Daktronics Tuff Sport®
Indoor Multi-Court Tennis
LED Scoreboards

Display Manual

DD2407654 ***Rev 0 – 30 November 2012***

DAKTRONICS

Models			
	TN-2560		**TN-2562**
	TN-2561		**TN-2563**

201 Daktronics Drive PO Box 5128 Brookings, SD 57006-5128
Tel: 1-800-DAKTRONICS (1-800-325-8766) Fax: 605-697-4746
Web: www.daktronics.com

DAKTRONICS

DD2407654
Product 1164
Rev 0 – 30 November 2012

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

Scoreboard Serial No. _____

Scoreboard Model No. _____

Date Installed _____

DAKTRONICS, INC.

Table of Contents

Section 1: Introduction

This manual explains the installation and maintenance of Daktronics Tuff Sport® Indoor Multi-Court Tennis LED Scoreboards. For additional information regarding the safety, installation, operation, or service of these displays, refer to the telephone numbers listed in **Section 5.8**. This manual is not specific to a particular installation.

Important Safeguards:

- Please read and understand all instructions before beginning the installation process.
- Do not drop control equipment or allow it to get wet.
- Do not disassemble control equipment or electronic controls of the display; failure to follow this safeguard will make the warranty null and void.
- Disconnect display power when not in use or when servicing.
- Disconnect 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 scoreboard structure or attach any panels or coverings to the scoreboard without the express written consent of Daktronics, Inc.

Project-specific information takes precedence over any other general information found in this manual.

1.1 Scoreboard Controllers

Daktronics Tuff Sport tennis scoreboards are designed for use with the RC-100 handheld controller. Multi-court scoreboards with optional Team Name Message Centers (TNMCs) require a computer running DakTennis™ software. The RC-100 uses keyboard overlays (sport inserts) to control numerous sports and scoreboard models. Refer to the following manuals for operating instructions:

- **Remote Control System RC-100 Operational Overview (ED-15133)**
- **DakTennis Version 3 Installation & Operation Manual (DD1965926)**

These control console manuals are available online at www.daktronics.com/manuals.

1.2 Scoreboard Label

Serial and model numbers of a Daktronics scoreboard can be found on the ID label on the display, similar to that shown in **Figure 1**.

Figure 1: *Display ID Label*

Please list the model number, display serial number, and the date this display became operational in the blanks provided on the second page of this manual. When calling Daktronics customer service, please have this information available to ensure the request is serviced as quickly as possible.

1.3 Model Number

Daktronics scoreboards are differentiated by their model numbers and two-letter prefixes for each sport. Most Daktronics scoreboards also carry a two-number suffix that refers to indoor-outdoor status, power supply, and digit color.

TN	Tennis

-13	indoor scoreboards, 120 V, PanaView® digits
-14	indoor scoreboards, 230 V, PanaView® digits
-15	indoor scoreboards, 120 V, UniView® digits
-16	indoor scoreboards, 230 V, UniView® digits

1.4 Resources

Figure 2 illustrates a Daktronics drawing label. The drawing number is located in the lower-right corner of a drawing. This manual refers to drawings by listing the last set of digits and the letter preceding them. In the example, the drawing would be referred to as **Drawing C-325405**.

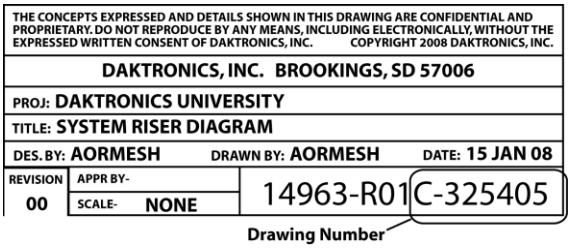


Figure 2: *Daktronics Drawing Label*

Reference Drawing:

System Riser Diagram.....**Drawing C-325405**

Daktronics identifies manuals by the DD or ED number located on the cover page of each manual. For example, this manual would be referred to as **DD2407654**.

1.5 Daktronics Nomenclature

Most components within this display carry a white label that lists the part number of the unit. If a component is not found in the Replacement Parts List in **Section 5.7,** use the label to order a replacement. **Figure 3** illustrates a typical label. The part number is in bold.

Main Component Labels	
Part Type	***Part Number***
Individual circuit board	**0P-XXXX-XXXX**
Assembly; a collection of circuit boards	**0A-XXXX-XXXX**
Wire or cable	**W-XXXX**
Fuse	**F-XXXX**
Transformer	**T-XXXX**
Metal part	**M-XXX**
Fabricated metal assembly	**0S-XXXXXX**
Specially ordered part	**PR-XXXXX-X**

Accessory Labels	
Component	***Label***
Termination block for power or signal cable	**TBXX**
Grounding point	**EXX**
Power or signal jack	**JXX**
Power or signal plug for the opposite jack	**PXX**

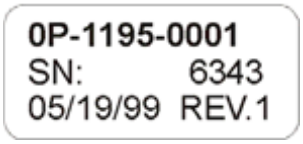


Figure 3: *Typical Label*

Following the Replacement Parts List is the Daktronics Exchange Policy and the Repair & Return Program. Refer to these instructions if replacing or repairing any display component.

1.6 Product Safety Approval

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

Section 2: Specifications

The chart on the following pages details all of the mechanical specifications, circuit specifications, and power requirements for each display in this manual. Models are listed in alphanumeric order.

Note: All displays require a 120 VAC, 15 A circuit. Displays with a 230 VAC power requirement are also available.

Model & Options	Dimensions: Height, Width, Depth	Uncrated Weight	Watts	Amps 120 / 230 VAC
TN-2560	9'-0" H, 24'-0" W, 6" D (2743 mm, 7315 mm, 152 mm)	816 lb (370 kg)	1400 W	11.7 A / 6.1 A
w/ 0.75" TNMC	(same)	920 lb (417 kg)	2100 W	17.5 A / 9.1 A
w/ 1.00" TNMC			2800 W	23.3 A / 12.2 A
TN-2561	9'-0" D, 27'-0" W, 6" D (2743 mm, 8230 mm, 152 mm)	918 lb (416 kg)	1400 W	11.7 A / 6.1 A
w/ 0.75" TNMC	(same)	1022 lb (464 kg)	2100 W	17.5 A / 9.1 A
w/ 1.00" TNMC			2800 W	23.3 A / 12.2 A
TN-2562	12'-6" H, 16'-0" W, 6" D (3810 mm, 4877 mm, 152 mm)	768 lb (348 kg)	1400 W	11.7 A / 6.1 A
w/ 0.75" TNMC	(same)	872 lb (396 kg)	2100 W	17.5 A / 9.1 A
w/ 1.00" TNMC			2800 W	23.3 A / 12.2 A
TN-2563	12'-6" H, 18'-0" W, 6" D (3810 mm, 5486 mm, 152 mm)	864 lb (392 kg)	1400 W	11.7 A / 6.1 A
w/ 0.75" TNMC	(same)	968 lb (439 kg)	2100 W	17.5 A / 9.1 A
w/ 1.00" TNMC			2800 W	23.3 A / 12.2 A

Section 3: Mechanical Installation

Mechanical installation consists of lifting and permanently mounting the scoreboard or scoreboard sections. Be sure that the installation complies with local building codes.

Note: Daktronics does not assume any liability for any installation derived from the information provided in this manual or installations designed and installed by others.

3.1 Lifting the Scoreboard

Daktronics Tuff Sport tennis scoreboards are shipped equipped with eyebolts for lifting the displays, as well as pre-drilled holes along the top and bottom of each cabinet for wall attachment. Eyebolts are located along the top of the cabinet for each scoreboard or scoreboard section. Daktronics indoor scoreboards use $^{3}/_{8}$" eyebolts.

Daktronics strongly recommends using a spreader bar, or lifting bar, to lift the display. Spreader bars ensure the force on the eyebolts remains straight up, minimizing lifting stress.

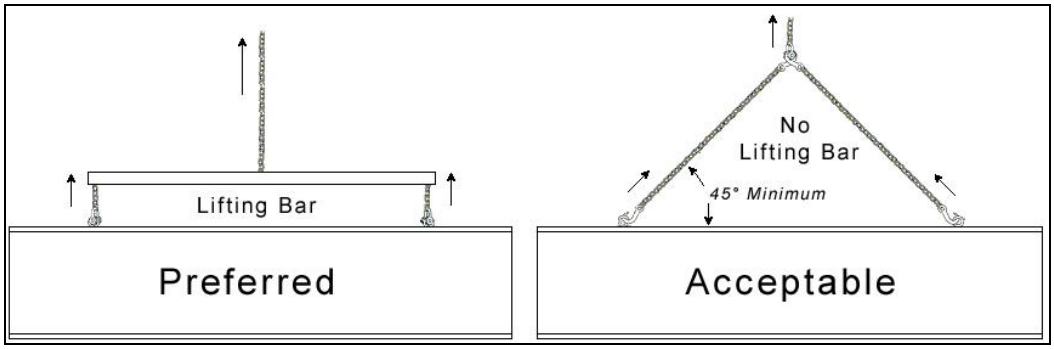


Figure 4: *Lifting Methods*

Figure 4 illustrates the preferred scoreboard lifting method on the left and an acceptable alternative lifting method on the right. When lifting the display:

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

Cables and chains attached to the eyebolts and directly to a center lifting point, as shown in the right-hand example in **Figure 4**, can create a dangerous lateral force on the eyebolts and may cause the eyebolts to fail. The smaller the angle between the cable and the top of the display, the lighter the sign must be to safely lift it. If this method must be used, ensure a minimum angle between the chain and scoreboard of at least 45°.

Do NOT attempt to lift the display if the angle is less than 45°. Exceeding load angles or weight limits could cause the bolts in the scoreboard cabinet to buckle, resulting in serious damage to the scoreboard or injury to personnel. Also, loads should be applied directly in the plane of the eyebolt as shown in **Figure 5**.

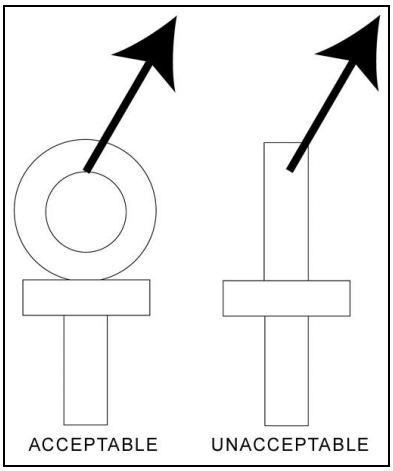


Figure 5: *Eyebolt Plane Load*

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.

3.2 Scoreboard 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 scoreboard weight.

1. Use eyebolts to lift a scoreboard from the bottom row into position on the wall.

2. Ensure the scoreboard 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. Two mounting brackets must be used inside the top scoreboard 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.

4. Repeat steps **1-3** for all other scoreboards in the bottom row.

   Note: Before attaching additional rows of scoreboards, it will be easier to make power and signal connections between each scoreboard in the bottom row. Refer to **Section 4** for more information on power/signal installation.

5. Remove the eyebolts from the bottom row of scoreboards, and use them to lift the next row in place. The bottom rear flanges of upper rows will not be mounted to the wall; instead, they rest inside the mounting brackets of the scoreboards in the row below. Refer to **Figure 8**.

6. Secure the upper-most row of scoreboards 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**).

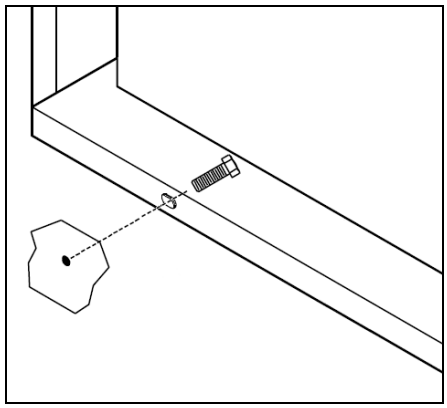


Figure 6: *Wall Mounting without Bracket*

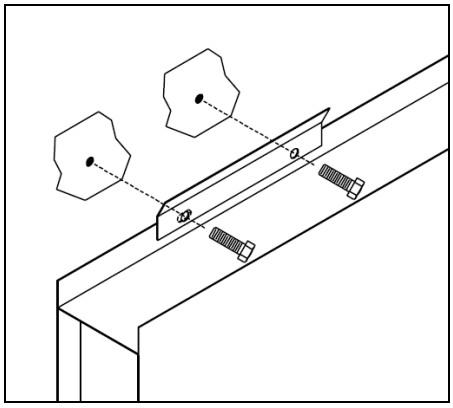


Figure 7: *Wall Mounting with Bracket*

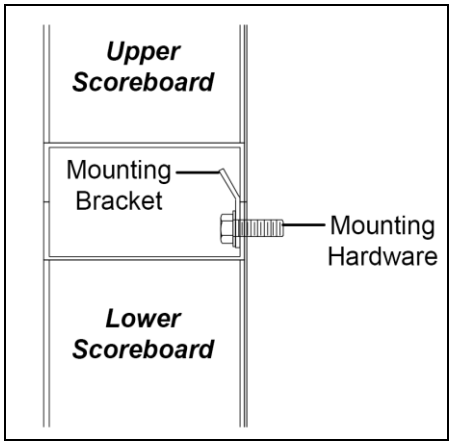


Figure 8: *Upper Scoreboard Placement*

3.3 Ad Panel Mounting

Refer to **Drawing A-147668** for typical ad panel mounting or **Drawing A-156134** for instructions on mounting ad panels to the top or bottom of a scoreboard.

3.4 Scoreboard Protective Devices

Daktronics Tuff Sport displays have been designed so that a normal tennis ball impact will not damage the LEDs or display cabinet, reducing the need for protective devices. Some users, however, may still wish to have additional protection from other projectiles, and in these cases, Daktronics provides optional protective devices. Refer to the **Protective Screen Installation Instructions (ED-5423)**, available online at www.daktronics.com/manuals for more information about installing protective devices.

Note: 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.

Section 4: Electrical Installation

CAUTION: Only qualified individuals should access the electrical components of the display and its associated equipment. It is the responsibility of the electrical contractor to ensure that all electrical work meets or exceeds local and national codes.

Daktronics engineering staff must approve all changes or the warranty will be void.

4.1 Power

Each court scoreboard section includes two 120 VAC power cords: one for Power In and one for Power Out. Install grounded receptacles for each row of scoreboards so that the power cord of the left-most scoreboard section (when viewed from the front) can easily reach it. Connect the Power In cords to the Power Out cords between sections moving from right to left. Be sure to plug the whole row of scoreboards into the power receptacle last. Note that the top sections (team score) will only have one power cord.

The control console requires a 120 VAC receptacle and uses less than 1 A of power. Displays operating on 230 VAC are also available, and they are shipped equipped with universal power plugs.

Grounding

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

> **Note:** The customer must properly ground the outlet according to local and national codes. Failure to ground the outlet voids the warranty for the scoreboard.

4.2 Power-On Self-Test (POST)

The scoreboard performs a self-test each time that power is turned on and the control console is powered off or not attached to the scoreboard. If the control console is attached and powered on, the self-test does not run, and data from the control console is displayed on the scoreboard after a brief period of time. Each scoreboard self-test pattern will vary depending on the scoreboard model, the number of drivers and types of digits. **Figure 9** shows an example of the LED bar test pattern that each digit performs.

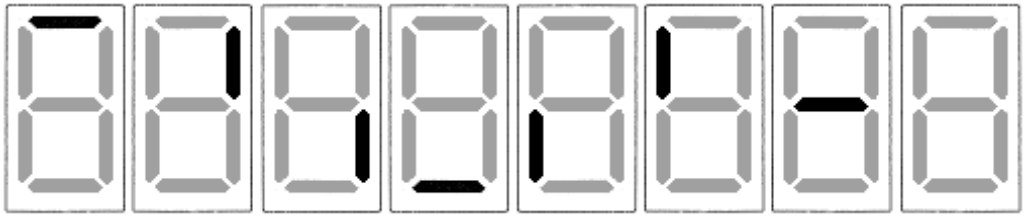


Figure 9: *Digit Segment POST*

Radio Settings

If an All Sport radio receiver is installed, the radio broadcast settings ("b1") and the channel settings ("C1") will be displayed in the game/set score digits (**Figure 10**) during the POST. These values must match the settings in the control console (refer to the appropriate control console manual listed in **Section 1.1**).

Figure 10: *Radio Settings in Game/Set Digits*

Note: Scoreboards using the RC-100 controller will only display the channel settings.

4.3 Signal Connection Between Scoreboards

Connect a 1/4" phone plug cable between the J32 SIGNAL OUT jack on the first scoreboard section to the J31 SIGNAL IN jack on next scoreboard section. Repeat this process until all scoreboard sections are connected. Refer to **Drawing B-233254** in **Appendix A**.

For the Team Score sections, route the digit cables from the GUEST section (and clock, if installed) though the holes in the sides of the cabinets into the HOME score section, and connect them to the appropriate jacks on the driver. The GUEST section TNMC (if installed) uses power/signal interconnect cables.

Plug(s)	Jack(s)
P8 (Guest Score)	J8
P1, P2, P3, P4 (Clock)	J1, J2, J3, J4
P50 (Guest TNMC)	J50

4.4 Signal Connection with TNMCs

For multi-court scoreboards using team name message centers (TNMCs), signal installation also requires a wireless base station to receive the signal from the handheld RC-100 controllers, a computer running DakTennis™ software, and a signal converter to send the wired signal to the display. Refer to **Drawing B-231298** in **Appendix A**.

1. Plug in the wireless base station (part # 0A-1110-0037) within 12' (3.6 m) of the DakTennis computer. Ensure the wireless base station is set to ***Function "5"***.
2. Connect the 9-pin serial cable (part # W-1267) between the RS232 jack of the wireless base station and an available COM port on the DakTennis computer.

   Note: If the DakTennis computer only has only one or no COM port, it will be necessary to use USB-to-Serial converters (not provided by Daktronics).

3. Connect the other 9-pin serial cable between the DakTennis computer and the J1 jack of a signal converter (part # 0A-1065-0173).
4. At a minimum, use a paired, 22 AWG shielded cable (part # W-1077) and connect the cable from the TB1 jack of the signal converter to a 1/4" J-box.
5. Route the cable from the J-box on the control end to a J-box near the display.
6. 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.

   Note: DO NOT connect cable shielding at the J-box near the control console.

7. Route the 1/4" phone plug from the J-box near the display to the scoreboard.
8. Insert the plug into the J31 SIGNAL IN jack on the first scoreboard section, and connect signal cables between each section as described above.

Wireless Connection to Scoreboard

For multi-court scoreboards with TNMCs and a wireless signal to the scoreboard(s), refer to the instructions below and **Drawing B-1077063** in **Appendix A**.

1. Plug in the wireless base station (part # 0A-1110-0037) within 12' (3.6 m) of the DakTennis computer. Ensure the wireless base station is set to ***Function "5"***.
2. Connect the 9-pin serial cable (part # W-1267) between the RS232 jack of the wireless base station and an available COM port on the DakTennis computer.

   Note: If the DakTennis computer only has only one or no COM port, it will be necessary to use USB-to-Serial converters (not provided by Daktronics).

3. Connect the 9-pin to 25-pin serial cable (part # 0A-1374-0106) between the DakTennis computer and the J6 I/O PORT jack of a radio-equipped All Sport 5000 console.
4. Ensure the All Sport console and the primary scoreboard as well as any auxiliary single-court scoreboards are set to the same radio Broadcast and Channel numbers. The console must also be set to **Code 5900**.

4.5 All Sport CG Setup

An All Sport CG allows live game information to be overlaid onto a video signal. This setup requires an All Sport CG unit and video camera for each court, a signal distribution amplifier, and associated wiring. Refer to **Drawing B-231298** (wired) or **Drawing B-1077063** (radio) for more information about typical setups.

Section 5: Scoreboard Troubleshooting

IMPORTANT NOTES:

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

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

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

5.1 Troubleshooting Table

The table below lists potential problems with the scoreboard and indicates possible causes and corrective actions. This list does not include every symptom that may be encountered, but it does present several of the most common situations that may occur.

Many of the solutions offered below provide references to other sections within this manual or to supplemental product manuals with further detail on how to fix the problem.

If a problem occurs that is not listed or that cannot be resolved using the solutions in the following table, contact Daktronics using the information provided in **Section 5.8**.

Problem	Possible Cause	Solution/Items to Check
Scoreboard doesn't light and console doesn't work	No power to the scoreboard	Check that the main circuit breaker for the scoreboard is on.
		Check that the scoreboard is receiving 120 (or 230) VAC power.
	No power to console	Ensure the console is plugged into a 120 (or 230) VAC power supply.
		Swap the console with one known to work correctly, and enter the proper sport code and/or radio settings to test. Replace console if necessary.
Scoreboard digits don't light, but console works	No wired signal from console	Check that the scoreboard is receiving 120 (or 230) VAC power.
		Check that the red DS2 LED on the driver lights up when sending commands from the control console (see **Section 5.4**).
	No radio signal from console	Cycle power to the scoreboard and watch for radio receiver channel settings (see **Section 4.2**).
		Check that the green POWER and amber RADIO IN RANGE indicators on the radio receiver in the scoreboard light up when the control console is powered on. Keep the console between 20 to 500 feet from the scoreboard.

Problem	Possible Cause	Solution/Items to Check
		Move the console 20-30 feet from the scoreboard and test again. Verify that both the console and scoreboard antennae are securely tightened and in a vertical position.
		Replace the radio receiver.
	No signal to driver	Check that the scoreboard is receiving 120 (or 230) VAC power.
		Check that the red DS2 LED on the driver lights up when sending commands from the control console (see **Section 5.4**).
		Swap the driver with one known to work correctly and with the same part number to verify the problem. Replace if necessary (see **Section 5.4**).
	No power to driver	Check that the green DS1 LED on the driver is always lit up when the scoreboard is powered on (see **Section 5.4**).
Scoreboard digits light, but not in the correct order	Incorrect sport code	Ensure the correct sport code is being used for the scoreboard model. Refer to the control console operation manual (see **Section 1.1**).
	Incorrect driver address	Check that the scoreboard driver(s) are set to the correct address(es) (see **Section 5.4**).
Scoreboard digits light, console works, but no display on scoreboard	No wired signal from console	(See solution on previous page)
	No radio signal from console	(See solution on previous page)
	Bad/damaged wiring	Check that the red DS2 LED on the driver lights up when sending commands from the control console (see **Section 5.4**).
Scoreboard works, but some LEDs always stay on	Short in digit or indicator circuit	Swap the digit/indicator with one known to work correctly to verify the problem. Replace if necessary (see **Section 5.3**).
Scoreboard works, but some LEDs do not light or they blink	Bad connection	Verify the power/signal connector on the back of the digit circuit board is secure (see **Section 5.3**).
	Bad digit or driver	Swap the digit/driver with one known to work correctly to verify the problem. Replace if necessary (see **Section 5.3** for digits or **Section 5.4** for drivers).

Problem	Possible Cause	Solution/Items to Check
Scoreboard works, but some digits do not light	Bad digit or driver	(see solution on previous page)
	Incorrect sport code	(see solution on previous page)
	Incorrect driver address	(see solution on previous page)
	Wrong console controlling scoreboard	Another console's radio signal could be transmitting to the scoreboard.
	Radio interference	There may be other radio transmissions in the area that overpower the console. If it is not possible to disable the interfering device, It may be necessary to run a wired signal connection instead.
Scoreboard works, but a certain section of digits do not light	Bad multi-section connection	Verify signal cables between scoreboard sections properly connected (see **Section 4.3**)

5.2 Component Location & Access

All Tuff Sport indoor tennis scoreboards are front-access scoreboards, meaning that internal electronic components and digits are reached by opening a face panel, an access door, or a digit panel on the front of the display.

Digit panels are typically held in place on the scoreboard face by two screws. To remove a digit, simply unfasten the screws and carefully lift it from the cabinet. The power/signal plug can then be removed from the connector on the back of the digit to completely free the digit and access internal components.

Remove non-digit access panels by unfastening the top, side or bottom screws holding it in place. Some panels are hinged and swing open when the screws are removed or loosened.

Component location varies with each scoreboard model, but drivers and power and signal components are typically mounted inside the scoreboard behind a digit panel. To locate the driver(s), look for a warning label similar to that shown in **Figure 11**.

Refer to the component location drawings in **Appendix A** for model-specific component layouts and access locations.

Figure 11: *Power Warning Label*

5.3 Replacing Digits

LEDs are embedded in a circuit board that is mounted to the back of the digit panel. Do not attempt to remove individual LEDs. In the case of a malfunctioning LED or digit segment, replace the entire digit circuit board.
The process of replacing digits varies by whether it is a PanaView digit or UniView digit (**Figure 12**).

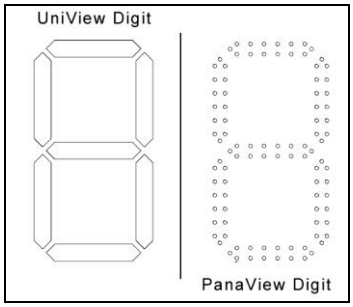


Figure 12: *Digit Types*

PanaView

To replace a PanaView digit circuit board (**Figure 13**):

1. Open the digit panel as described in **Section 5.2**.
2. Disconnect the power/signal connector from the back of the digit by squeezing together the locking tabs and pulling the connector free.
3. Use a $^{9}/_{32}$" nut driver to remove the nuts securing the digits to the inside of the panel, and then lift the digit off the stud inserts.
4. Position a new digit over the studs (making sure the small plastic spacers are still in place) and tighten the nuts.
5. Reconnect the power/signal connector.

   Note: This is a keyed connector and it will attach in one way only. Do not attempt to force the connection.

6. Secure the digit panel to the display with the two screws, then power up and test the display to see if changing the digit has resolved the problem.

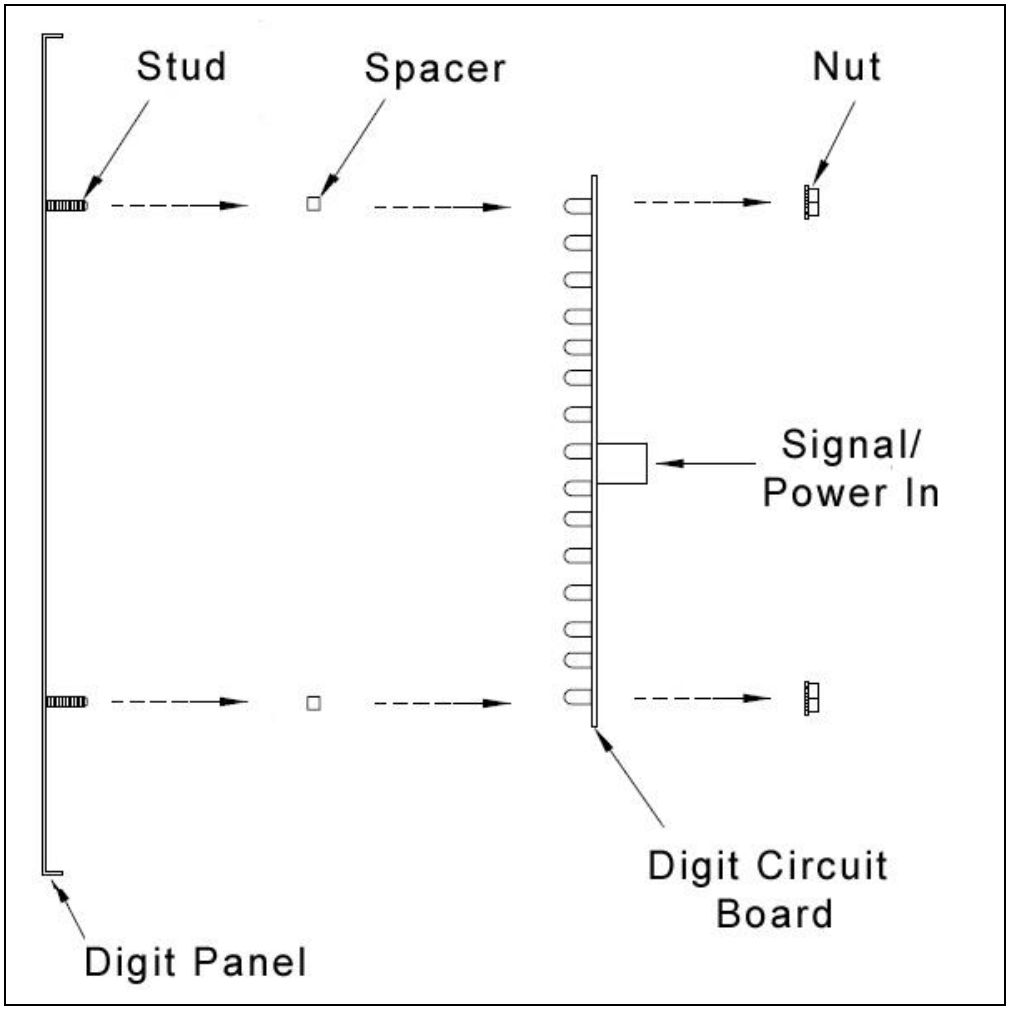


Figure 13: *PanaView Digit Assembly*

UniView

To replace a UniView digit circuit board (**Figure 14**):

1. Open the digit panel as described in **Section 5.2**.
2. Disconnect the power/signal connector from the back of the digit by squeezing together the locking tabs and pulling the connector free.
3. Use a $^{9}/_{32}$" nut driver to remove the nuts securing the digits to the aluminum standoffs, and then lift the digit off the standoff/diffuser assembly.
4. Position a new digit over the standoffs, and tighten the nuts. It may be necessary to also tighten the standoffs if they became loose while removing the nuts.
5. Reconnect the power/signal connector.

   Note: This is a keyed connector and it will attach in one way only. Do not attempt to force the connection.

6. Secure the digit panel to the display with the two screws, then power up and test the display to see if changing the digit has resolved the problem.

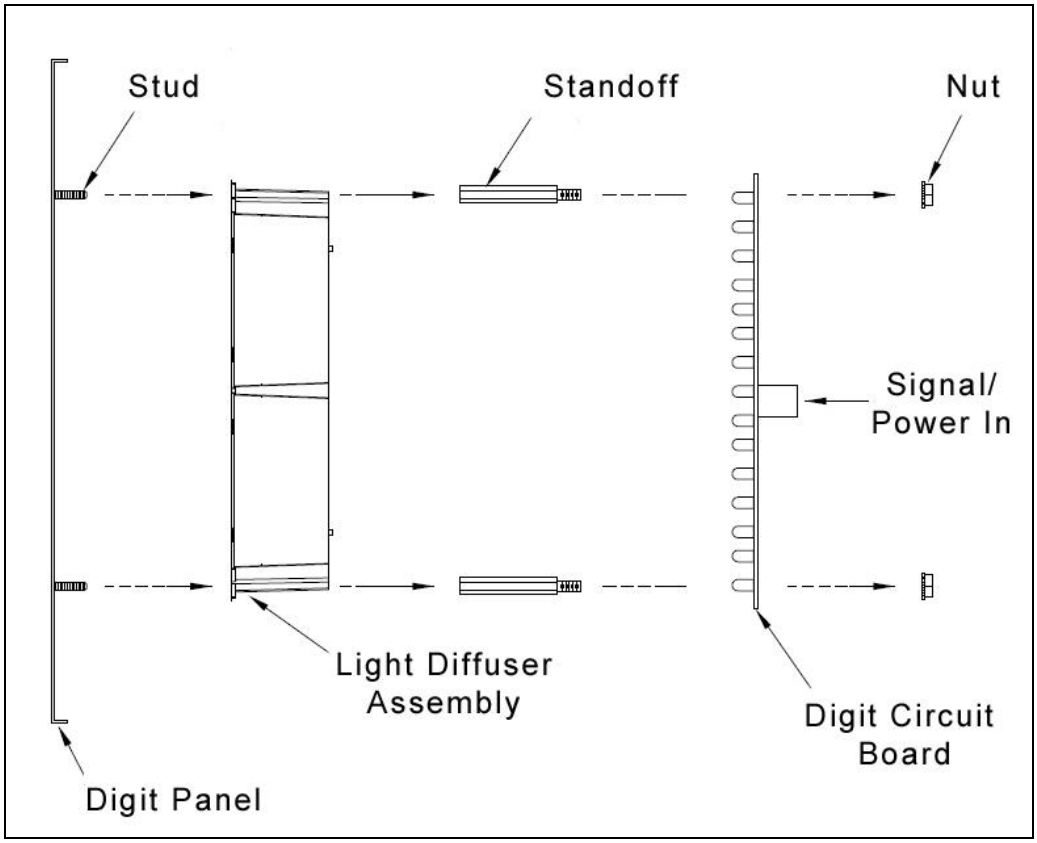


Figure 14: *UniView Digit Assembly*

5.4 LED Drivers

In each scoreboard, LED drivers perform the task of switching LEDs on and off. LED drivers are located inside of a driver enclosure. Refer to **Figure 15** to view the location and components of a Tuff Sport driver enclosure.

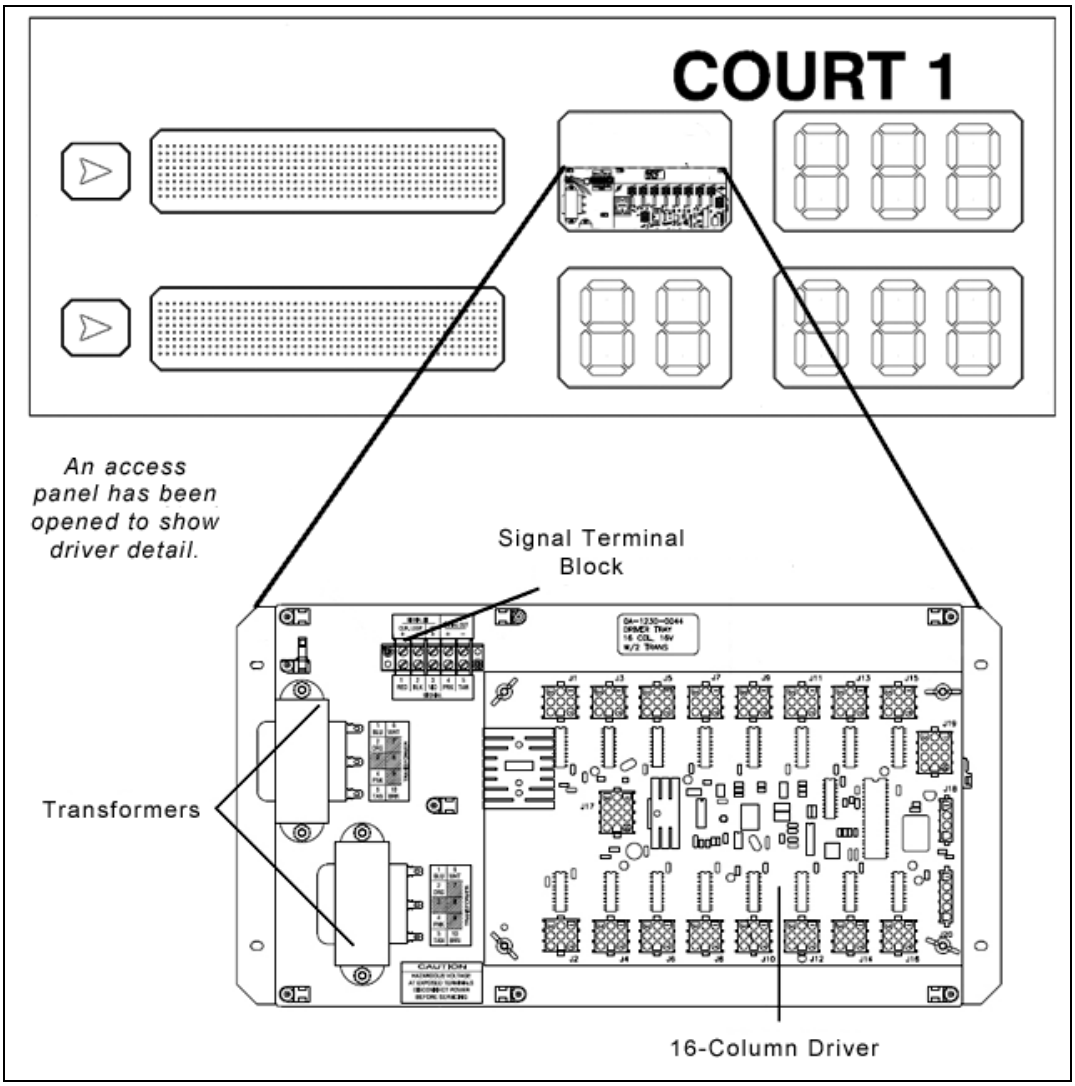


Figure 15: *Driver Enclosure Location & Components*

All Tuff Sport tennis scoreboards use 16-column drivers (**Figure 15**). Refer to the component location drawings in **Appendix A** to determine the type and number of drivers for a particular scoreboard model.

Each driver has numerous connectors providing power and signal inputs and outputs to the scoreboard digits and indicators. The table on the following page shows the function of these connectors for a 16-column driver:

Connector #	Function
1-16	Output to digits and indicators
17	Control signal
19	Address

Refer to **Drawing A-126174** in **Appendix A** for detailed driver pin out/switch specifications.

When troubleshooting driver problems, three LEDs labeled **DS1**, **DS2**, and **DS3**, provide the following diagnostic information:

LED	Color	Function	Operation	Summary
DS1	Green	Power	Steady on	DS1 will be on and steady to indicate the driver has power.
DS2	Red	Signal RX	Steady on or blinking	DS2 will be on or blinking when the driver is receiving a signal and off when there is no signal.
DS3	Amber	Status	Blinking	DS3 will be blinking at one second intervals to indicate the driver is running.

Note: While it is necessary to have the scoreboard powered on to check the LED driver status indicators, always disconnect scoreboard power before servicing.

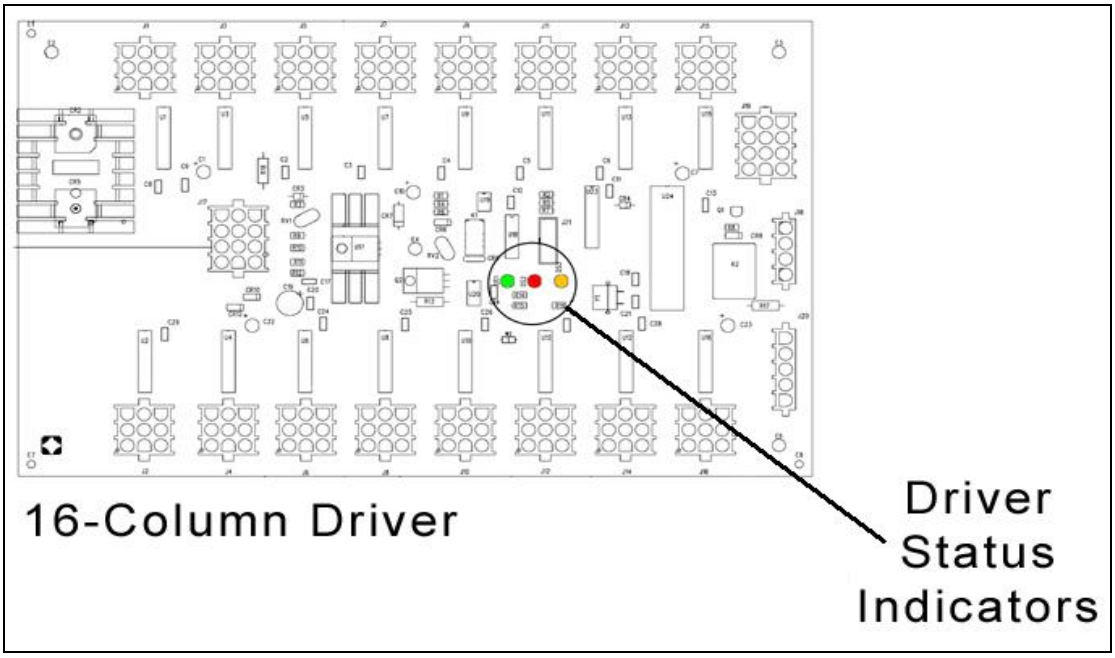


Figure 16: *Driver Status Indicators*

Replacing a Driver

If the driver status indicators do not appear to be working correctly, it may be necessary to replace the driver.

1. Open the digit panel or scoreboard face panel as described in **Section 5.2**.
2. Disconnect all connectors from the driver by squeezing together the locking tabs and pulling the connectors free.

   Note: It may be helpful to label the cables to know which cable goes to which connector when reattaching the driver.

3. Remove the wing nuts securing the driver to the driver tray.
4. Carefully lift the driver from the display and place it on a clean, flat surface.
5. Position a new driver over the screws and tighten the nuts.
6. Reconnect all power/signal connectors.

   Note: The connectors are keyed and will attach in one way only. Do not attempt to force the connections.

7. Ensure the driver is set to the correct address (refer to **Setting the Driver Address**).
8. Close and secure the access panel, then power up and test the scoreboard to see if changing the driver has resolved the problem.

Setting the Driver Address

Since the same LED drivers can be used for many scoreboard models, each driver must be set to receive the correct signal input, or address, for the model being used. This address is set with jumper wires in a 12-pin plug which mates with jack J19 on the driver (**Figure 17**).

It may be possible to reuse the same address plug from the driver that was replaced. If not, refer to **Drawing A-1054354** in **Appendix A** for a listing of the wire/pin connections for up to 12 courts and Team Score module, including TNMCs.

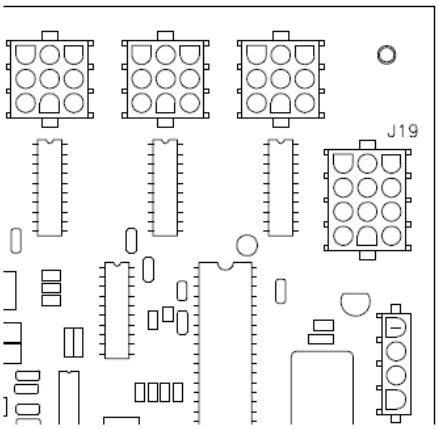


Figure 17: *Address Jack J19*

5.5 Segmentation and Digit Designation

In each digit, certain LEDs always go on and off together. These groupings of LEDs are called segments. **Drawing A-38532** in **Appendix A** details which connector pin is wired to each digit segment and the wiring color code used throughout the display.

The component location drawings in **Appendix A** specify the driver connectors controlling the digits. Numbers shown in hexagons in the upper half of each digit indicate which connector is wired to that digit.

5.6 Schematics

For advanced scoreboard troubleshooting and repair, it may be necessary to consult the schematic drawings. Located in **Appendix A**, schematic drawings show detailed power and signal wiring diagrams of internal display components such as drivers and transformers as well as optional components like TNMCs and radio receivers.

5.7 Replacement Parts List

Refer to the following table for Daktronics scoreboard replacement parts.

Description	Daktronics Part #
Junction box; phone jack	0A-1009-0038
Signal Converter, 120 V	0A-1065-0173
RC-100 Handheld Controller	0A-1110-0053
RC-100 Base Station, Scoreboard Receiver	0A-1110-0035
RC-100 Base Station, Serial COM	0A-1110-0037
LED driver, 16-column	0P-1150-0126
PanaView Digit, 5" red LED, 7-seg	0P-1150-0200
PanaView Digit, 5" amber LED, 7-seg	0P-1150-0081
PanaView Digit, 10" red LED, 7-seg	0P-1230-0050
PanaView Digit, 10" amber LED, 7-seg	0P-1230-0051
PanaView Digit, 13" red LED, 7-seg	0P-1230-0052
PanaView Digit, 13" amber LED, 7-seg	0P-1230-0053
PanaView Arrow, Red, 3"	0P-1150-0185
PanaView Arrow, Amber, 3"	0P-1150-0164
PanaView Colon, Red	0P-1230-0070
PanaView Colon, Amber	0P-1230-0071
UniView Digit, 10" Red LED, 7-seg	0P-1230-0025
UniView Digit, 10" Amber LED, 7-seg	0P-1230-0026
UniView Digit, 13" Red LED, 7-seg	0P-1230-0027
UniView Digit, 13" Amber LED, 7-seg	0P-1230-0028
UniView 1 Position Indicator, Red	0P-1230-0037
UniView 1 Position Indicator, Amber	0P-1230-0039
UniView Colon, Red	0P-1230-0068
UniView Colon, Amber	0P-1230-0069
Transformer, 120P/16S, 6.3 A	T-1066
Cable, 20' phone plug	W-1236
Cable, 50' phone plug	W-1237
Cable, 30' phone plug	W-1238
Cable, 10' phone plug	W-1340

5.8 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 Installed: _____
Daktronics Customer ID Number: _____

To participate in the Exchange Program, follow these steps.

1. **Call Daktronics Customer Service.**

Market Description	Customer Service Number
Schools (including community/junior colleges), religious organizations, municipal clubs and community centers	877-605-1115
Universities and professional sporting events, live events for auditoriums and arenas	866-343-6018

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 or fax Daktronics Customer Service:**
   Refer to the appropriate market number in the chart listed on the previous page.
   Fax: **605-697-4444**

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

Shipping Address

Daktronics Customer Service
[Case #]
201 Daktronics Drive, Dock E
Brookings, SD 57006

Daktronics Warranty and Limitation of Liability

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

Section 6: TNMC Troubleshooting & Maintenance

IMPORTANT NOTES:

1. **Always disconnect scoreboard power before doing any repair/maintenance work on the message centers.**

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

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

6.1 Display Overview

Team Name Message Centers (TNMCs) are programmable LED displays that allow users to show custom Home and Guest names or messages of ~15 characters on the scoreboard in place of static vinyl captions. TNMCs are typically ordered factory-installed, but they may also be field-mounted after the scoreboard is in place. Characters are shown on one line using single- or double-stroke fonts.

Primary matrix sizes include 8x32 with 1" pixel spacing and 8x48 with 0.75" pixel spacing. **Figure 18** shows an example of 8x48, 0.75" TNMCs.

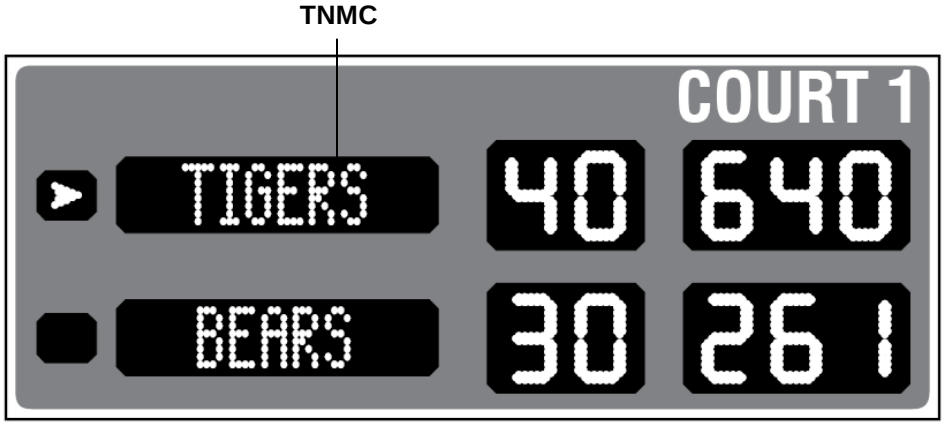


Figure 18: *Tennis Scoreboard with TNMCs*

Matrix Size	Number of Modules	Pixel Spacing	Active Display Area	Weight*
8x48	3	19 mm (0.75")	6" x 36" (152 mm x 914 mm)	15 lb (7 kg)
8x32	2	25 mm (1")	8" x 32" (203 mm x 813 mm)	20 lb (9 kg)

** Weight shown is for a pair of displays.*

6.2 Initialization Information at Startup

Every time the display is powered up and there is no All Sport® signal present, the display will run through an initialization process, during which it will test all LEDs and addresses. First, the message center will display the proper address number.

If the entire display fails at startup, power may not be properly connected, or the address setting may not be correct on the display driver. Check both in the event of a failure.

6.3 Display Troubleshooting Table

The table below lists potential problems with the display and indicates possible causes and corrective actions. This list does not include every symptom that may be encountered, but it does present several of the most common situations that may occur.

Many of the solutions offered below provide references to other sections within this manual with further detail on how to fix the problem.

If a problem occurs that is not listed or that cannot be resolved using the solutions in the following table, contact Daktronics using the information provided in **Section 5**.

Symptom/Condition	Possible Remedy
One or more LEDs on a single module fails to light	Check/replace the ribbon cables on the module.
	Replace the module (see **Section 6.7)**.
One or more LEDs on a single module fails to turn off	Check/replace the ribbon cables on module.
	Replace the module (see **Section 6.7**).
A section of the display not working; section extends all the way to the right side of the display	Check/replace the ribbon cables running to the first module that is not working.
	Replace the first module on the left side of the first module that is not working (see **Section 6.7**).
	Replace the second module that is not working (see **Section 6.7**).
	Replace the power supply assembly on the first module that is not working (see **Section 6.8**).
One row of modules does not work or is garbled	Replace the first module (see **Section 6.7**).
	Replace the display driver (see **Section 6.6**).
A group of modules that share the same power supply assembly fails to work	Replace the power supply assembly (see **Section 6.8**).
Entire display fails to work	Check for proper line voltage into the power termination panel.
	Check/replace the ribbon cable from the display driver to the modules.
	Check the voltage settings on the power supplies.
	Check/replace the signal cable to the driver.
	Repair/replace the driver (see **Section 6.6**).

6.4 Power & Signal Summary

Reference Drawings:

Schematic: 3/4" and 1" DC TNMC's ..... **Drawing B-146975**

Refer to **Drawing B-146975** in **Appendix A** for detailed schematics about display power and signal routing.

Display signal routing can be summarized as follows:

1. Data from the All Sport® controller or DakTennis™ software travels via signal cable (or All Sport radio) into the scoreboard.
2. The signal then travels through the driver, typically re-driven from the driver TB-31 to the current loop interface (CLI) cards located on the right-hand module of each display.
3. A ribbon cable harness carries the signal to the first LED module, and the signal relays from module to module via ribbon cable in daisy-chain style until it reaches the last module in the display.

Display power routing can be summarized as follows:

1. Incoming power from the power cord terminates at the main scoreboard LED driver tray.
2. Using interconnect harnesses, the power is passed from the driver tray to the Home display power supply, and then to the Guest display power supply.
3. Power from the power supplies is relayed to all display modules.
4. The modules draw their power directly from the power supply assemblies; the display driver receives power out from the first module via ribbon cable.

6.5 Component Locations & Access

Reference Drawings:

Installation, 6" 8x48 & 8" 8x32 TNMC ..... **Drawing B-261916**

To access the internal components of the display, simply remove the two screws on either side of the face panel that secure it to the scoreboard. Carefully remove the face panel from the scoreboard, as there will be several cables connected to it.

Drawing B-261916 in **Appendix A** provides a detailed view of each display component and the connections between them.

6.6 Display Drivers

Reference Drawings:

Address Details; Indoor Tennis Scoreboards ..... **Drawing A-1054354**

Display drivers, also known as controllers or shift cards, use a 12-pin plug that mates with jack J4 to set the address. Refer to **Drawing A-1054354** in **Appendix A** for addressing information of tennis systems with up to 12 courts.

Figure 19 illustrates some of the primary jacks and indicators of a display driver.

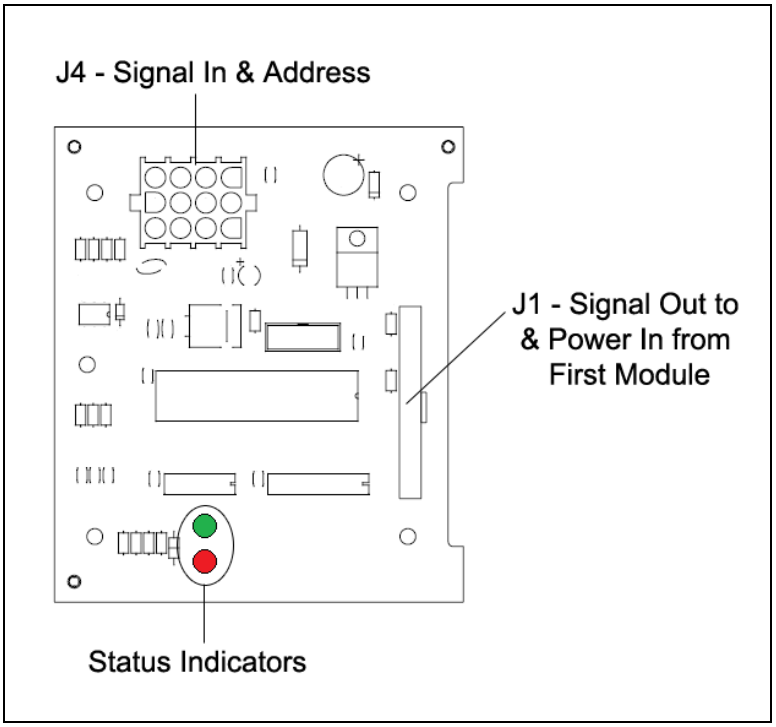


Figure 19: *Display Driver*

Diagnostic LEDs

The following table explains the functions of the primary diagnostic LEDs on the drivers:

LED Name	Color	Illumination Summary
DS1 PWR	Green	Steady on or blinking when the driver has power
DS2 RX	Red	Steady on or blinking when the driver is receiving and off when there is no current loop (CL) signal

Replacing a Driver

1. Access the internal components as described in **Section 6.5**.
2. Disconnect all power and signal connectors from the driver by squeezing together the locking tabs and pulling the connectors free.

   Note: It may be helpful to label the cables to know which cable goes to which connector when reattaching a driver.

3. Remove the four screws securing the driver to the module. This will be the right-most module, when viewing the display from the front.
4. Position a new driver over the standoffs on the module and tighten the screws.
5. Reconnect all power/signal connectors.
6. Power up and test the scoreboard/display to see if the problem has been resolved.

Refer to **Figure 20** for an overview of driver (and module) replacement.

6.7 Modules

Display modules consist of LEDs embedded in a circuit board. One or more circuit boards are mounted to the back of a display face panel. Do not attempt to remove individual LEDs. In the case of malfunctioning LEDs, replace the entire module circuit board.

Replacing Modules

1. Access the internal components as described in **Section 6.5**.
2. Carefully disconnect all ribbon cables from the driver by squeezing together the locking tabs and pulling the connectors free.

   Note: It may be helpful to label the cables to know which cable goes to which connector when reattaching.

3. Remove the nuts securing the module circuit board to the face panel. If a display driver is attached to the module, remove it along with the screws and standoffs.
4. Position a new module on the front of the face panel and reconnect all ribbon cables.
5. Reattach the module to the face panel. If a display driver was previously removed from the module, reattach it at this time too.
6. Power up and test the scoreboard/display to see if the problem has been resolved.

Refer to **Figure 20** for an overview of module (and driver) replacement.

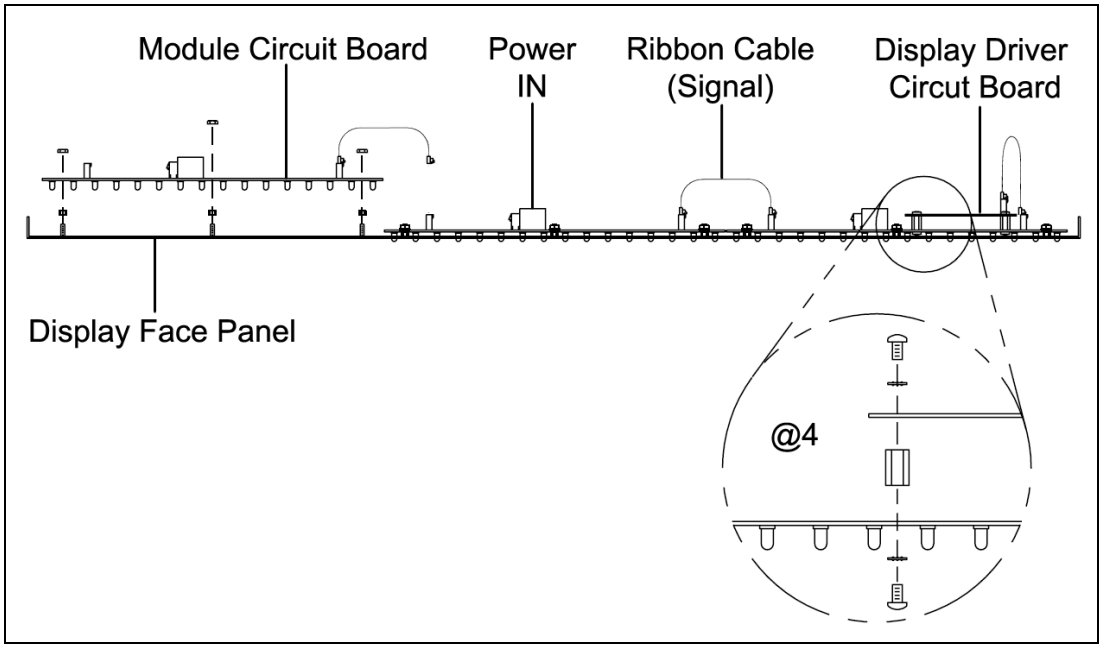


Figure 20: *Replacing a Module or Driver, Top View (0.75" Mods Shown)*

6.8 Power Supplies

Replacing a Power Supply

1. Access the internal components as described in **Section 6.5**.
2. Remove the two screws securing the power supply bracket, and remove it from the display cabinet.
3. Disconnect all the wires connected to the power supply.

   Note: It may be helpful to label the cables to know which cable goes to which connector when reattaching.

4. Remove the three screws securing the power supply to the bracket, and attach the new power supply to it.
5. Reconnect all wires, and mount the power supply bracket inside the display cabinet.

6.9 Display Maintenance

Complete a yearly inspection to maintain safe and dependable display operation. This inspection should address the following issues:

- **Loose Hardware**: Verify that fasteners, such as bolts and rivets, have not come loose. Check and tighten or replace fasteners as required.
- **Excessive Dust Buildup:** It may be necessary to occasionally vacuum the inside of the display cabinet to remove dust/dirt buildup that may interfere with airflow.
- **Corrosion:** Check the paint, and look for possible corrosion

Note: If any of the preceding conditions are discovered, make the necessary repairs or take corrective action immediately.

6.10 Replacement Parts List

The following table contains display components that may have to be replaced. Many of the components within the display itself have attached part number labels.

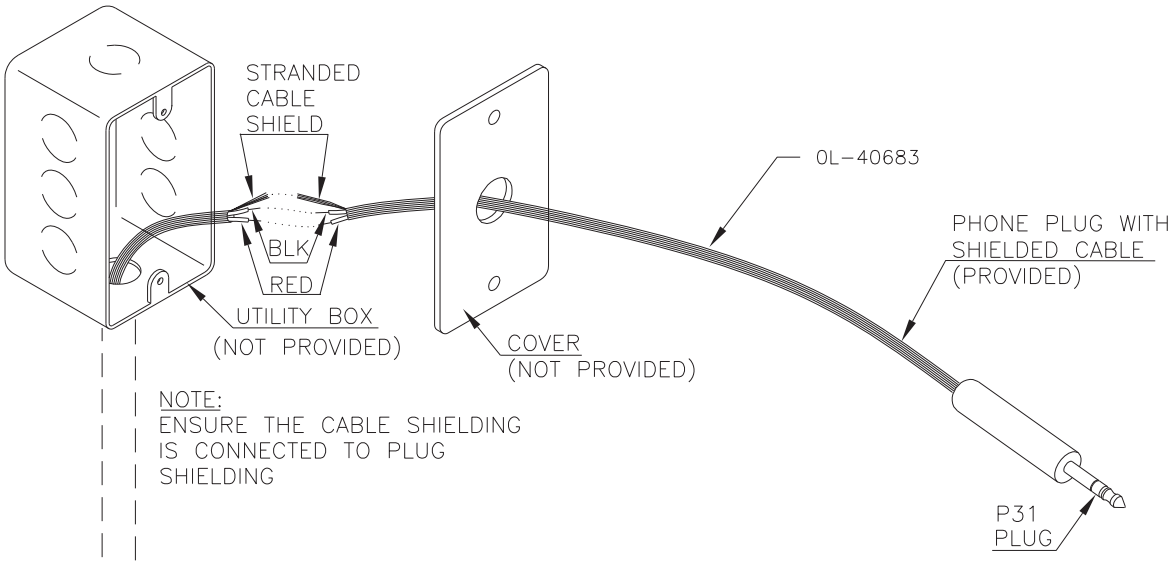
Part Description	Part Number
Indoor TNMC Card	0P-1150-0206
Module; 8x16, Amber (1")	0P-1186-0104
Module; 8x16, Red (1")	0P-1186-0111
Module; 8x16, Amber (0.75")	0P-1186-0112
Module; 8x16, Red (0.75")	0P-1186-0204
Power Supply; 12V @ 8.5A, 85-264VAC (for 1" mods)	A-1555
Power Supply; 5V @ 10A, 85-264VAC (for 0.75" mods)	A-1568
Cable; 18 pos, Ribbon, 6"	W-1320

See **Section 5** for information on Daktronics Exchange and Repair and Return program.

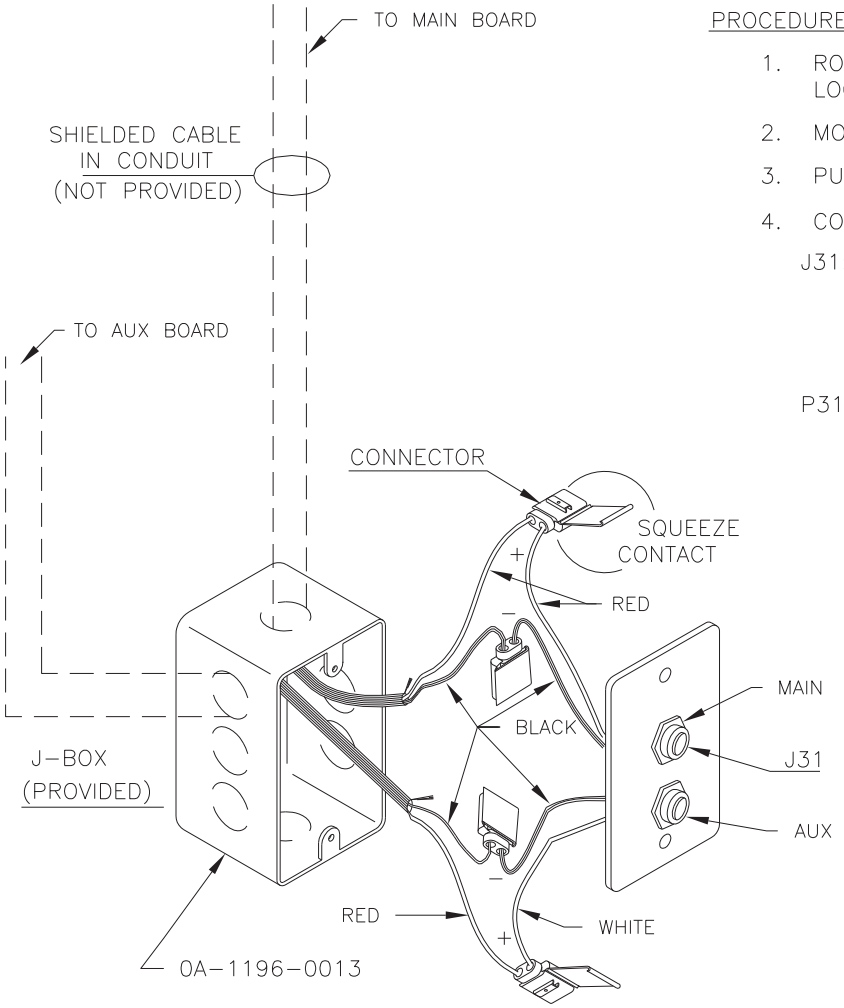
Appendix A: Reference Drawings

Drawing Title	*Drawing Number*
Signal Connection, Installation	**A-28124**
Segmentation, 7 Segment Bar Digit	**A-38532**
16 Column LED Driver II Specifications	**A-126174**
Schematic; 3/4" & 1" TNMCs	**B-146975**
Advertising/Identification Display Mounting	**A-147668**
Installation, 6" Amber 8x48 TNMC	**A-148701**
ID or Ad Panel Mounting to Scoreboard	**A-156134**
Schematic, 16V 1 Driver, 120 or 230VAC	**A-158348**
Base Station: Indoor Installation	**A-227465**
System Riser; Tennis; Multi-Court, DakTennis, CG	**B-231298**
System Riser; Tennis; Multi-Court, RC-100 Direct	**B-233254**
Schematic, 1 Driver w/ TNMCs, 120VAC or 230VAC	**B-281962**
Address Details; Indoor Tennis Scoreboards	**A-1054354**
System Riser; Tennis; Multi-Court, DakTennis, Radio, CG	**B-1077063**
Schematic; Indoor 27ft Team Score, Optional TOD	**B-1097081**
Schematic; Indoor 18ft Team Score	**B-1110522**
F. Assy; Custom TN-2561	**B-1115148**

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

CONTROL LOCATION

REV.	DATE	DESCRIPTION	BY	APPR.
05	30 JUL 03	BOLD FACED GROUNDING NOTE	TLH	
04	17 JUN 03	CHANGED GROUDING 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	

DAKTRONICS, INC. BROOKINGS, SD 57006

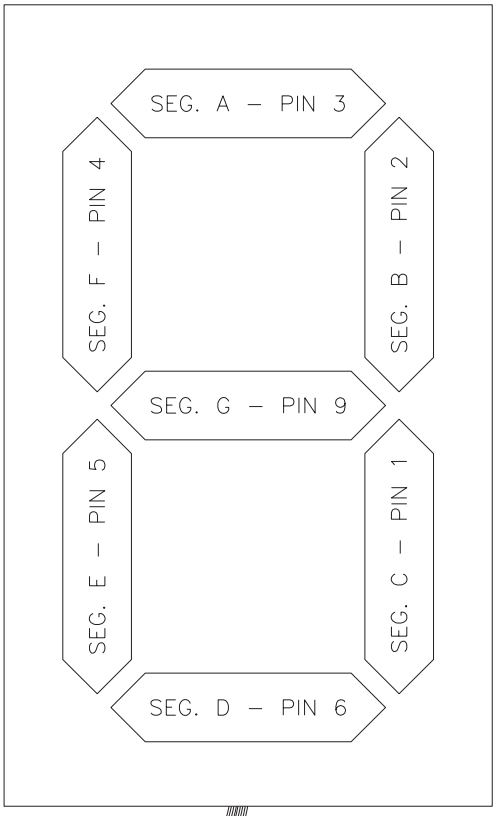
PROJ: BASKETBALL

TITLE: SIGNAL CONNECTION; INSTALLATION

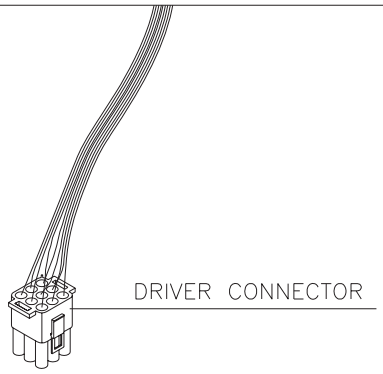
DES. BY: AVB DRAWN BY: MHART DATE: 15SEP86

REVISION 05 | APPR. BY: AVB | SCALE: NONE

1009-R10A-28124



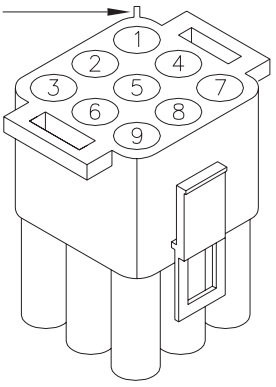
7 SEGMENT BAR DIGIT
FRONT VIEW



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

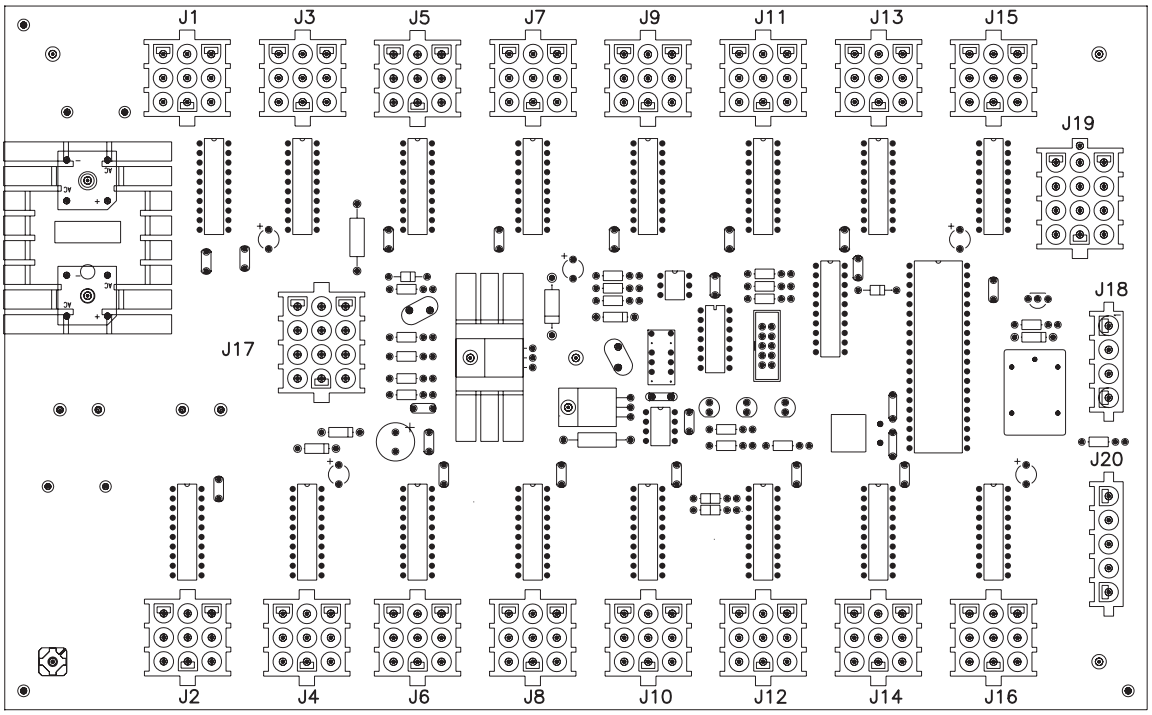


DAKTRONICS, INC. BROOKINGS, SD 57006

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

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

OP-1150-0126 UNCOATED OR 0P-1150-0127 COATED
16 COLUMN LED DRIVER II



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

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

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

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

J20 PROTOCOL	
PIN	FUNCTION
1	GND-N
2	PR0-N
3	PR1-N
4	PR2-N
5	TOD-N

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

-GREEN LED INDICATES THE DRIVER HAS POWER

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

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

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

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

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

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

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

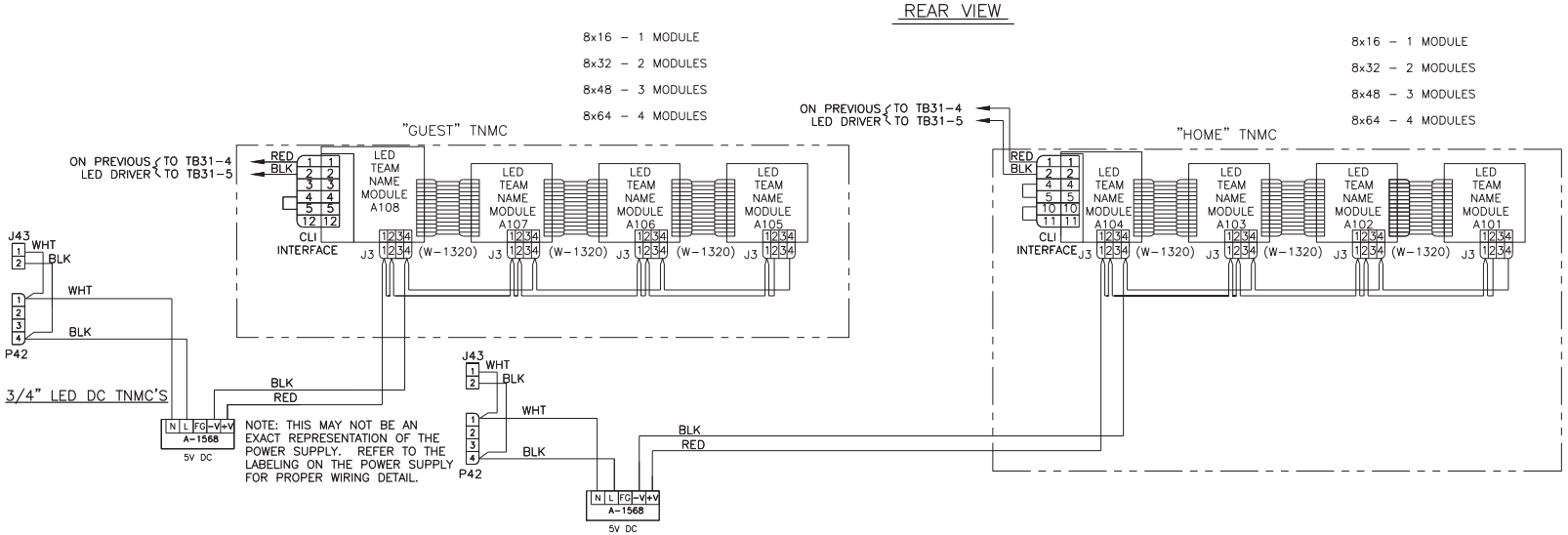
TITLE: 16 COLUMN LED DRIVER II SPECIFICATIONS

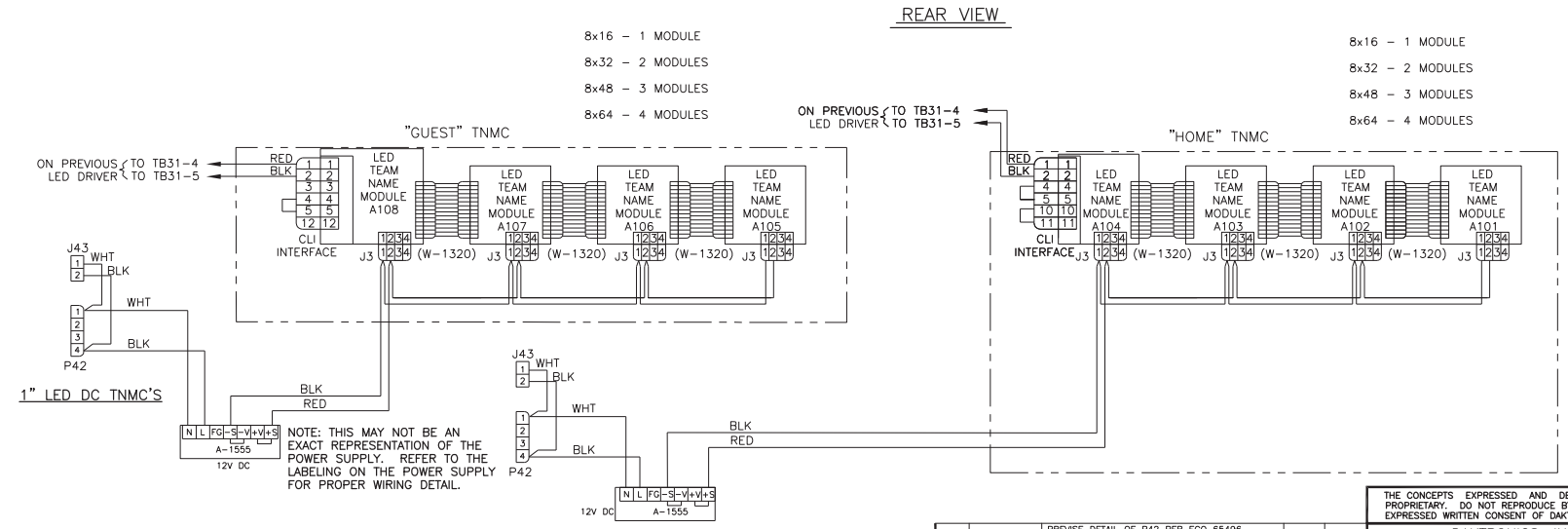
DES. BY: EB DRAWN BY: EBRAVEK DATE: 11 JAN 00

REVISION 01 APPR. BY:

SCALE: 1=2

1150-R07A-126174





REV.	DATE	DESCRIPTION	BY	APPR.
03	29 DEC 08	PREVISE DETAIL OF P42 PER ECO 65496. MOVED PIN 2 TO PIN 4. ORIGNAL CHANGE WAS MADE ON 5 OCT 04	DKD	
02	06 AUG 03	CHANGED TO B SIZE DWG ADDED 3RD MODULE TO SHOW 8X64 CONFIGURATION	TLH	MWM
01	25 JUN 03	SWAPPED N & L ON A-1568 PER ECO #31661	RASMUS	CMC

DAKTRONICS, INC. BROOKINGS, SD 57006

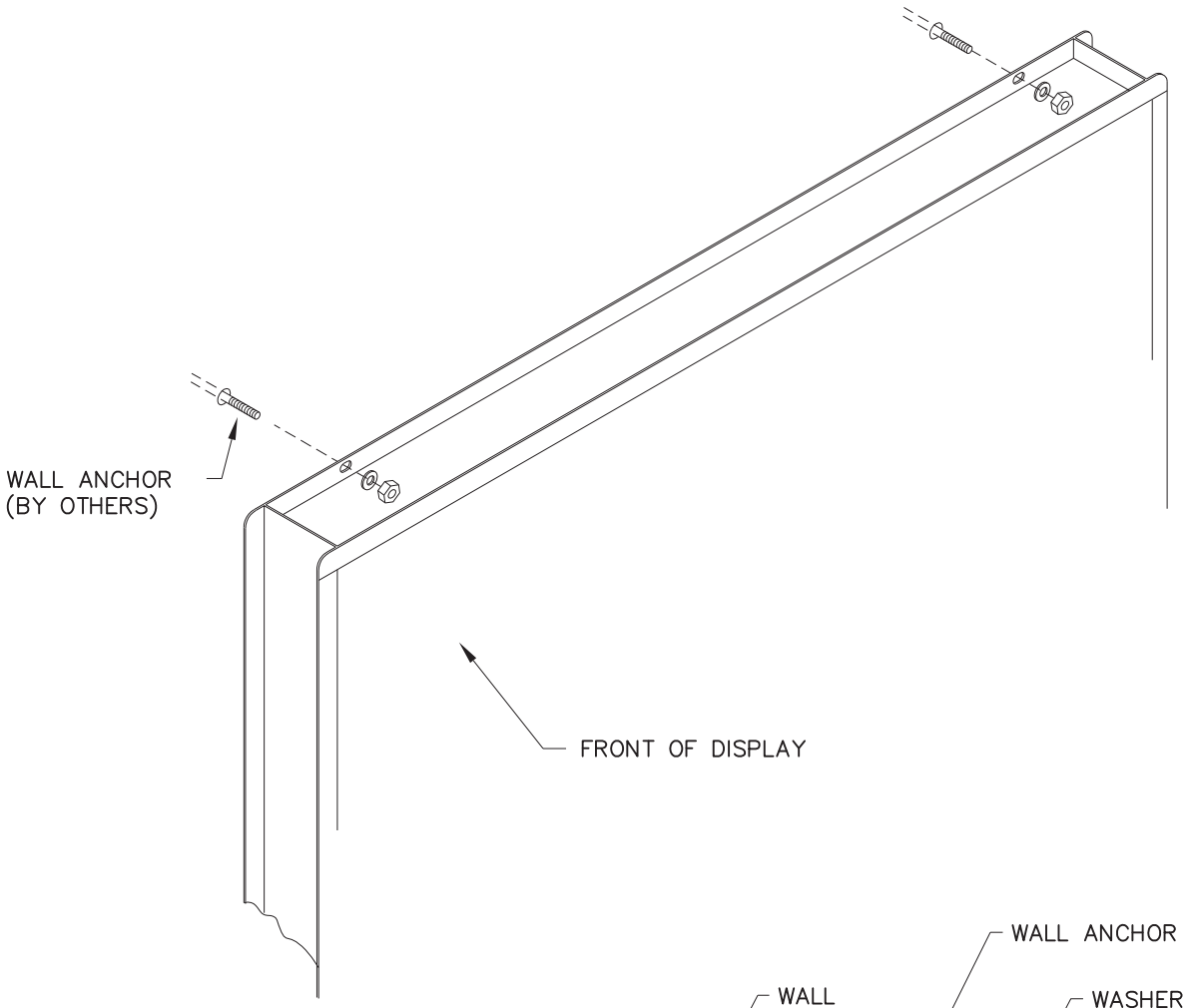
PROJ:

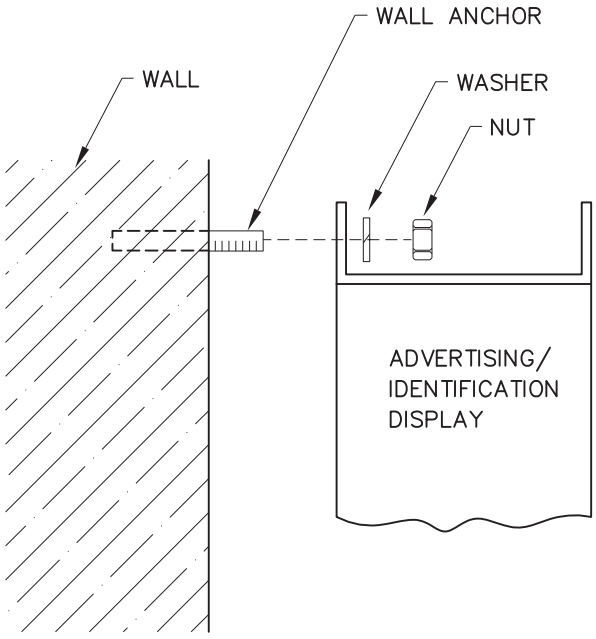
TITLE: SCHEMATIC: 3/4" AND 1" DC TNMC'S

DES. BY: DRAWN BY: JSPAHR DATE: 29 MAR 01

REVISION 03 | APPR. BY: | SCALE: NONE

1152-R03B-146975





ATTACH THE DISPLAY TO THE WALL USING MOUNTING LOCATIONS PROVIDED.

QUANTITY AND POSITION OF MOUNTING LOCATIONS WILL VARY WITH MODEL.

USE THE APPROPRIATE ANCHORS FOR THE TYPE OF WALL.

REV.	DATE	DESCRIPTION	BY	APPR.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: ADVERTISING/IDENTIFICATION DISPLAY MOUNTING

DES. BY: JANDRE DRAWN BY: JANDRE DATE: 16APR01

REVISION APPR. BY:

SCALE: NONE

1009-R10A-147668

TNMC INSTALLATION INSTRUCTIONS

1. REMOVE THE HOME/GUEST FACE PANELS FROM THE DISPLAY.
   REFERENCE FIGURE 1

2. MOUNT THE POWER SUPPLY ASSEMBLY TO THE BACK OF THE TNMC PAN WITH HC-1470 SCREWS. THE WIRES ARE ALREADY CONNECTED TO THE POWER SUPPLY. REFERENCE FIGURE 2

3. ROUTE THE 5V DC WIRES FROM THE POWER SUPPLY THROUGH THE OPENING TO THE TNMC LOCATIONS. ROUTE THE 120V POWER INTERCONNECT CABLE BETWEEN THE POWER SUPPLIES AND CONNECT. ROUTE THE POWER INPUT CABLE FROM THE HOME TNMC'S POWER SUPPLY TO THE 2-PIN PLUG AT THE DRIVER.
   REFERENCE FIGURE 3

4. INSTALL THE SIGNAL HARNESS. ROUTE THE SIGNAL HARNESS FROM TB-31 AT THE DRIVER TO THE TNMC LOCATIONS. REFERENCE FIGURE 3

5. CONNECT THE POWER AND SIGNAL TO THE TNMCS. REFERENCE FIGURE 3

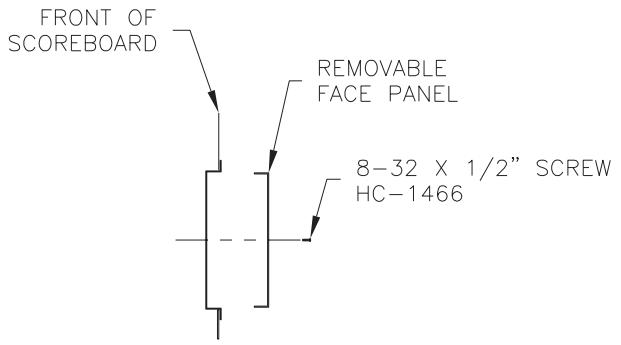


FIGURE 1

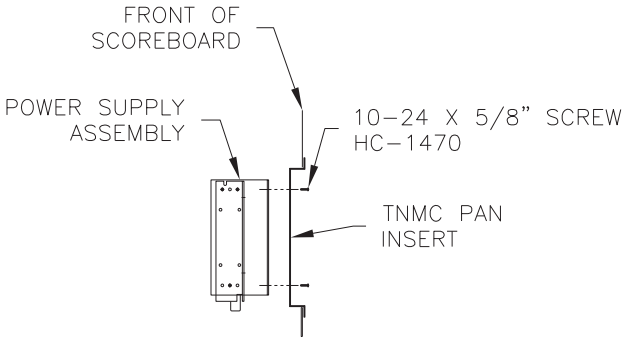


FIGURE 2

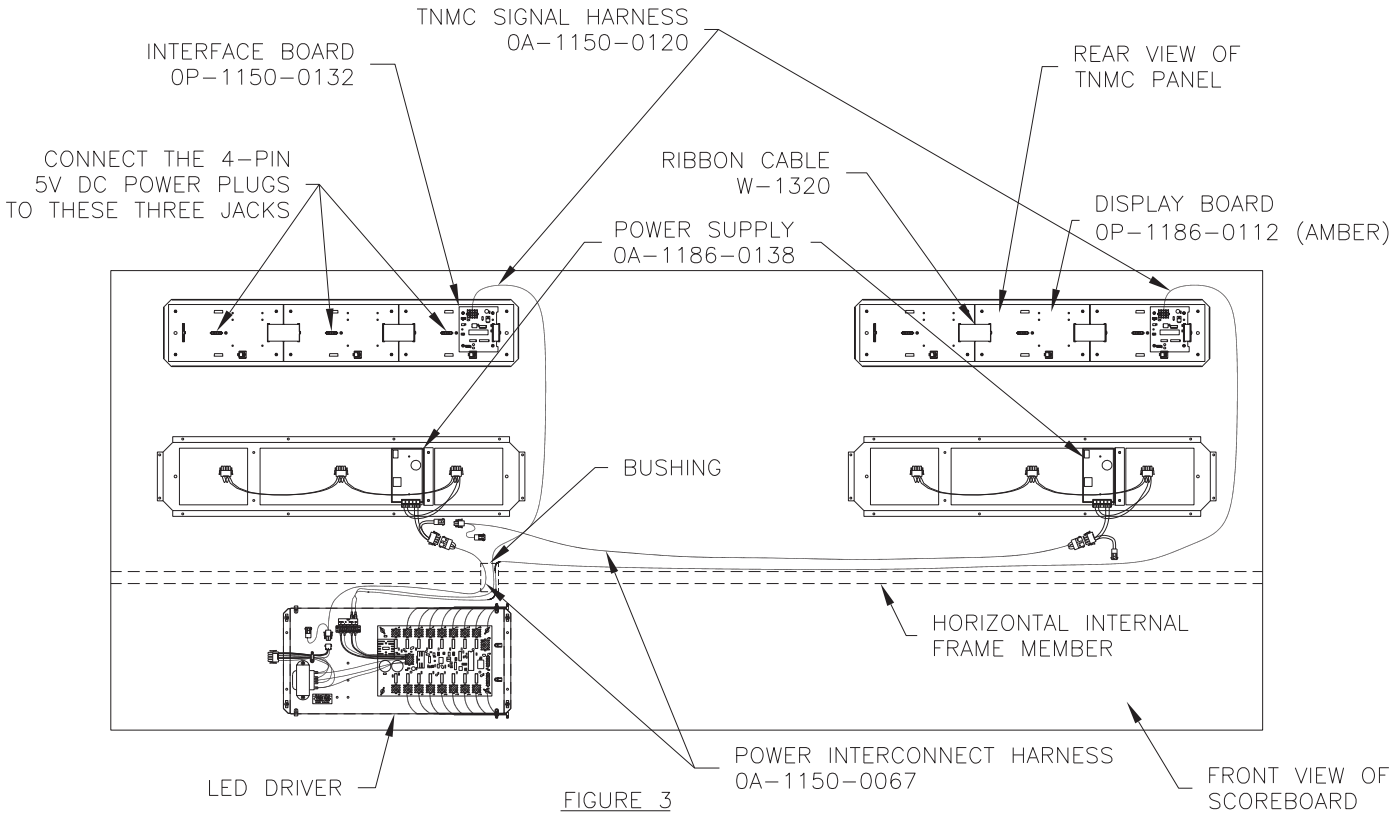
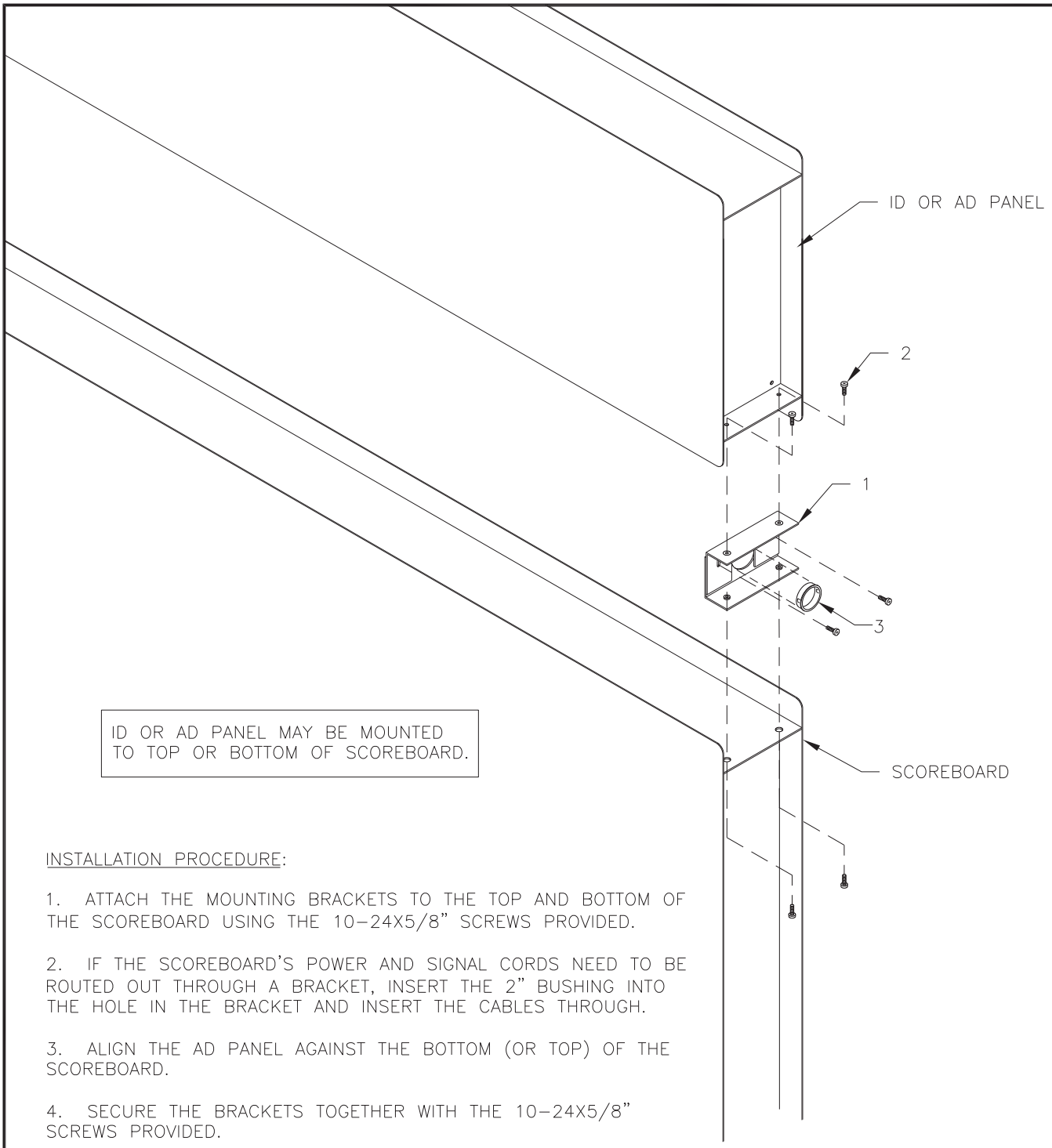


FIGURE 3

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: TUFF SPORT SCOREBOARDS			
TITLE: INSTALLATION, 6" AMBER 8X48 TNMC			
DES. BY: E REBHAHN	DRAWN BY: E REBHAHN	DATE: 10 MAY 01	
REVISION	APPR. BY:	SCALE: 1=20	1237-E10A-148701

REV.	DATE	DESCRIPTION	BY	APPR.



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

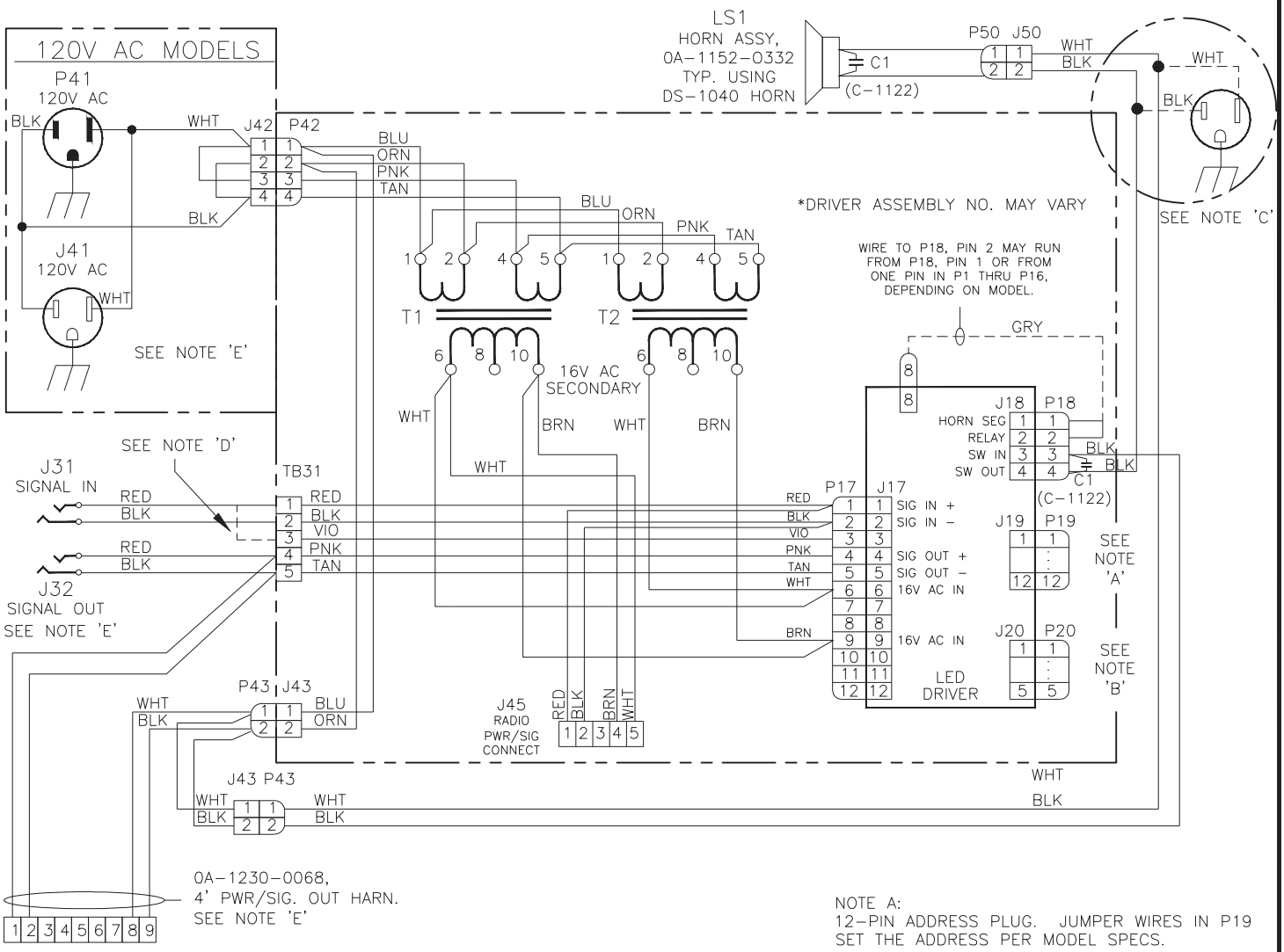
TITLE: ID OR AD PANEL MOUNTING TO SCOREBOARD

DES. BY: BPETERSON DRAWN BY: JJSYRSTAD DATE: 20 SEP 01

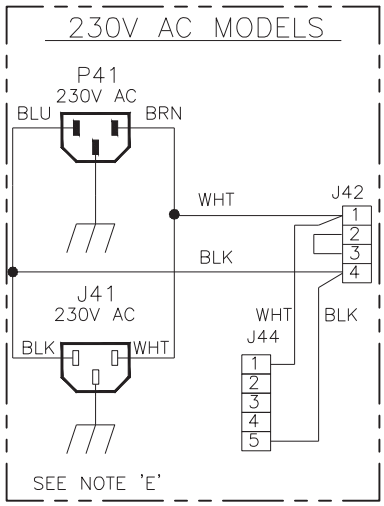
REVISION 02 | APPR. BY: | SCALE: NONE

1237-R04A-156134

120V AND 230VAC MODELS



230V AC MODELS



120V AC MODELS

SPECIFICATION LABEL DATA
MODEL NO: (PER ORDER)
VOLTS: 120 VAC, SINGLE PHASE
WATTS: 200
AMPS: 1.7

230V AC MODELS

SPECIFICATION LABEL DATA
MODEL NO: (PER ORDER)
VOLTS: 230 VAC, SINGLE PHASE
WATTS: 200
AMPS: .9

NOTE A:
12-PIN ADDRESS PLUG. JUMPER WIRES IN P19 SET THE ADDRESS PER MODEL SPECS.

NOTE B:
5-PIN PROTOCOL PLUG. JUMPER WIRES IN P20 SET THE PROTOCOL PER SYSTEM SPECS.

NOTE 'C':
J-1041 @1 & E-1047 @2, USED FOR EXTERNAL HORN APPLICATIONS. NOT AVAILABLE ON SOME MODELS.

NOTE D:
FOR SWIM SYSTEMS CONTROLLED BY POWER TIME.

NOTE 'E':
NOT USED IN SOME MODELS.

REV	DATE:		BY:
05	13 FEB 03	MOVED TAP 8 TO A DOUBLE CRIMP ON TAP 10 ON TRANSFORMER T1 CONNECTED TO J45. UPDATED TITLE TO SAY 230VAC ALSO	CME
04	15 APR 02	ADDED 4' PWR/SIG OUT HARN. THAT IS IN SOME TUFF SPORT MODELS.	MWM
03	23 JAN 02	CHANGED TITLE FROM SCHEMATIC, 16V LED DRVR TO SCHEMATIC, 16V 1 DRIVER, 120 VAC	ALG
02	17 DEC 01	CHANGED DRIVER BLOCK LAYOUT.	MWM
01	11 NOV 01	UPDATED NOTES AND 230V POWER BLOCK	MWM

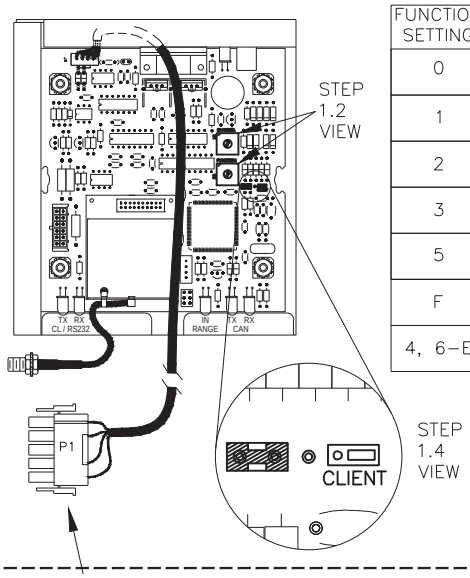
REV	DATE:		BY:
07	01 JUN 11	ADDED CAP DETAIL ON P18 AT DRIVER LOCATION FOR THE HORN HARNESS. UPDATED LS1 TEXT	MWM
06	11 JAN 05	ADDED WIRE COLORS TO 230V PLUG PER ECO# 042552	RT

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

PROJ: INDOOR UNIFORM LED DIGIT
TITLE: SCHEMATIC- 16V 1 DRIVER- 120 OR 230VAC
DESIGN: MMILLER | DRAWN: MMILLER | DATE: 02 NOV 01
SCALE: 1=1

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	07	P1230	R-03-A	158348

TOP VIEW



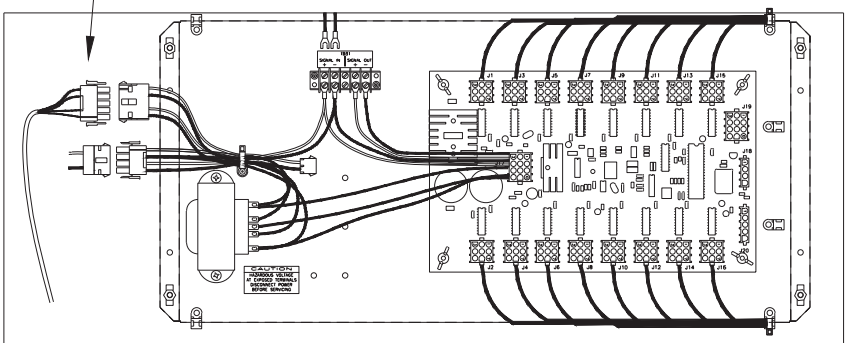
STEP 1.2 CHART

FUNCTION SETTING	FUNCTION (SERVER MODE)
0	DEFAULT FUNCTION (LAST POWER UP FUNCTION)
1	CAN HANDHELD JUDGES CONSOLE
2	ALL SPORT SCBD CONTROLLER – GEN I
3	DATA TIME MASTER DISPLAY CONTROLLER
5	ALL SPORT SCBD CONTROLLER – GEN II
F	RESET MEMORY/TEST
4, 6–E	RESERVED

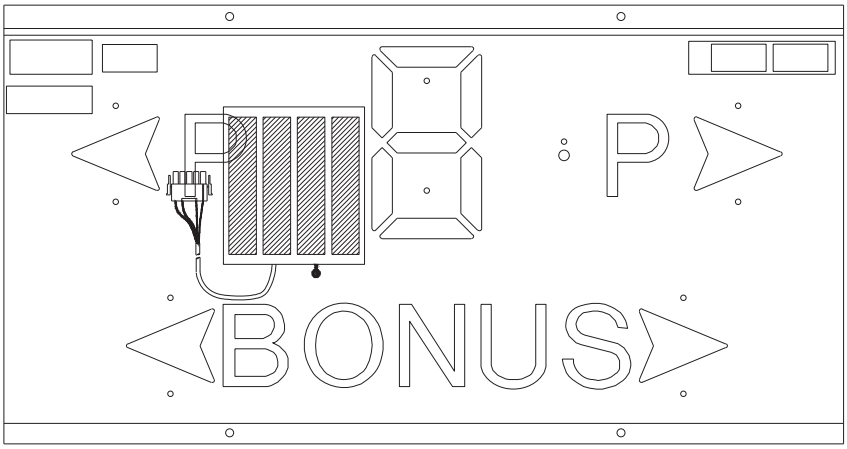
STEP 1.1
USING A NUT DRIVER REMOVE THE 2 NUTS ON THE TOP OF THE RADIO ENCLOSURE. REMOVE THE COVER FROM THE ENCLOSURE.
STEP 1.2
USING A SMALL FLAT HEAD SCREW DRIVER OR YOUR FINGERS CHANGE THE SWITCHES TO THE DESIRED CHANNEL AND FUNCTION NUMBER. (REFER TO STEP 1.2 VIEW AND CHART FOR CHANNEL SELECTION.)
STEP 1.3
NOTE THE CHANNEL NUMBER SET FOR THIS UNIT AND REATTACH THE COVER ON THE ENCLOSURE USING THE NUTS REMOVED IN STEP 1.1. BE SURE TO REINSTALL THE ANTENNA CABLE AND COVER AS THEY WHERE.
STEP 1.4
BASE STATION IS SET IN FACTORY FOR SERVER MODE. FOR CLIENT MODE, SET JUMPERS TO RIGHT MOST POSITION.

STEP 2.1
FIND A LOCATION ON THE INSIDE OF THE POWER/SIGNAL ACCESS DOOR, THAT THE BASE STATION ENCLOSURE, ONCE MOUNTED, WILL NOT INTERFERE WITH THE CLOSING OF THE DOOR. (REFER TO THE YOUR SCOREBOARDS INSTALLATION MANUAL TO DETERMINE THE LOCATION OF THE POWER/SIGNAL ACCESS DOOR.)
STEP 2.2
CHECK FOR A PREDRILLED 9/32" HOLE IN THE POWER/SIGNAL ACCES DOOR. IF THERE IS NO HOLE, DRILL A 9/32" HOLE THROUGH THE FACE OF THE DOOR. AS SHOWN BELOW.
STEP 2.3
BASE STATION ENCLOSURE INCLUDES FOUR, 5" VELCRO STRIPS. INSTALL BY REMOVING THE BACKING OFF THE VELCRO TO EXPOSE STICKY ADHESIVE. ATTACH ON THE SCOREBOARD POWER/SIGNAL ACCESS DOOR DIRECTLY ABOVE THE HOLE YOU DRILLED EARLIER.
STEP 2.4
FEED THE ANTENNA CABLE, FROM THE BASE STATION, THROUGH THE 9/32" HOLE. ATTACH THE ANTENNA CABLE TO THE FACE OF THE SCOREBOARD WITH THE SUPPLIED LOCK WASHER AND NUT.
STEP 2.5
ATTACH THE PROVIDED ANTENNA TO THE PREVIOUSLY MOUNTED ANTENNA CABLE AND TIGHTEN. BE SURE TO HAVE THE ANTENNA POINTING UP AS SHOWN BELOW.

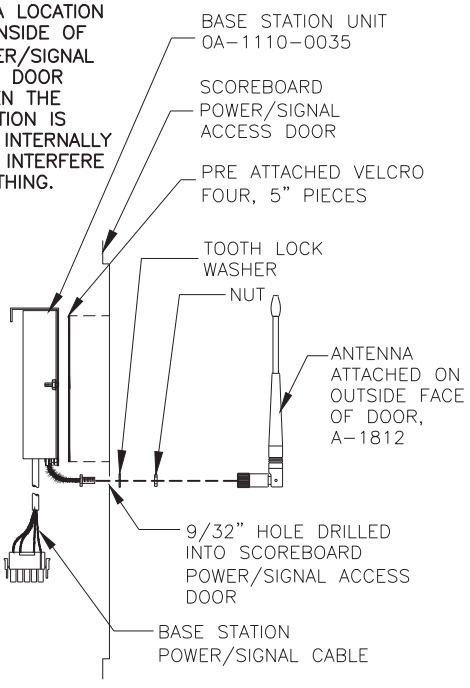
STEP 2.6
PLUG THE 5 PIN MALE PLUG FROM THE BASE STATION INTO THE MATING 5 PIN JACK (J45) ON THE DRIVER PANEL AS SHOWN TO THE LEFT.



NOTE:
SCOREBOARD ACCESS DOORS AND DRIVER PANELS VARY BETWEEN SCOREBOARD MODELS.



NOTE:
BE SURE TO CHOOSE A LOCATION ON THE INSIDE OF THE POWER/SIGNAL ENTRANCE DOOR THAT WHEN THE BASE STATION IS MOUNTED INTERNALLY WILL NOT INTERFERE WITH ANYTHING.

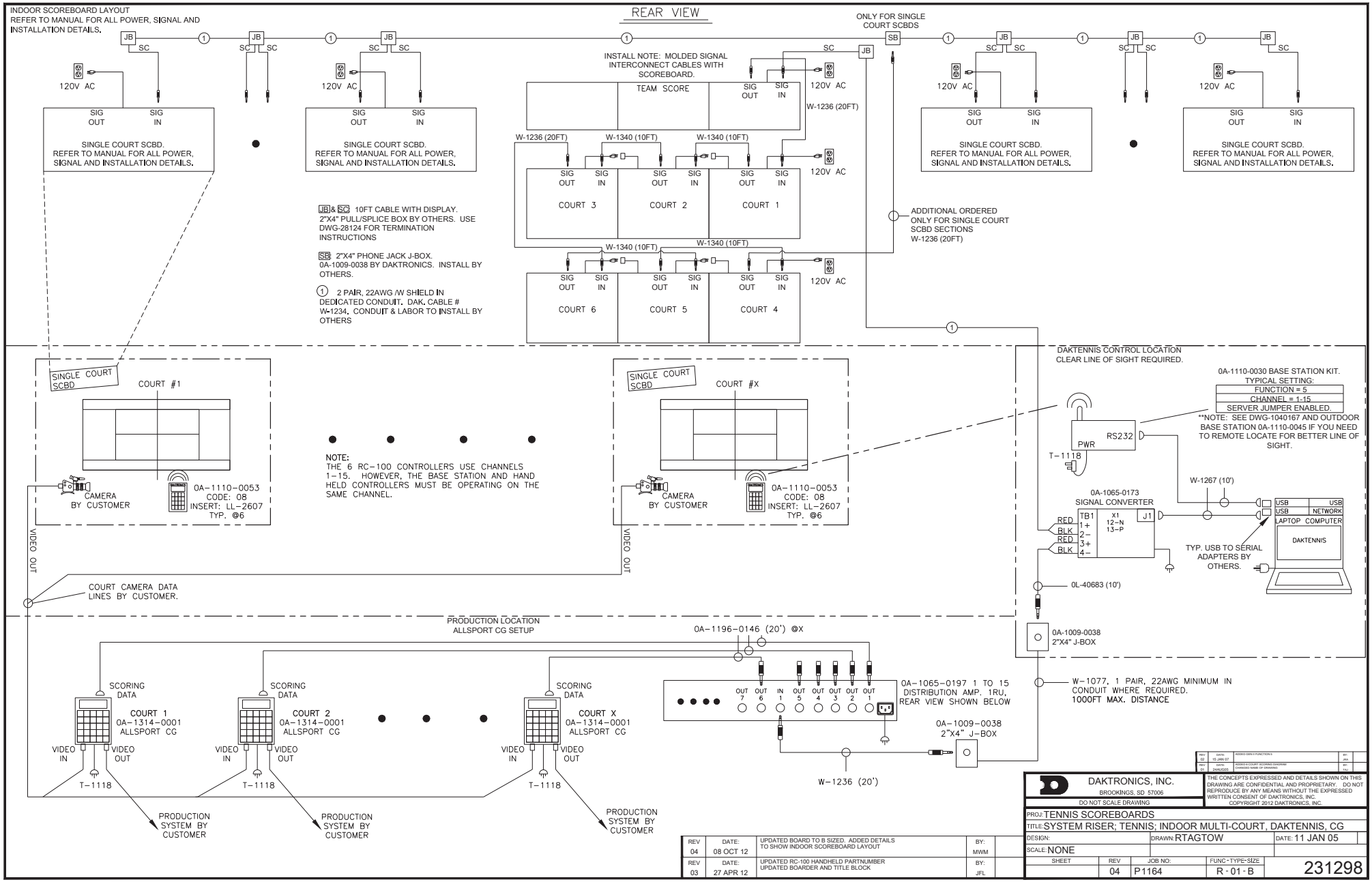


03	24 AUG 11	UPDATED FUNCTION CHART AND TITLE BLOCK	JJL
02	18 JUN 08	ADDED STEP 1.4 AND DETAIL	AMG
01	02 MAR 05	UPDATED DRAWING FOR NEW REV METAL PARTS	DJU

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

PROJ: RC–100
TITLE: BASE STATION: INDOOR INSTALLATION
DESIGN: | DRAWN: DULSCHM | DATE: 11 NOV 04
SCALE: 1 = 7

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	03	1110	E-07-A	227465



REV	DATE:	
02	15 JAN 07	ADDED GEN 5 FUNCTION 5
01	24AUG05	ADDED 8 COURT SCORING DIAGRAM; CORRECTED NAME OF DAKOTEK

REV	DATE:		BY:
04	08 OCT 12	UPDATED BOARD TO B SIZED. ADDED DETAILS TO SHOW INDOOR SCOREBOARD LAYOUT	MWM
03	27 APR 12	UPDATED RC-100 HANDHELD PARTNUMBER UPDATED BOARDER AND TITLE BLOCK	JFL

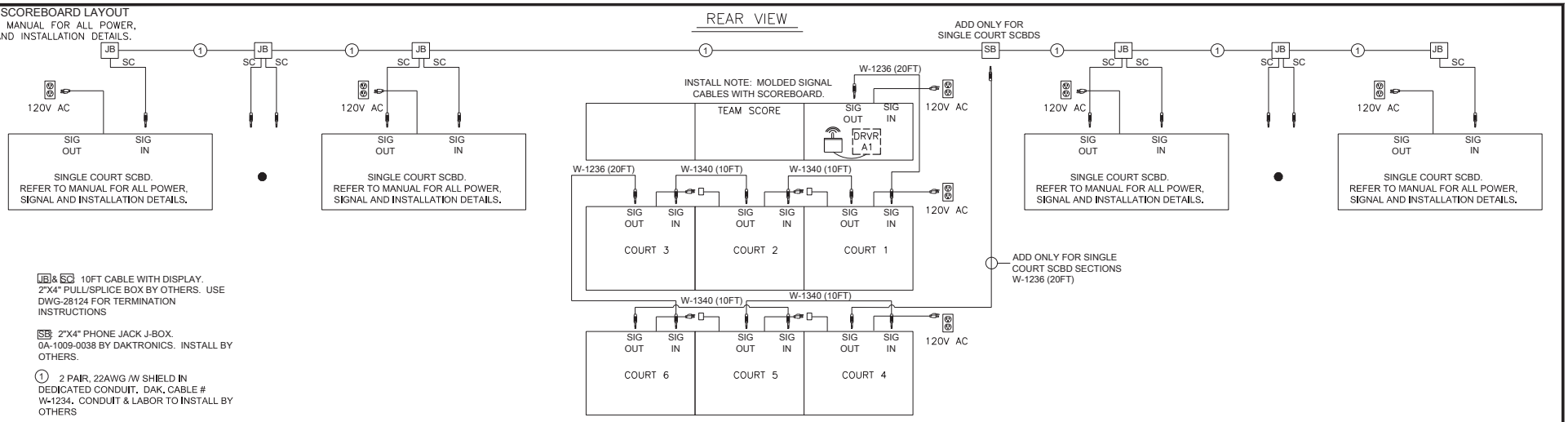
DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ: TENNIS SCOREBOARDS
TITLE: SYSTEM RISER; TENNIS; INDOOR MULTI-COURT, DAKTENNIS, CG
DESIGN: | DRAWN: RTAGTOW | DATE: 11 JAN 05
SCALE: NONE

SHEET	REV	JOB NO:	FUNC - TYPE - SIZE	
	04	P1164	R - 01 - B	231298

INDOOR SCOREBOARD LAYOUT

REFER TO MANUAL FOR ALL POWER, SIGNAL AND INSTALLATION DETAILS.



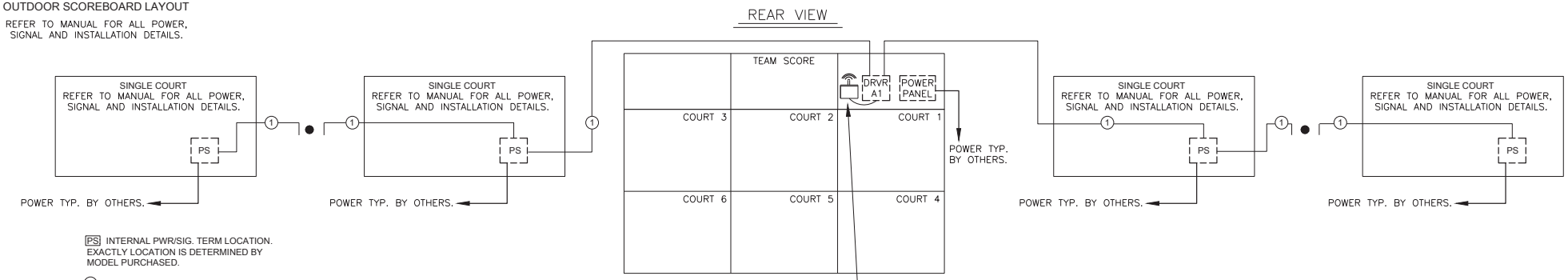
JB & SC: 10FT CABLE WITH DISPLAY. 2"X4" PULL/SPLICE BOX BY OTHERS. USE DWG-28124 FOR TERMINATION INSTRUCTIONS

SB: 2"X4" PHONE JACK J-BOX. 0A-1009-0038 BY DAKTRONICS. INSTALL BY OTHERS.

(1) 2 PAIR, 22AWG /W SHIELD IN DEDICATED CONDUIT. DAK. CABLE # W-1234. CONDUIT & LABOR TO INSTALL BY OTHERS

OUTDOOR SCOREBOARD LAYOUT

REFER TO MANUAL FOR ALL POWER, SIGNAL AND INSTALLATION DETAILS.



PS: INTERNAL PWR/SIG. TERM LOCATION. EXACTLY LOCATION IS DETERMINED BY MODEL PURCHASED.

(1) 2 PAIR, 22AWG /W SHIELD IN DEDICATED CONDUIT. DAK. CABLE # W-1234. CONDUIT & LABOR TO INSTALL BY OTHERS

0A-1110-0035
FUNCTION SETTING = 5

NOTE: RC-100 SCOREBOARD RECEIVER BASE STATION IS TYPICALLY LOCATED BEHIND THE FRONT ACCESS LOCATION OF DISPLAY FOR BOTH INDOOR AND OUTDOOR.

FUNCTION TABLE

FUNCTION NUMBER	DESCRIPTION
0	DEFAULT FUNCTION (LAST POWER UP FUNCTION)
1	CAN HAND HELD (JUDGES) CONSOLE
2	BASEBALL/TENNIS SCOREBOARD CONTROLLER GEN I (ALLSPORT)
3	DATATIME/DATAMASTER DISPLAY CONTROL
5	BASEBALL/TENNIS SCOREBOARD CONTROLLER GEN II (ALLSPORT)

RC-100 AT EACH COURT. COMMUNICATION TO MAIN MULTI-COURT RECEIVER.

0A-1110-0053
CODE: 08
INSERT: LL-2607
TYP. @6

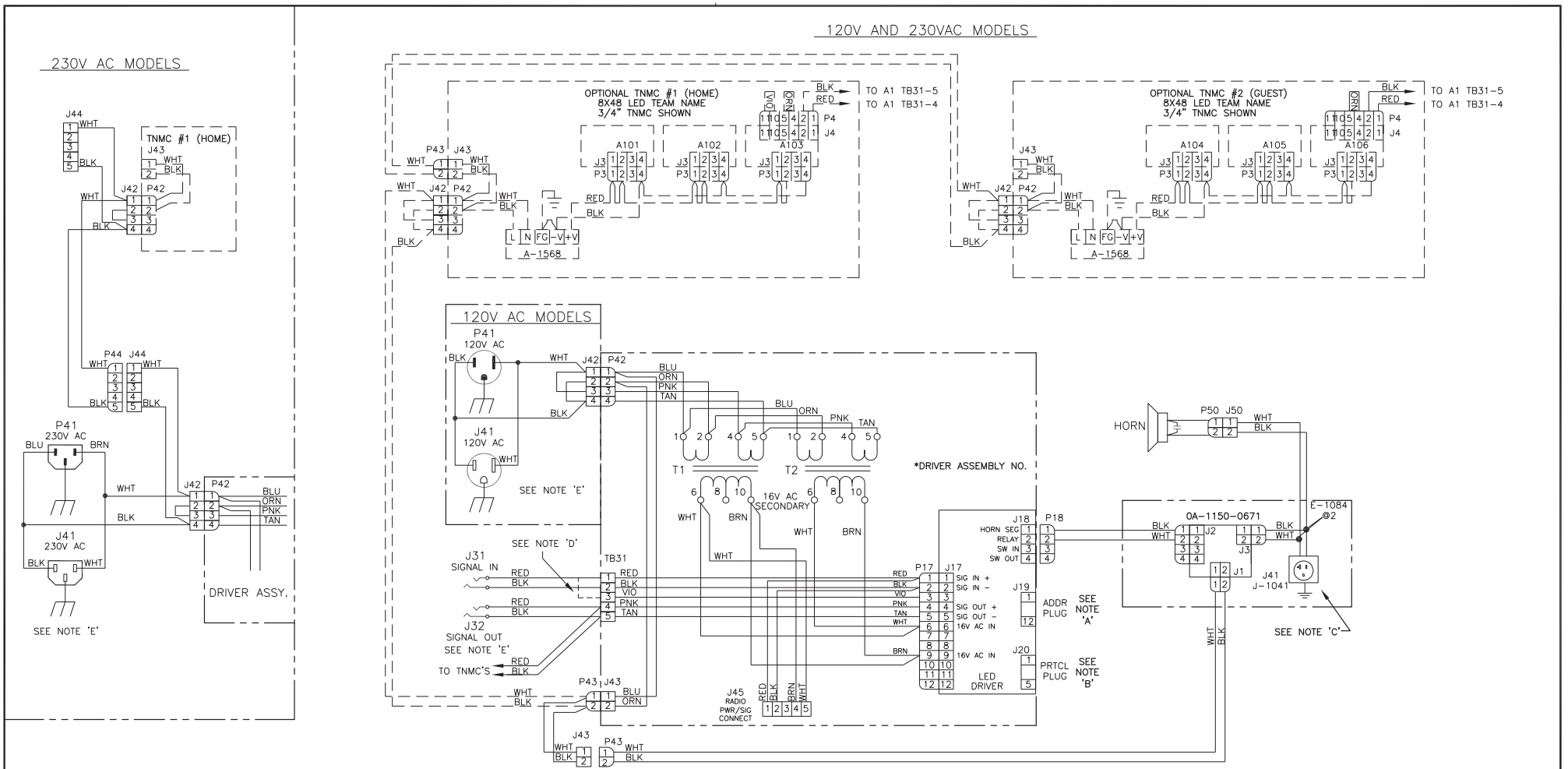
NOTE:
THE 6 RC-100 CONTROLLERS USE CHANNELS 1-15. HOWEVER, THE BASE STATION AND HAND HELD CONTROLLERS MUST BE OPERATING ON THE SAME CHANNEL.

REV	DATE:		BY:
04	08 OCT 12	UPDATE BOARD TO B - SIZE. SHOW INDOOR AND OUTDOOR DETAIL UPDATES	MWM
03	27 APR 12	UPDATED RC-100 HANDHELD PART NUMBER UPDATED BOARDER AND TITLE BLOCK	JFL
02	15 JAN 07	ADDED FUNCTION 5 GEN II	JRA
01	23AUG05	ADDED 6 COURT SCORING DIAGRAM CHANGED NAME OF DRAWING	TAJ

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

PROJ: TENNIS SCORBOARDS
TITLE: SYSTEM RISER; TENNIS; MULTI-COURT, RC-100 DIRECT
DESIGN:
DRAWN: RTAGTOW
DATE: 02 FEB 05
SCALE: NONE

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	04	P1164	R - 01 - B	233254



120V AC MODELS

SPECIFICATION LABEL DATA
MODEL NO: (PER ORDER)
VOLTS: 120 VAC, SINGLE PHASE
WATTS: 200
AMPS: 1.7

230V AC MODELS

SPECIFICATION LABEL DATA
MODEL NO: (PER ORDER)
VOLTS: 230 VAC, SINGLE PHASE
WATTS: 200
AMPS: .9

— — — OPTIONAL TNMC AND WIRING

NOTE A:
12-PIN ADDRESS PLUG. JUMPER WIRES IN P19 SET THE ADDRESS PER MODEL SPECS.

NOTE B:
5-PIN PROTOCOL PLUG. JUMPER WIRES IN P20 SET THE PROTOCOL PER SYSTEM SPECS.

NOTE 'C':
J-1041 @1 & E-1047 @2, USED FOR EXTERNAL HORN APPLICATIONS. NOT AVAILABLE ON SOME MODELS.

NOTE D:
FOR SWIM SYSTEMS CONTROLLED BY POWER TIME.

NOTE 'E':
NOT USED IN SOME MODELS.

REV.	DATE	DESCRIPTION	BY	APPR.

DAKTRONICS, INC. BROOKINGS, SD 57006

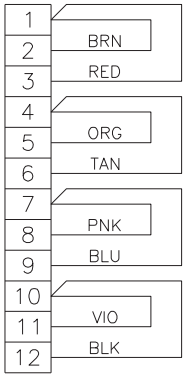
PROJ: INDOOR LED, TUFF SPORT BOARDS

TITLE: SCHEMATIC, 1 DRIVER W/ TNMC'S, 120VAC OR 230VAC

DES. BY: DRAWN BY: DDINING DATE: 13 AUG 06

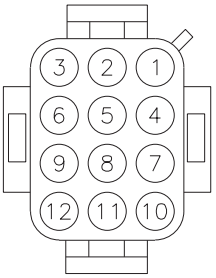
REVISION 00 | APPR. BY: MMILLER | SCALE: NONE

1230-R03B-281962

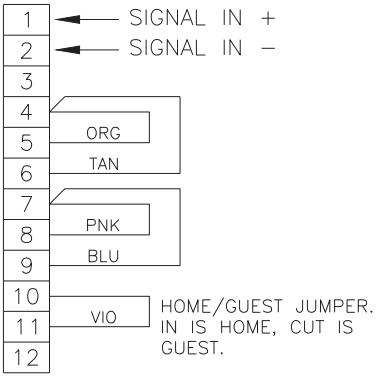


WIRING DIAGRAM

DRIVER ADDRESS PLUG
WITH ALL WIRES
CONNECTED



ADDRESS PLUG
WIRE SIDE



WIRING DIAGRAM

TNMC ADDRESS PLUG
WITH ALL WIRES
CONNECTED

		PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
(DRIVER) COURT 1	11	0	0	0	0	1	0	1	1
COURT 2	12	0	0	0	0	1	1	0	0
COURT 3	13	0	0	0	0	1	1	0	1
COURT 4	14	0	0	0	0	1	1	1	0
COURT 5	15	0	0	0	0	1	1	1	1
COURT 6	16	0	0	0	1	0	0	0	0
COURT 7	17	0	0	0	1	0	0	0	1
COURT 8	18	0	0	0	1	0	0	1	0
COURT 9	29	0	0	0	1	1	1	0	1
COURT 10	30	0	0	0	1	1	1	1	0
COURT 11	31	0	0	0	1	1	1	1	1
COURT 12	32	0	0	1	0	0	0	0	0
TOD/TEAM SCORE	20	0	0	0	1	0	1	0	0

		PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
(TNMC) COURT 1	221			0	0	0	1		
COURT 2	222			0	0	1	0		
COURT 3	223			0	0	1	1		
COURT 4	224			0	1	0	0		
COURT 5	225			0	1	0	1		
COURT 6	226			0	1	1	0		
COURT 7	227			0	1	1	1		
COURT 8	228			1	0	0	0		
COURT 9	229			1	0	0	1		
TOD/TEAM SCORE	230			1	0	1	0		
COURT 10	231			1	0	1	1		
COURT 11	232			1	1	0	0		
COURT 12	233			1	1	0	1		

SELECTS HOME (1)
OR GUEST (0)

KEY: 0 = PIN N/C
1 = PIN CONNECTED

NOTES

ALL SINGLE COURT SCOREBOARDS ARE PRESET WITH ADDRESS 11 (DRIVER) AND 221 (TNMC) IN MANUFACTURING.

SINGLE COURT SCOREBOARDS MUST HAVE ADDRESS REASSIGNED WHEN USED IN DAKTENNIS SYSTEM WITH MULTIPLE COURTS.

SET ADDRESS OF DRIVER AND OF THE OPTIONAL TNMC WITH CHARTS ABOVE AND HARNESSING IN PACKET. CORRESPOND THE COURT # ON THE SCOREBOARD WITH THIS DOCUMENT. EX. COURT #1 SCOREBOARD CAN STAY WITH IT'S DEFAULT. COURT #2 SCOREBOARD WILL NEED A NEW ADDRESS PLUG SET TO 12, AND USE NEW SIGNAL/ADDRESS HARNESS SET, CONFIGURED TO 222.

SEE DWG-123794 FOR EXPANDED TNMC ADDRESS DETAILS, AND DWG-282196 SHOWING THE TNMC HARNESS OPTIONS.

12-PIN PLUG PART # (0A-1150-0064)

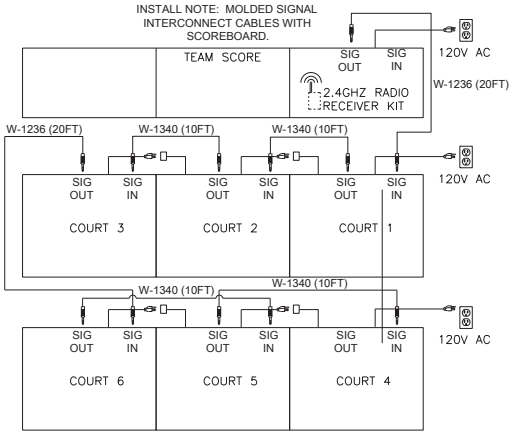
DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ:			
TITLE: ADDRESS DETAILS; INDOOR TENNIS SCOREBOARDS			
DESIGN: KBIERBA	DRAWN: KBIERBA		DATE: 24 MAY 11
SCALE: NONE			

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	00	P1164	F-03-A	1054354

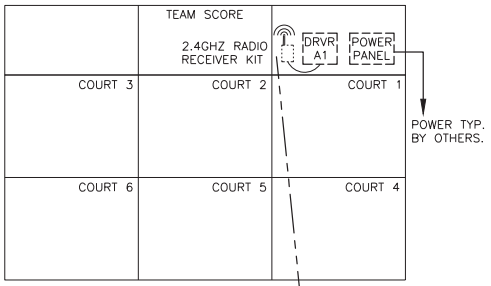
INDOOR MULTI-COURT SCOREBOARD LAYOUT
REFER TO MANUAL FOR ALL POWER, SIGNAL, AND INSTALLATION DETAILS.

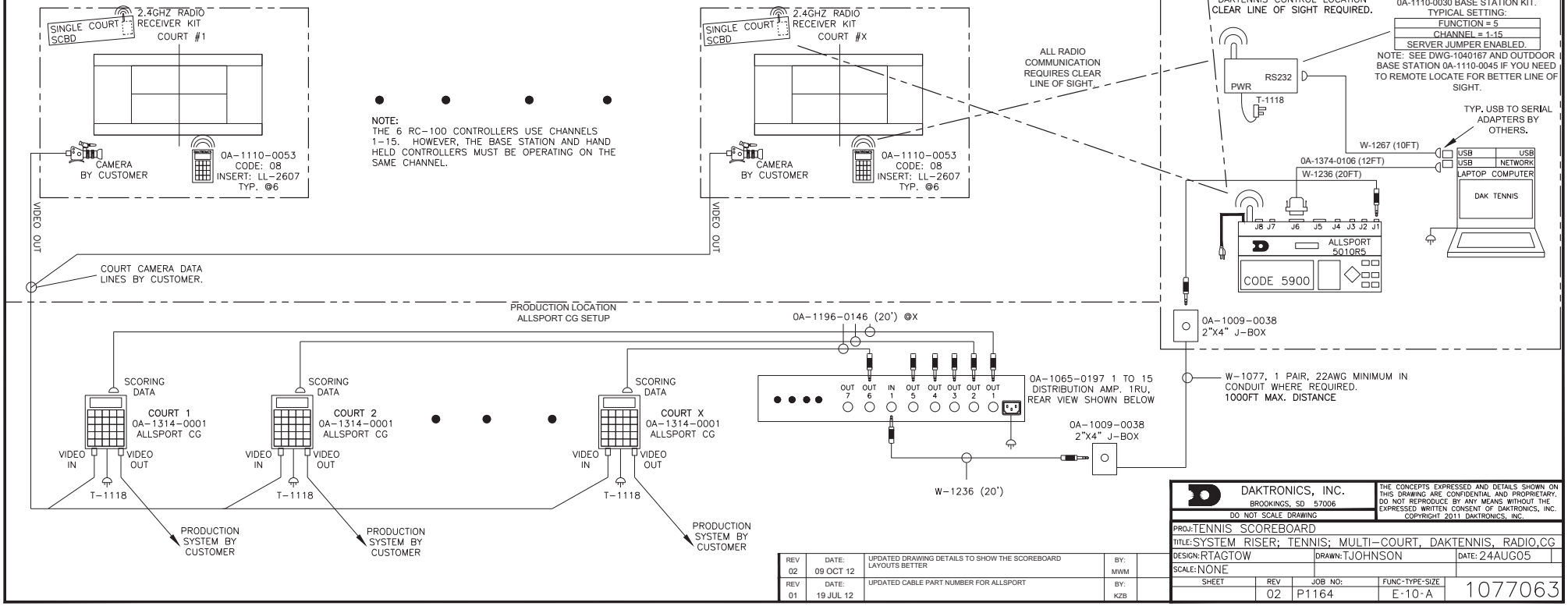
REAR VIEW



OUTDOOR MULTI-COURT SCOREBOARD LAYOUT
REFER TO MANUAL FOR ALL POWER, SIGNAL, AND INSTALLATION DETAILS.

REAR VIEW

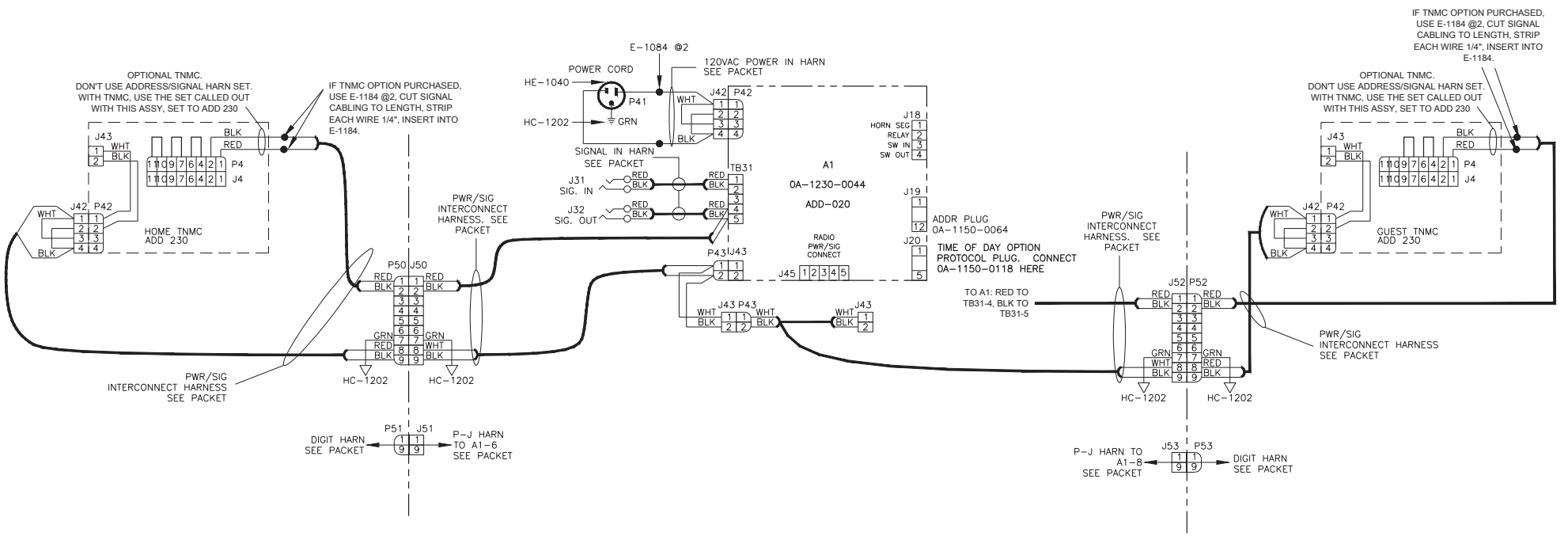




REV	DATE:		BY:
02	09 OCT 12	UPDATED DRAWING DETAILS TO SHOW THE SCOREBOARD LAYOUTS BETTER	MWM
01	19 JUL 12	UPDATED CABLE PART NUMBER FOR ALLSPORT	KZB

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

PROJ: TENNIS SCOREBOARD				
TITLE: SYSTEM RISER; TENNIS; MULTI-COURT, DAKTENNIS, RADIO,CG				
DESIGN: RTAGTOW		DRAWN: TJOHNSON		DATE: 24AUG05
SCALE: NONE				
SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	1077063
	02	P1164	E-10-A	



WITHOUT TNMCS AND
WITH OR WITHOUT T.O.D.

SYSTEM OPERATION REQUIRMENTS	
SYSTEM CONTROL CONSOLE A/S 5010	0A-1196-0001
SYSTEM RISER #	NA
DISPLAY F ASSY DWG	
SYSTEM VOLTAGE	120 VAC
HIGH LEG (AMPS)	1.7
MAXIMUM WATTS	200
SPORT INSERT #	LL-2483
OPERATING CODE #	DAKTENNIS

FOR TESTING IN
MANUFACTURING, USE CODE 229

WITH 3/4" TNMCs AND
WITH OR WITHOUT T.O.D.

SYSTEM OPERATION REQUIRMENTS	
SYSTEM CONTROL CONSOLE A/S 5010	0A-1196-0001
SYSTEM RISER #	NA
DISPLAY F ASSY DWG	
SYSTEM VOLTAGE	120 VAC
HIGH LEG (AMPS)	2.5
MAXIMUM WATTS	300
SPORT INSERT #	LL-2483
OPERATING CODE #	DAKTENNIS

FOR TESTING IN
MANUFACTURING, USE CODE 229

WITH 1" TNMCs AND
WITH OR WITHOUT T.O.D.

SYSTEM OPERATION REQUIRMENTS	
SYSTEM CONTROL CONSOLE A/S 5010	0A-1196-0001
SYSTEM RISER #	NA
DISPLAY F ASSY DWG	
SYSTEM VOLTAGE	120 VAC
HIGH LEG (AMPS)	3.4
MAXIMUM WATTS	400
SPORT INSERT #	LL-2483
OPERATING CODE #	DAKTENNIS

FOR TESTING IN
MANUFACTURING, USE CODE 229

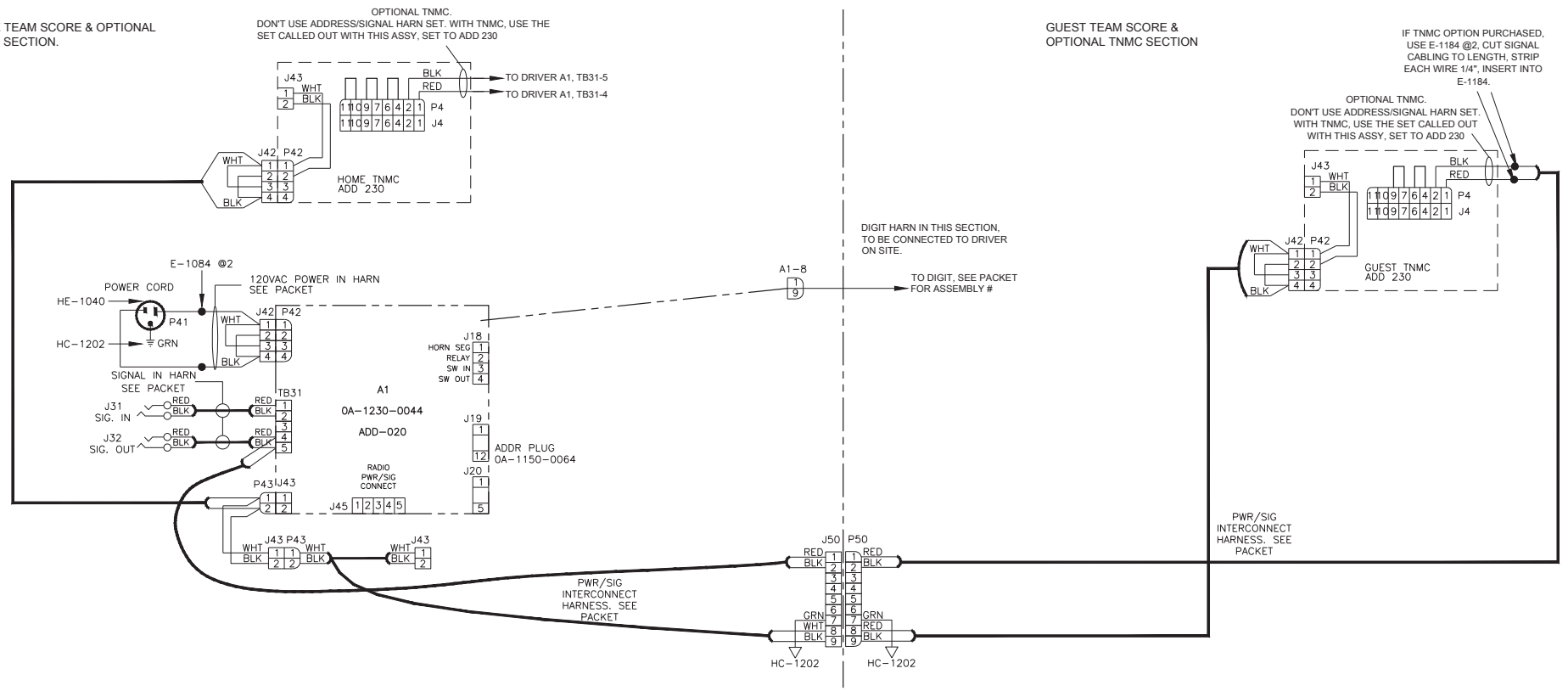
ADDRESS TABLE:

OPTIONAL TNMC USES 0A-1164-0183 HARN SET.		PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
GUEST TNMC	230	0	0	1	0	1	0	0	0
HOME TNMC	230	0	1	1	0	1	0	0	0
DRIVER A1	20	0	0	0	1	0	1	0	0

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

PROJ: INDOOR LED TENNIS SCOREBOARD			
TITLE: SCHEMATIC; INDOOR 27FT TEAM SCORE, OPTIONAL TOD			
DESIGN: MMILLER	DRAWN: MMILLER	DATE: 11 MAY 12	
SCALE: NONE			

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	00	P1164	E-03-B	1097081



WITHOUT TNMCS AND WITH OR WITHOUT T.O.D.

SYSTEM OPERATION REQUIRMENTS	
SYSTEM CONTROL CONSOLE A/S 5010	0A-1196-0001
SYSTEM RISER #	NA
DISPLAY F ASSY DWG	
SYSTEM VOLTAGE	120 VAC
HIGH LEG (AMPS)	1.7
MAXIMUM WATTS	200
SPORT INSERT #	LL-2483
OPERATING CODE #	DAKTENNIS

FOR TESTING IN MANUFACTURING, USE CODE 229

WITH 3/4" TNMCs AND WITH OR WITHOUT T.O.D.

SYSTEM OPERATION REQUIRMENTS	
SYSTEM CONTROL CONSOLE A/S 5010	0A-1196-0001
SYSTEM RISER #	NA
DISPLAY F ASSY DWG	
SYSTEM VOLTAGE	120 VAC
HIGH LEG (AMPS)	2.5
MAXIMUM WATTS	300
SPORT INSERT #	LL-2483
OPERATING CODE #	DAKTENNIS

FOR TESTING IN MANUFACTURING, USE CODE 229

WITH 1" TNMCs AND WITH OR WITHOUT T.O.D.

SYSTEM OPERATION REQUIRMENTS	
SYSTEM CONTROL CONSOLE A/S 5010	0A-1196-0001
SYSTEM RISER #	NA
DISPLAY F ASSY DWG	
SYSTEM VOLTAGE	120 VAC
HIGH LEG (AMPS)	3.4
MAXIMUM WATTS	400
SPORT INSERT #	LL-2483
OPERATING CODE #	DAKTENNIS

FOR TESTING IN MANUFACTURING, USE CODE 229

OPTIONAL TNMC USES 0A-1164-0183 HARN SET.

ADDRESS TABLE:

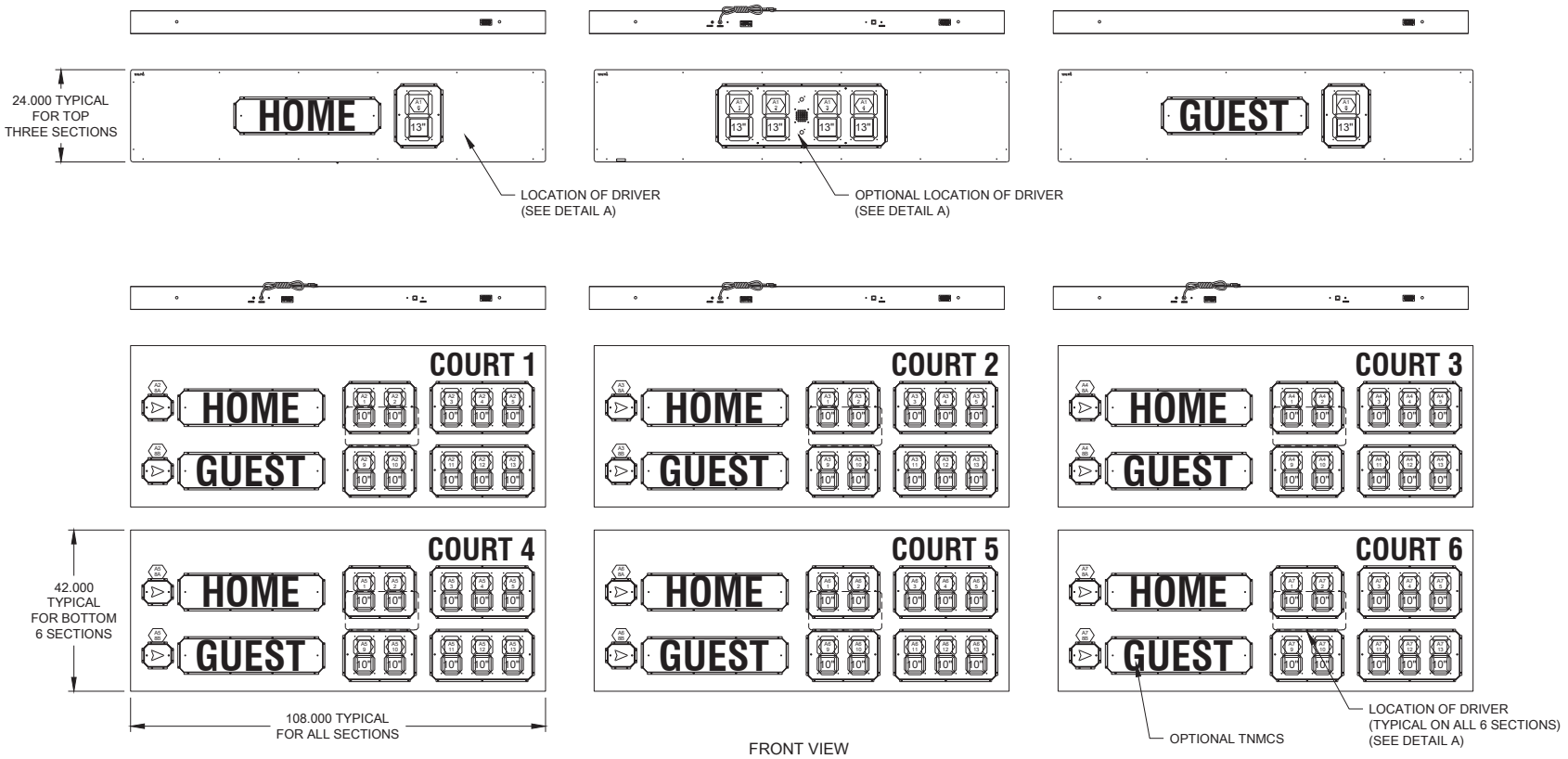
		PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
GUEST TNMC	230	0	0	1	0	1	0	0	0
HOME TNMC	230	0	1	1	0	1	0	0	0
DRIVER A1	20	0	0	0	1	0	1	0	0

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

PROJ: INDOOR LED TENNIS SCOREBOARD
TITLE: SCHEMATIC; INDOOR 18FT TEAM SCORE
DESIGN: MMILLER | DRAWN: MMILLER | DATE: 17 AUG 12
SCALE: NONE

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	00	P1164	E-03-B	1110522

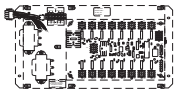
TN-2561



FRONT VIEW

NOTES:

1. LIFTEYE IS FOR TEMPORARY USE FOR LIFTING THE SCOREBOARD DURING INSTALLATION. DO NOT USE FOR PERMANENT INSTALLATION.
2. THE SCOREBOARD IS SHOWN WITH UNIVIEW DIGIT TECHNOLOGY. SEE DRAWING A-158550 FOR MORE DETAILS.



DETAIL: A
SCALE 1:2

⟨A5 / 1⟩ = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

[10"] = DIGIT SIZE

DAKTRONICS, INC. BROOKINGS, SD 57006				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 2012 DAKTRONICS, INC.
DO NOT SCALE DRAWING				
PROJ: DARTMOUTH COLLEGE				
TITLE: F. ASSY; CUSTOM TN-2561				
DESIGN: KDRAGT		DRAWN: KDRAGT		DATE: 04 OCT 12
SCALE: 1=30				
SHEET	REV	JOB NO:	FUNC - TYPE - SIZE	1115148
	00	S167506	E - 10 - B	

Appendix B: 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 FITNESS FOR A PARTICULAR PURPOSE. SPECIFICALLY, EXCEPT AS PROVIDED HEREIN, THE SELLER UNDERTAKES NO RESPONSIBILITY FOR THE QUALITY OF THE EQUIPMENT OR THAT THE EQUIPMENT WILL BE FIT FOR ANY PARTICULAR PURPOSE FOR WHICH PURCHASER MAY BE BUYING THE EQUIPMENT. ANY IMPLIED WARRANTY IS LIMITED IN DURATION TO THE WARRANTY PERIOD. NO ORAL OR WRITTEN INFORMATION, OR ADVICE GIVEN BY THE COMPANY, ITS AGENTS OR EMPLOYEES, SHALL CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS LIMITED WARRANTY.

THIS LIMITED WARRANTY IS NOT TRANSFERABLE.

2. Exclusion from Warranty Coverage

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

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

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

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

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

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

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

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

H. Any performance of preventive maintenance.

3. Limitation of Liability

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

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

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

4. Assignment of Rights

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

5. Dispute Resolution

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

6. Governing Law

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

7. Availability of Extended Service Agreement

For Purchaser's protection, in addition to that afforded by the warranties set forth herein, Purchaser may purchase extended warranty services to cover the Equipment. The Extended Service Agreement, available from Daktronics, provides for electronic parts repair and/or on-site labor for an extended period from the date of expiration of this warranty. Alternatively, an Extended Service Agreement may be purchased in conjunction with this warranty for extended additional services. For further information, contact Daktronics Customer Service at 1-800-DAKTRONics (1-800-325-8766).