	124688

SCOREBOARD J-BOXES NOT PROVIDED BY DAKTRONICS.

1/4" PHONE JUMPER CABLE PROVIDED BY DAKTRONICS.



OUTPUT TABLE

25-PIN J-BOX PIN#	OUT-PUT #	SIGNAL TYPE
14	1+	SCOREBOARD OUTPUT
15	1-	SCOREBOARD OUTPUT
16	2+	SCOREBOARD OUTPUT
17	2-	SCOREBOARD OUTPUT
18	3+	SCOREBOARD OUTPUT
19	3-	SCOREBOARD OUTPUT
11	+	GOAL LIGHTS
23	-	GOAL LIGHTS

DAKTRONICS, INC.
 BROOKINGS, SD 57006
 DO NOT SCALE DRAWING

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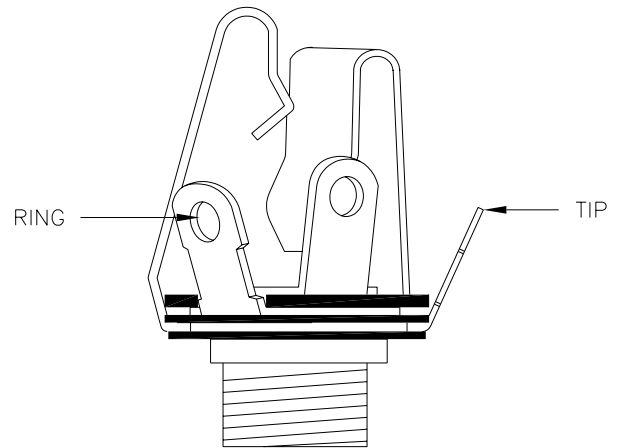
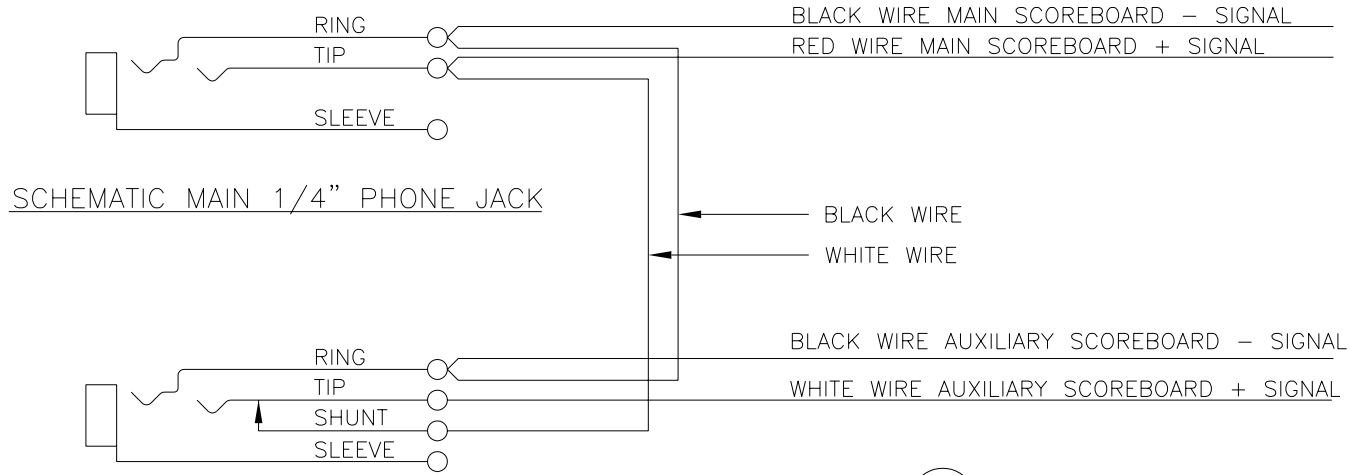
PROJ: ALL SPORT 5000
 TITLE: BLOCK DIAGRAM: A/S5000 HOCKEY

DESIGN: _____ DRAWN: E BRAVEK DATE: 29 NOV 99
 SCALE: NONE

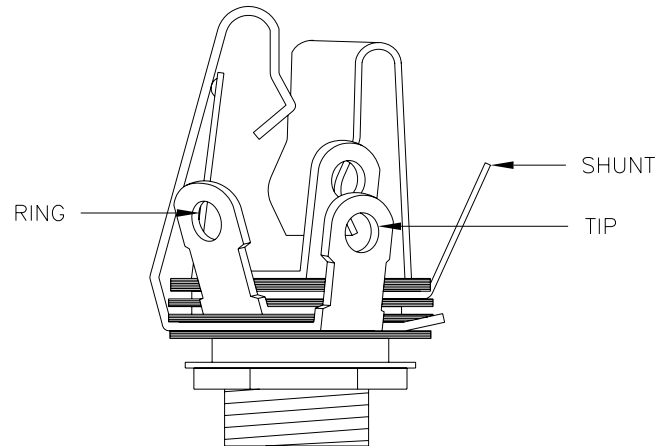
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	02	P 1196	R - 04 - A

124689

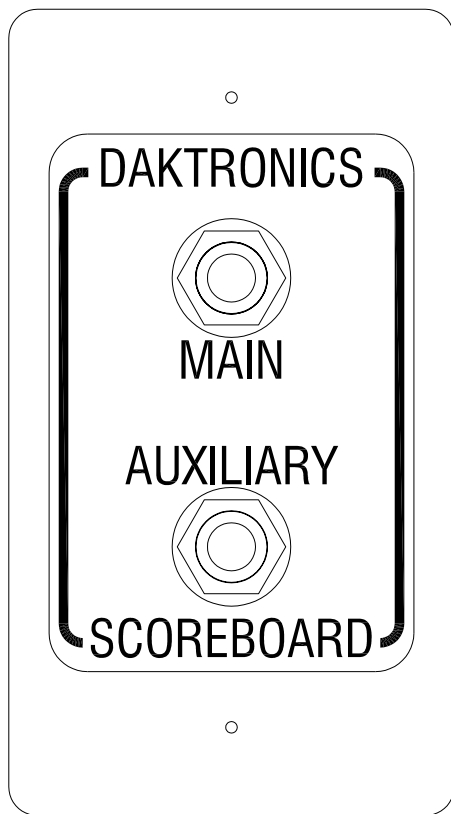
REV 02	DATE: 28 NOV 12	UPDATED PART NUMBERS	BY: KZB
REV 01	DATE: 26 APR 00	ADDED A/S 3000	BY: DKD



MAIN
PHONE JACK
J-1003



AUXILIARY
PHONE JACK
J-1131

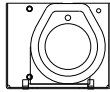


0A-1196-0013

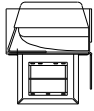
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:			
TITLE: SCHEMATIC; DUAL 1/4" PHONE J-BOX W/SHUNT JACK			
DES. BY: E BRAVEK		DRAWN BY: E BRAVEK	
		DATE: 15 DEC 99	
REVISION	APPR. BY:	1196-R03A-125316	
00	SCALE: NONE		

REV.	DATE	DESCRIPTION	BY	APPR.

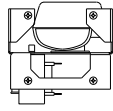
12V DC HORN
IN BRACKET:



TOP VIEW



SIDE VIEW



FRONT VIEW

12V DC HORN OPTION INSTALLATION PROCEDURE

REMOVE THE FOUR SCREWS SECURING THE CLOCK PANEL. DISCONNECT THE PLUGS AT THE BACK OF THE DIGITS, AND UNPLUG THE EXISTING BUZZER TYPE HORN.

REMOVE THE SCREWS THAT ATTACH THE BUZZER HORN TO THE CLOCK PANEL.

MOUNT THE 12V DC HORN TO THE CLOCK PANEL USING THE SCREWS PROVIDED WITH IT.

TAKE THE HORN INTERFACE CARD, WITH HARNESSSES CONNECTED TO IT, AND USE THE TAPE TO SECURE IT TO THE BACKSHEET. MAKE SURE IT IS AN OPEN SPOT SO IT DOESN'T GET TOUCHED WHEN THE PANEL IS PLACED BACK ON.

RUN THE TWO NEW HARNESSSES TO THE DRIVER. DISCONNECT EXISTING PLUG IN J18 ON DRIVER. CONNECT NEW ONE. DISCONNECT EXISTING PLUG IN THE J43 POWER JACK ON DRIVER TRAY HARNESS THAT WAS FOR THE OLD HORN, AND PLUG IN THE NEW ONE.

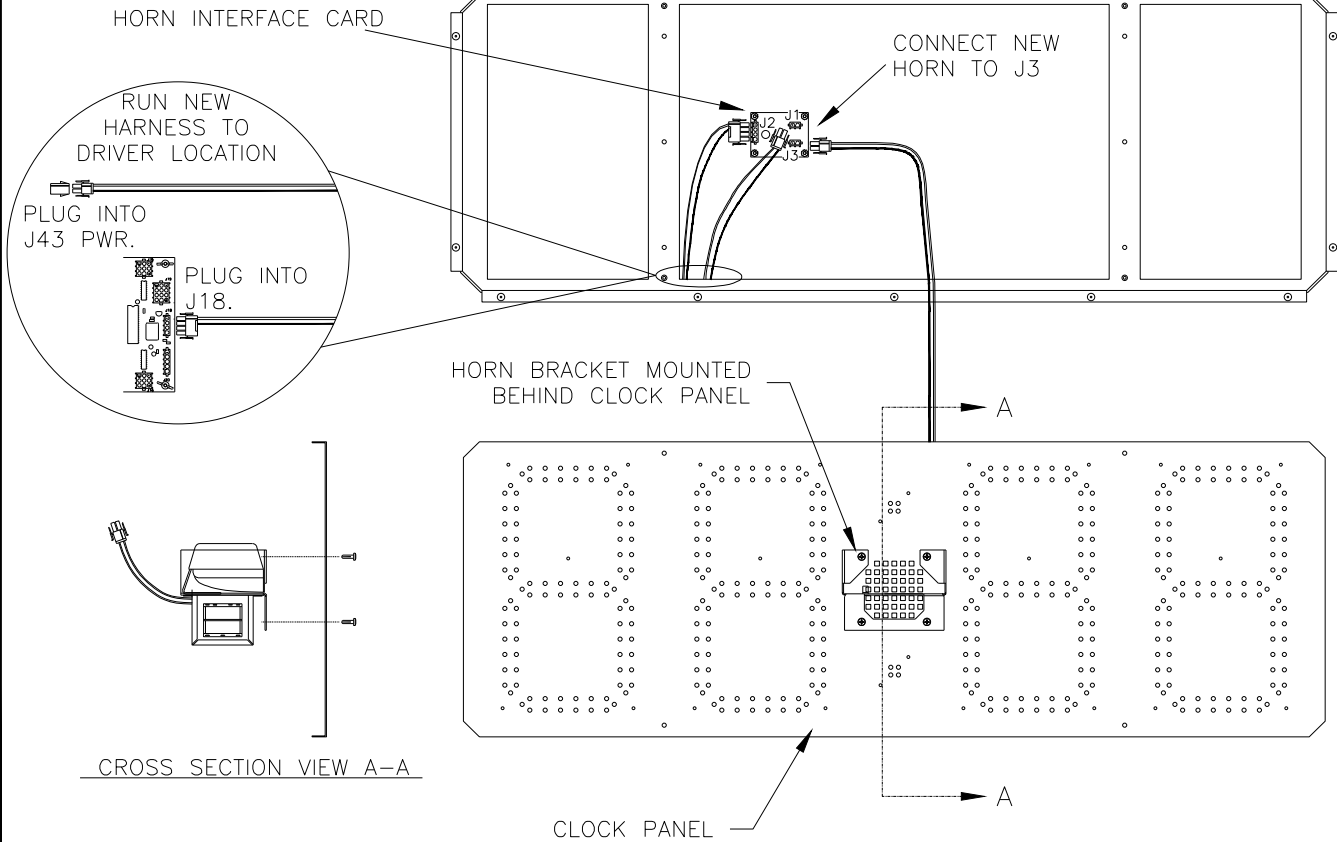
CONNECT THE 2-PIN PLUG FROM THE HORN ASSEMBLY TO J3 ON THE HORN INTERFACE CARD.

PLUG THE DIGIT CABLES INTO THE BACKS OF THE DIGITS AND RE-INSTALL THE CLOCK PANEL.

TEST THE HORN BY OPERATING THE SCOREBOARD AND PRESSING THE HORN BUTTON ON THE CONTROL CONSOLE.

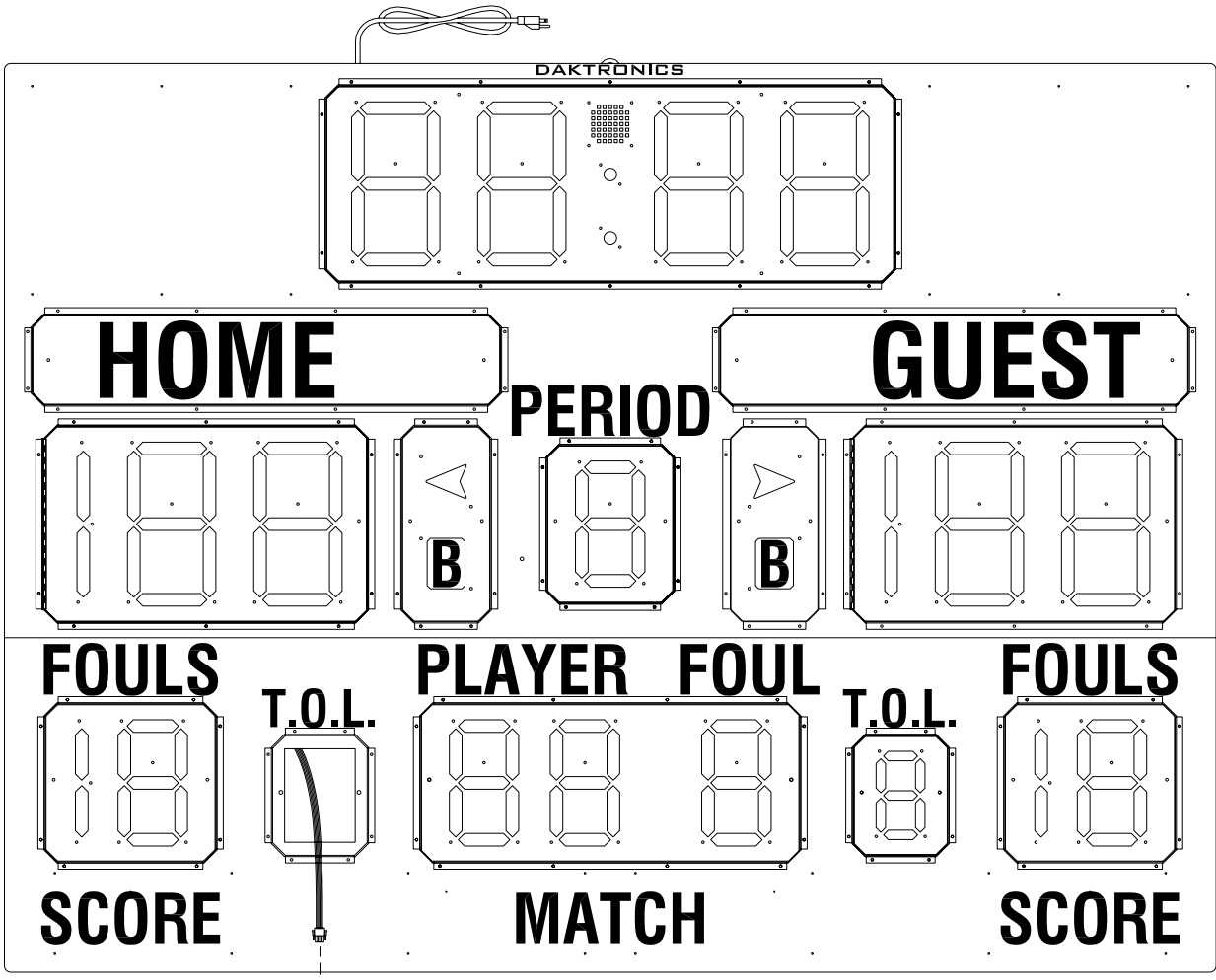
FRONT OF SCOREBOARD, CLOCK AREA:

DAKTRONICS

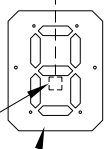


04	14 DEC 15	UPDATED VIEWS AND REMOVED SEPARATE INSTRUCTIONS FOR UNIVIEW PRODUCTS PER EC-1798	LJH	
03	07 JAN 10	UPDATED INSTALL DRAWING WITH HORN INTERFACE CARD DETAILS AND STEPS.	MWM	
02	20 JUN 06	UPDATED COLON AND HORN LAYOUT. REPLACED UNIVIEW DIGITS WITH PANAVIEW TO SHOW HORN MOUNTING. ADDED UNIVIEW HORN MTG NOTES.	JLF	CW
01	20 JUN 02	CHANGED DIGITS TO UNIVIEW.	ALG	

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	<p>DO NOT SCALE DRAWING</p>	
<p>PROJ: TUFF SPORT INDOOR SCOREBOARDS</p>		
<p>TITLE: 12V DC HORN OPTION INSTALLATION</p>		
<p>DESIGN: AVB</p>	<p>DRAWN: A VANBEMMEL</p>	<p>DATE: 16MAY01</p>
<p>SCALE: 1=10</p>		
<p>SHEET 1 OF 1</p>	<p>REV 04</p>	<p>JOB NO: P1237</p>
<p>FUNC-TYPE-SIZE E - 10 - A</p>		<p>148960</p>



9-PIN JACK LOCATION ON BACK OF DIGIT



T.O.L. DIGIT PANEL

1. REMOVE THE TWO BLANK PANELS CURRENTLY INSTALLED IN PLACE OF THE T.O.L. DIGITS.
2. LOCATE THE CABLES WITH 9-PIN PLUGS BEHIND THE BLANK PANELS. CONNECT THE PLUGS TO THE MATING JACK ON THE BACK OF EACH DIGIT.
3. INSTALL THE DIGITS IN THE OPENINGS AND SECURE WITH THE SCREWS THAT FORMERLY HELD THE BLANK PANELS.
4. APPLY THE "T.O.L." CAPTIONS ABOVE THE DIGITS.

NOTES:

THE SCOREBOARD IS SHOWN WITH UNIVIEW™ DIGIT TECHNOLOGY. SEE DRAWING A-158550 FOR MORE DETAILS.

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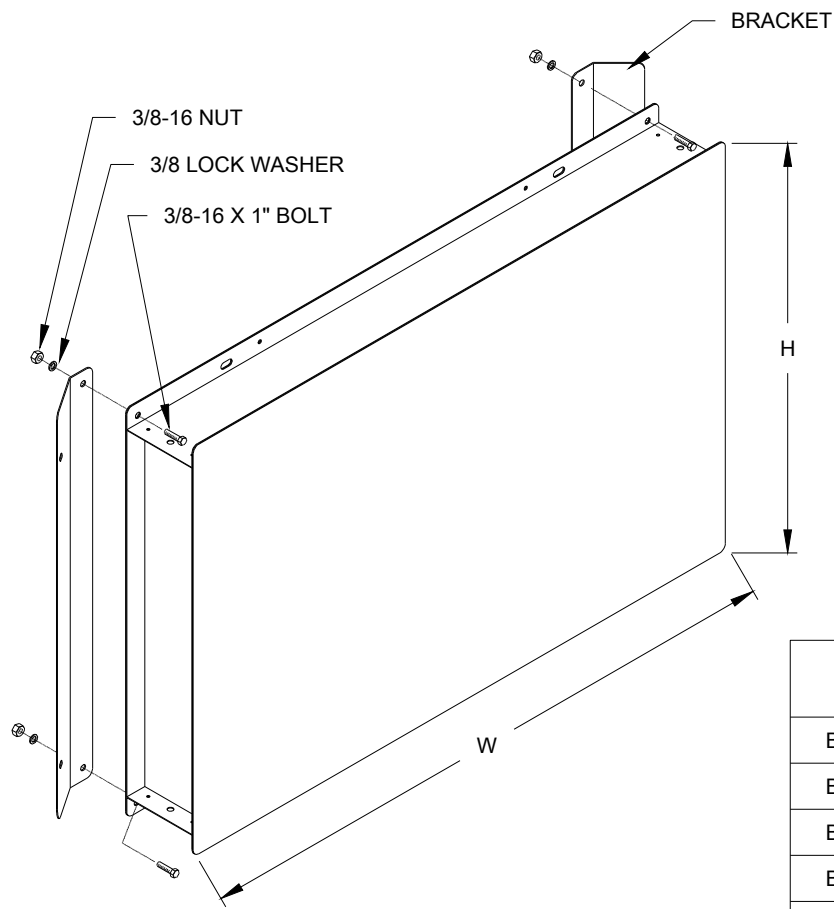
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TUFF SPORT™ SCOREBOARDS
 TITLE: T.O.L. OPTION INSTALLATION

DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 17 MAY 01

REVISION	APPR. BY:	1237-R10A-149030
	SCALE: 1=20	

01	20 JUN 02	CHANGED DIGITS TO UNIVIEW.	ALG	
REV.	DATE	DESCRIPTION	BY	APPR.



ATTACH THE BRACKETS TO THE BACK OF THE SCOREBOARD USING THE 3/8" HARDWARE PROVIDED.

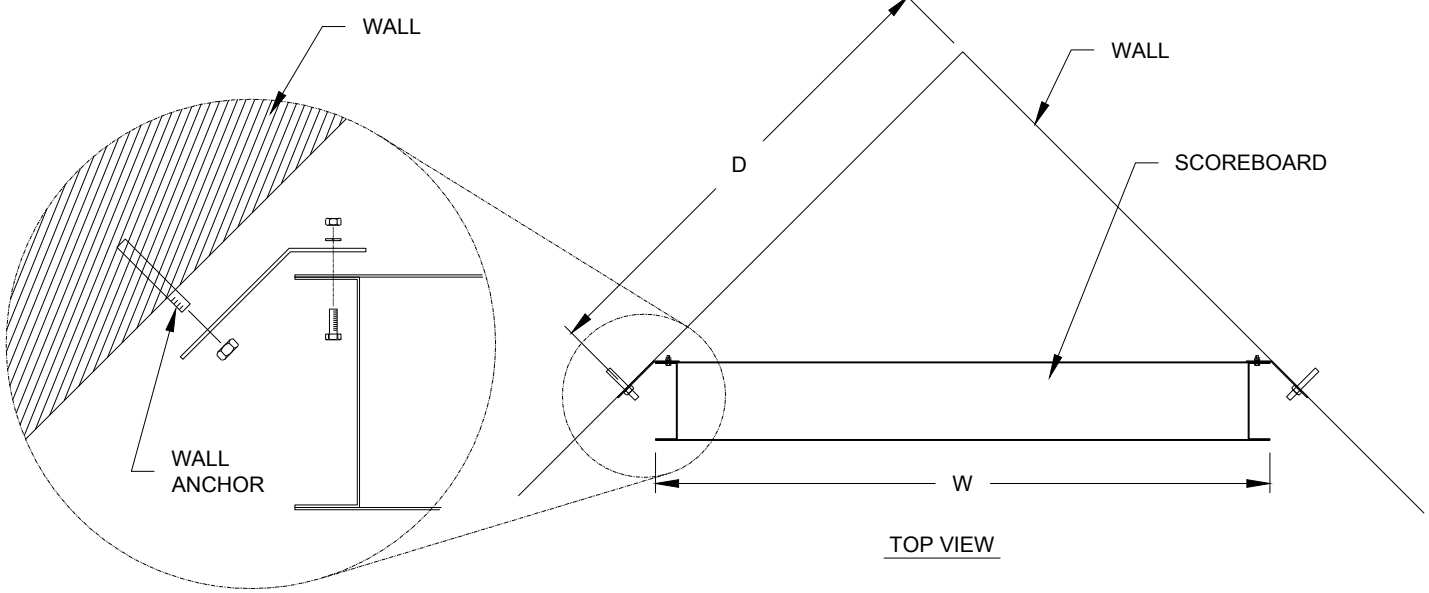
DRILL HOLES IN THE WALL AT THE APPROPRIATE DISTANCE FROM THE CORNER (DIMENSION D) FOR THE WALL ANCHORS.


MOUNT THE BRACKETS TO THE WALL USING WALL ANCHORS SUITABLE TO THE WALL MATERIALS IN THE FACILITY.

**IF "W" DIMENSION IS NOT LISTED BELOW, USE FORMULA TO CALCULATE "D" DIMENSION

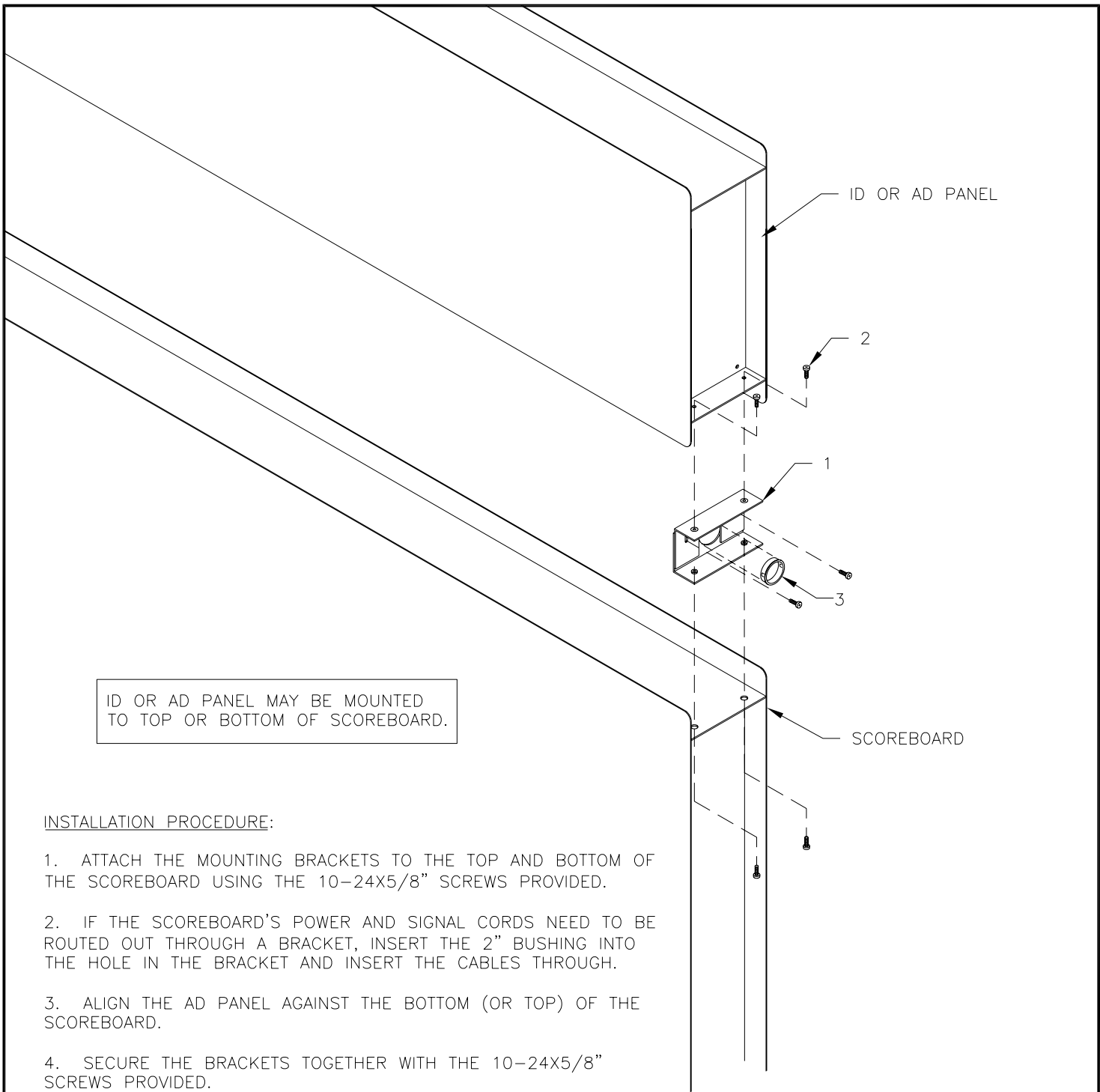
$$\frac{W + 1.48}{1.414} + 2.87 = "D"$$

MODEL NO.	HEIGHT DIM. "H"	WIDTH DIM. "W"	DISTANCE DIM. "D"
BB-2101/3103	4'-0"	8'-0"	5'-11 13/16"
BB-2103/3103	6'-0"	8'-0"	5'-11 13/16"
BB-2105/3105	4'-0"	10'-0"	7'-4 3/4"
BB-2107/3107	6'-0"	10'-0"	7'-4 3/4"
BB-2142/3142	3'-0"	6'-6"	4'-11 1/16"
BB-2121/3121	2'-6"	10'-0"	7'-4 3/4"
H-2104/2106/2108	5'-0"	10'-0"	7'-4 3/4"



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	DO NOT SCALE DRAWING	
PROJ: TUFF SPORT SCOREBOARDS TITLE: CORNER MOUNTING		
DESIGN: AVB SCALE: 1=15	DRAWN: A VANBEMMEL	DATE: 22 JUN 01
SHEET: 02 REV: 02	JOB NO: P 1237	FUNC - TYPE - SIZE: R - 10 - A
		150831

REV 02	DATE: 21 AUG 15	ADDED H-2104/2106/2108	BY: KDD
REV 01	DATE: 28JAN10	ADD ALL 3xxx MODELS NUMBERS AND ADD BB-2142/3142 AND BB-2121/3131 AND THEIR RESPECTIVE REQUIRED DIMENSIONS	BY: LMIX



ID OR AD PANEL MAY BE MOUNTED TO TOP OR BOTTOM OF SCOREBOARD.

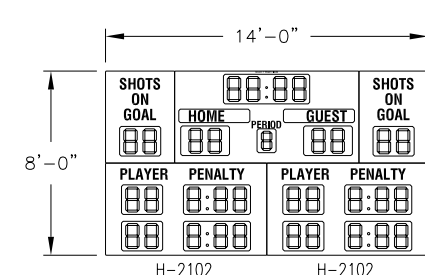
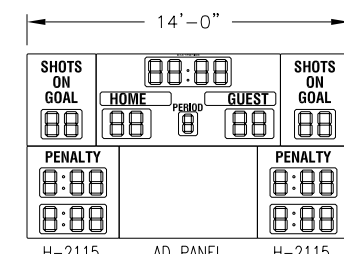
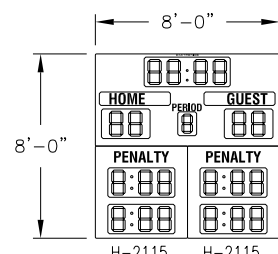
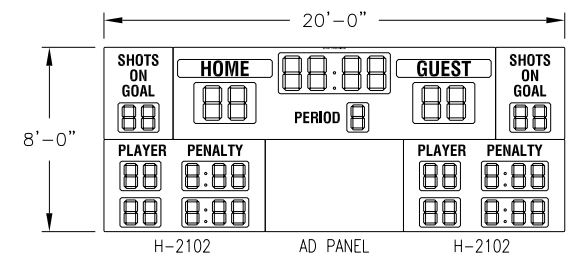
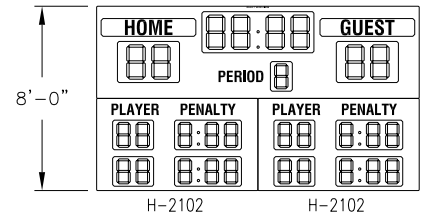
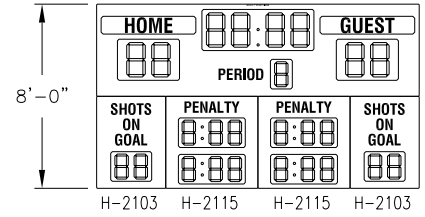
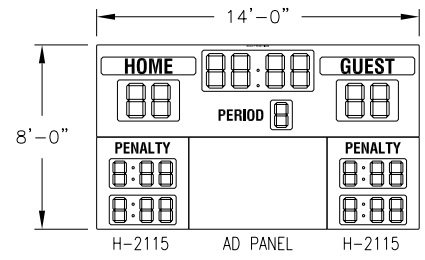
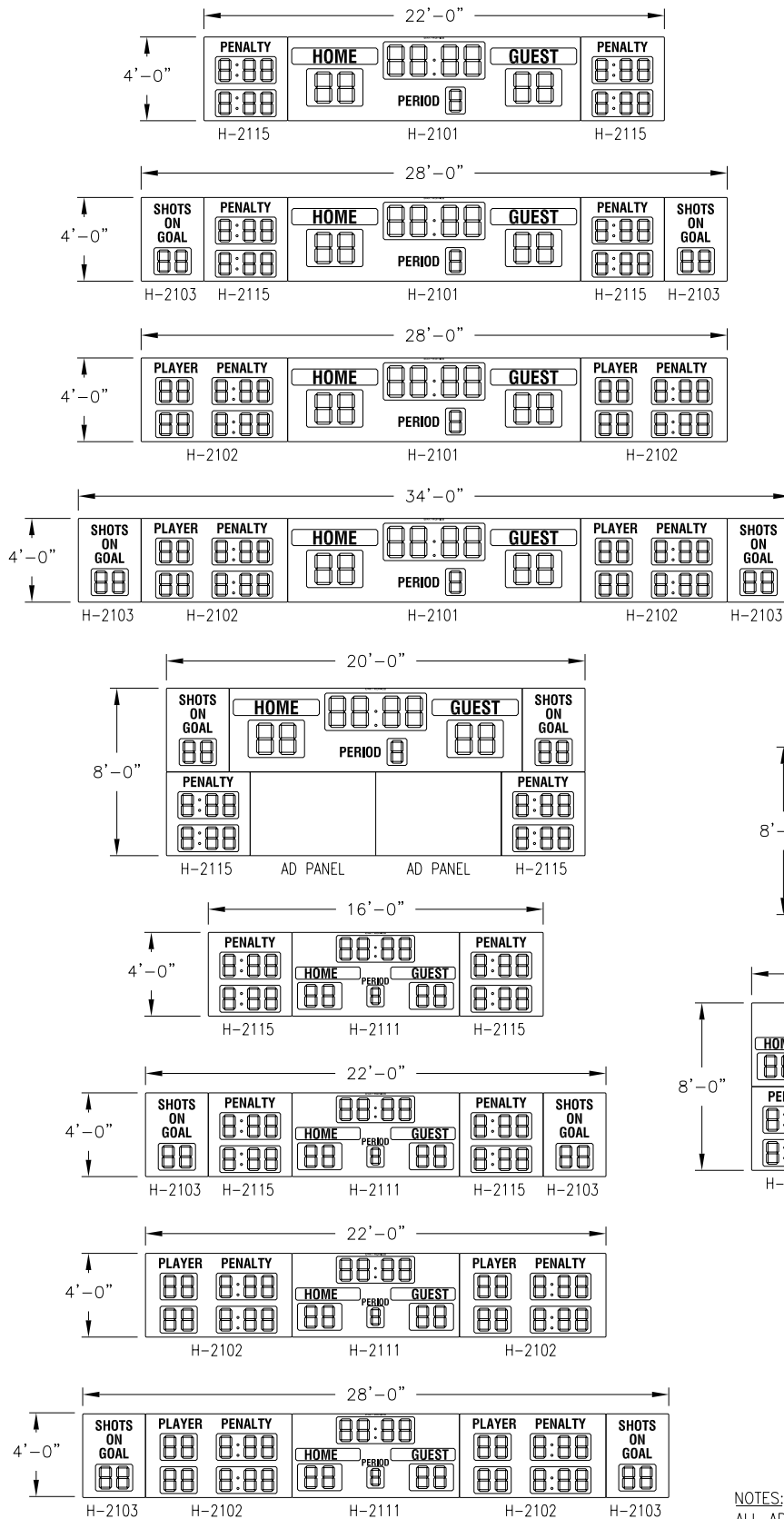
INSTALLATION PROCEDURE:

1. ATTACH THE MOUNTING BRACKETS TO THE TOP AND BOTTOM OF THE SCOREBOARD USING THE 10-24X5/8" SCREWS PROVIDED.
2. IF THE SCOREBOARD'S POWER AND SIGNAL CORDS NEED TO BE ROUTED OUT THROUGH A BRACKET, INSERT THE 2" BUSHING INTO THE HOLE IN THE BRACKET AND INSERT THE CABLES THROUGH.
3. ALIGN THE AD PANEL AGAINST THE BOTTOM (OR TOP) OF THE SCOREBOARD.
4. SECURE THE BRACKETS TOGETHER WITH THE 10-24X5/8" SCREWS PROVIDED.

DESCRIPTION	PART NUMBER	QTY
1. MOUNTING BRACKETS	0S-1237-0058	2
2. SCREW, 10-24x5/8	HC-1022	12
3. BUSHING, 2.0 Ø	HE-1051	2

REV.	DATE	DESCRIPTION	BY	APPR.
02	18 JUL 06	REPLACED 0M-150458 BRKT WITH 0M-278266-A AND 0M-278266-B BRKTS	KAS	
01	20 JAN 03	REPLACED HC-1470 WITH HC-1022 RIVETS	RJC	

DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ: TUFF SPORT SCOREBOARDS	
TITLE: ID OR AD PANEL MOUNTING TO SCOREBOARD	
DES. BY: BPETERSON	DRAWN BY: JJSYRSTAD
DATE: 20 SEP 01	
REVISION	APPR. BY:
02	NONE
1237-R04A-156134	



NOTES:
 ALL AD PANELS ARE 6'-0" WIDE X 4'-0" HIGH
 SEE DRAWING A-155390 FOR DIMENSIONS OF INDIVIDUAL SECTIONS.

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DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ: TUFF SPORT SCOREBOARDS	
TITLE: HOCKEY SCOREBOARD CONFIGURATIONS	
DES. BY: AVB	DRAWN BY: A VANBEMMEL DATE: 17 JUN 02
REVISION	APPR. BY: 1237-R08A-169166
	SCALE: 1=100

REV.	DATE	DESCRIPTION	BY	APPR.

MOUNT THE ANGLE (WITH 1/2" NUT) UNDER THE OVERHANG AT THE TOP OF THE SCOREBOARD. USE ONE ANGLE AT EACH END OF THE SCOREBOARD. SECURE WITH TEK SCREWS INTO THE SIDE OF THE SCOREBOARD.

INSTALL THE EYEBOLTS IN HOLES IN THE ANGLES AND SECURE WITH LOCK NUTS.

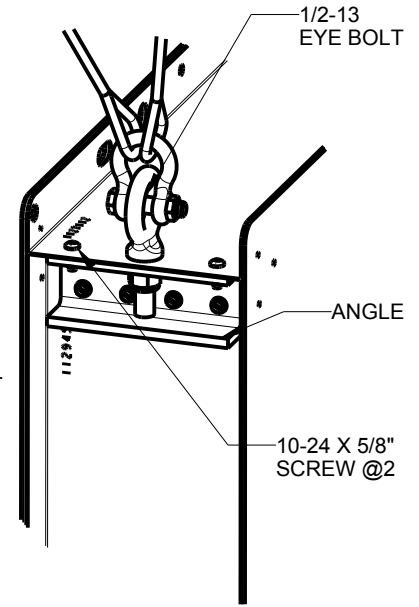
ATTACH SUSPENSION CABLES TO EACH EYEBOLT WITH A SHACKLE (CLEVIS) AND PIN.

DAKTRONICS RECOMMENDS THAT TWO CABLES BE USED AT EACH END OF THE SCOREBOARD FOR REDUNDANCY. CABLES DIVERGE TO MINIMIZE SWINGING.

CABLES AND HARDWARE MUST BE SPECIFIED BY A LICENSED ENGINEER. THIS INSTALLATION METHOD MUST NOT BE USED TO SUPPORT SCOREBOARDS WITH MESSAGE CENTERS AND BACKLIT AD PANELS ATTACHED.

TOTAL WEIGHT OF SCOREBOARD AND ATTACHED ACCESSORIES MUST NOT EXCEED 350 LB.

SUSPENSION HARDWARE IS FOR THE TOP OF THE SCOREBOARD ONLY. SCOREBOARD INSTALLATION WITH AD PANEL MUST NOT BE SUSPENDED FROM THE AD PANEL. THE SCOREBOARD MUST BE AT THE TOP.

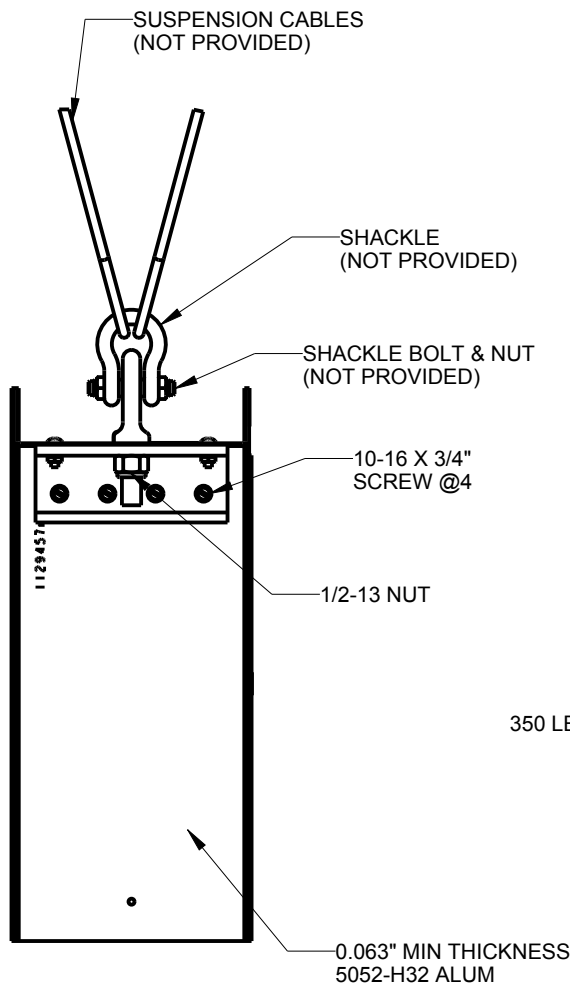


UPPER CORNER OF SCOREBOARD SHOWN

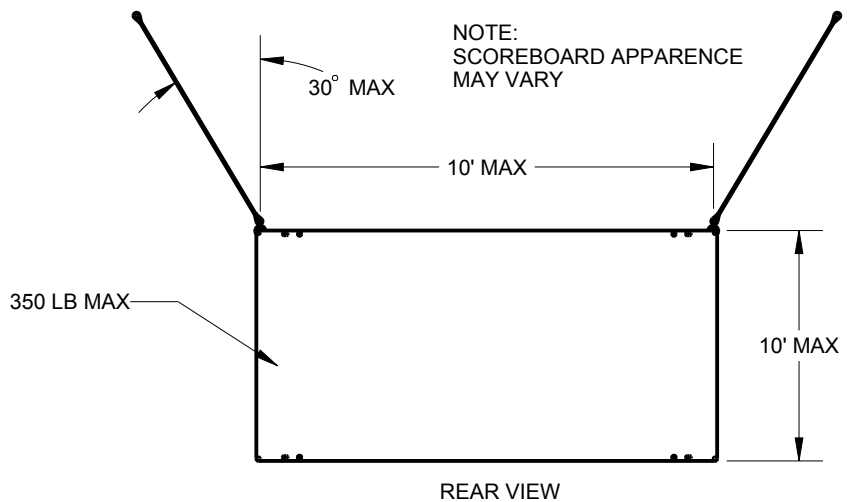
INSTALL ONE OF THESE ASSEMBLIES AT EACH END.

SUSPENSION LIFE EYE KIT IS DAKTRONICS PART NO. 0A-1749-4003

IMPORTANT:
DO NOT ATTACH SUSPENSION HARDWARE TO AD PANEL MOUNTED ON TOP OF SCOREBOARD. SCOREBOARD MUST BE AT THE TOP




SIDE VIEW
TOP OF SCOREBOARD
TYP. BOTH ENDS

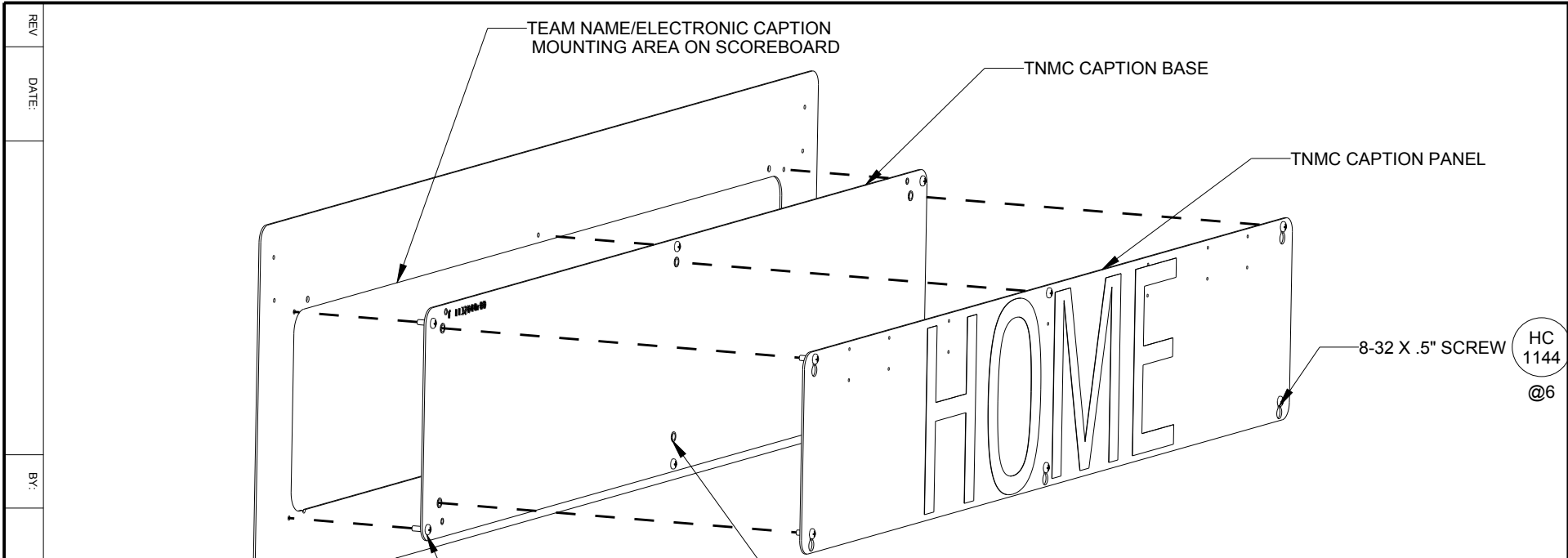


REAR VIEW

NOTE:
SCOREBOARD APPARENCE
MAY VARY

 DAKTRONICS, INC. BROOKINGS, SD 57006 DO NOT SCALE DRAWING		<small>THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2013 DAKTRONICS, INC.</small>	
PROJ: INDOOR SCOREBOARDS TITLE: SUSPENSION LIFT EYE INSTALLATION			
DESIGN: DOPPELT		DRAWN: TFINNES	
SCALE: 1/5		DATE: 04-JUN-13	
SHEET: 1 OF 1	REV: 00	JOB NO: P 1749	FUNC-TYPE-SIZE E - 07 - A
			1130959

REV	DATE:		BY:	
-----	-------	--	-----	--



HC
1144
@6

HS
1269
@6

HC
1144
@6

NOTE:
ALIGN CAPTION CENTER HORIZONTALLY
BASED ON SCOREBOARD AND
CLOSEST ALIGNMENT HOLE.
CENTER CAPTION VERTICALLY.

PROCEDURE:

1. PLACE HS-1269 NUTSERTS IN TNMC CAPTION BASE.
2. ATTACH TNMC CAPTION BASE TO SCOREBOARD USING HC-1144 SCREWS.
3. ATTACH TNMC CAPTION PANEL TO TNMC CAPTION BASE USING HC-1144 SCREWS PLACED IN ALL KEYHOLE LOCATIONS.
4. IN ORDER TO CHANGE CAPTION NAME, REMOVE TOP CENTER SCREW, LOOSEN ALL OTHER SCREWS, SLIDE PANEL UP TO REMOVE FROM SCREWS AND FLIP PANEL. PLACE PANEL BACK ON, SLIDE PANEL DOWN. FASTEN TOP MIDDLE SCREW AND TIGHTEN ALL OTHER SCREWS.

DAKTRONICS, INC.		<small>THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESS WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2013 DAKTRONICS, INC.</small>	
<small>BROOKINGS, SD 57006</small>		<small>DO NOT SCALE DRAWING</small>	
PROJ: INDOOR SCOREBOARD			
TITLE: CHANGEABLE TEAM NAME CAPTION INSTALLATION			
DESIGN: MJOHNSO	DRAWN: MJOHNSO	DATE: 09-APR-13	
SCALE: 1/5	JOB NO.: P 1749		
SHEET: 1 OF 1	REV: 00	FUNC: TYPE-SIZE: E - 10 - A	1132576

REV	DATE	BY	
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C Daktronics Warranty & Limitation of Liability

This section includes the Daktronics Warranty & Limitation of Liability statement (SL-02374).

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DAKTRONICS WARRANTY & 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 and End User agree to be bound by and accept these terms and conditions. Unless otherwise defined herein, all 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 (the "End User", which may also be the Purchaser) 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 End User 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. This Warranty does not include on-site labor charges to remove or install these components. 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 Daktronics.
- C. Daktronics shall pay ground transportation charges for the return of any defective component of the Equipment. All such items shall be shipped by End User DDP Daktronics designated facility per Incoterms® 2020. If returned Equipment is repaired or replaced under the terms of this Warranty, Daktronics will prepay ground transportation charges back to End User and shall ship such items DDP End User's designated facility per Incoterms® 2020; otherwise, End User shall pay transportation charges to return the Equipment back to the End User and such Equipment shall be shipped Ex Works Daktronics designated facility per Incoterms® 2020. All returns must be pre-approved by Daktronics before shipment. Daktronics shall not be obligated to pay freight for any unapproved return. End User 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 the 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. Unless otherwise expressly provided, this Warranty does not impose any duty or liability upon Daktronics for partial LED pixel degradation. Notwithstanding the foregoing, in no event does this Warranty include LED pixel degradation caused by UV light. This Warranty does not 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.

EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS WARRANTY, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, DAKTRONICS DISCLAIMS ANY AND ALL OTHER PROMISES, REPRESENTATIONS AND WARRANTIES APPLICABLE TO THE EQUIPMENT AND REPLACES ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ACCURACY OR QUALITY OF DATA. OTHER ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY DAKTRONICS, ITS AGENTS OR EMPLOYEES, SHALL NOT 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

This Warranty does not impose any duty or liability upon Daktronics for any:

- A. 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, End User assumes all risk of loss or damage, agrees to use any shipping containers that might be provided by Daktronics, and to ship the Equipment in the manner prescribed by Daktronics;
- B. damage caused by: (i) the improper handling, installation, adjustment, use, repair, or service of the Equipment, or (ii) any physical damage which includes, but is not limited to, missing, broken, or cracked components resulting from non-electrical causes;

DAKTRONICS WARRANTY & LIMITATION OF LIABILITY

altered, scratched, or fractured electronic traces; missing or gauged solder pads; cuts or clipped wires; crushed, cracked, punctured, or bent circuit boards; or tampering with any electronic connections, provided that such damage is not caused by 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) improper power including, without limitation, a failure or sudden surge of electrical power; (iii) improper air conditioning, humidity control, or other environmental conditions outside of the Equipment's technical specifications such as extreme temperatures, corrosives and metallic pollutants; 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. statements made about the product by any salesperson, dealer, distributor or agent, 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 End User and are not part of the contract of sale;
- G. 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;
- H. replenishment of spare parts. In the event the Equipment was purchased with a spare parts package, the parties acknowledge and agree that the spare parts package is designed to exhaust over the life of the Equipment, and as such, the replenishment of the spare parts package is not included in the scope of this Warranty;
- I. security or functionality of the End User's network or systems, or anti-virus software updates;
- J. performance of preventive maintenance;
- K. third-party systems and other ancillary equipment, including without limitation front-end video control systems, audio systems, video processors and players, HVAC equipment, batteries and LCD screens;
- L. incorporation of accessories, attachments, software or other devices not furnished by Daktronics; or
- M. paint or refinishing the Equipment or furnishing material for this purpose.

3. Limitation of Liability

- A. 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.
- B. 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 claims asserting or based on (a) loss of use of the facility or equipment; lost business, revenues, or profits; loss of goodwill; failure or increased cost of operations; loss, damage or corruption of data; loss resulting from system or service failure, malfunction, incompatibility, or breaches in system security; or (b) 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, injury to property or any damages or sums paid 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
- C. In no event shall Daktronics be liable 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. The End User'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

- A. The Warranty contained herein extends only to the 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. Governing Law; Election of Remedies

- A. 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. The parties consent to the application of the laws of the State of South Dakota to govern, interpret, and enforce each of the parties' 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.
- B. Any dispute, controversy or claim arising from or related to this Warranty, the parties shall first attempt to settle through negotiations. In the event that no resolution is reached, then such dispute, controversy, or claim shall be resolved by final and binding arbitration under the Rules of Arbitration of the International Chamber of Commerce. The language of the arbitration

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shall be English. The place of the arbitration shall be Sioux Falls, SD. A single arbitrator selected by the parties shall preside over the proceeding. If a single arbitrator cannot be agreed upon by the parties, each party shall select an arbitrator, and those arbitrators shall confer and agree on the appointed arbitrator to adjudicate the arbitration. The arbitrator shall have the power to grant any provisional or final remedy or relief that it deems appropriate, including conservatory measures and an award of attorneys' fees. The arbitrator shall make its decisions in accordance with applicable law. By agreeing to arbitration, the Parties do not intend to deprive any court of its jurisdiction to issue a pre-arbitral injunction, pre-arbitral attachment, or other order in aid of arbitration proceedings and the enforcement of any award. Without prejudice to such provisional remedies as may be available under the jurisdiction of a court, the arbitrator shall have full authority to grant provisional remedies and to direct the Parties to request that any court modify or vacate any temporary or preliminary relief issued by such court, and to award damages for the failure of any Party to respect the arbitrator's orders to that effect.

6. Availability of Extended Service Agreement

- A. For End User's protection, in addition to that afforded by the warranties set forth herein, End User 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 1-800-DAKTRONics (1-800-325-8766).

Additional Terms applicable to sales outside of the United States

The following additional terms apply **only** where the installation site of the Equipment is located outside of the United States of America.

1. In the event that the installation site of the Equipment is in a country other than the U.S.A., then, notwithstanding Section 5 of the Warranty, where the selling entity is the entity listed in Column 1, then the governing law of this Warranty is the law of the jurisdiction listed in the corresponding row in Column 2 without regard to its conflict of law principles. Furthermore, if the selling entity is an entity listed in Column 1, then the place of arbitration is listed in the corresponding row in Column 3.

Column 1 (Selling Entity)	Column 2 (Governing Law)	Column 3 (Location of Arbitration)
Daktronics, Inc.	The state of Illinois	Chicago, IL, U.S.A.
Daktronics Canada, Inc.	The Province of Ontario, Canada	Toronto, Ontario, Canada
Daktronics UK Ltd.	England and Wales	Bristol, UK
Daktronics GmbH	The Federal Republic of Germany	Wiesbaden, Germany
Daktronics Hong Kong Limited	Hong Kong, Special Administrative Region of the P.R.C.	Hong Kong SAR
Daktronics Shanghai Co., Ltd.	The Peoples Republic of China	Shanghai, P.R.C.
Daktronics France, SARL	France	Paris, France
Daktronics Japan, Inc.	Japan	Tokyo, Japan
Daktronics International Limited	Macau, Special Administrative Region of the P.R.C.	Macau SAR
Daktronics Australia Pad Ltd	Australia	Sydney, Australia
Daktronics Singapore Pte. Ltd	Singapore	Singapore
Daktronics Brazil LTDA	Brazil	São Paulo, Brazil
Daktronics Spain S.L.U.	Spain	Madrid, Spain
Daktronics Belgium N. V	Belgium	Kruikeke, Belgium
Daktronics Ireland Co. Ltd.	Ireland	Dublin, Ireland

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