# 4-Inch LED Bar-Digit Locker Room Clocks

## Installation, Maintenance, and Troubleshooting Manual

**ED12315**

*Pro Sport®, All Sport and Venus® are registered trademarks of Daktronics, Inc.*

**Models**
TI-2011    TI-2013

**ED12315**
**Project 1152**
**Rev 1 – 21 May 2002**

**DAKTRONICS**

# Table of Contents

# Section 1:  Introduction

## 1.1    How To Use This Manual

This manual explains the installation, maintenance and troubleshooting of the TI-2011 and TI-2013 locker room clocks.

For questions regarding the safety, installation, operation or service of this system, please refer to the telephone numbers listed on the cover page and in **Sec. 4.6** of this manual.

**Important Safeguards:**

1. Read and understand these instructions before installing.
2. Be sure the clock is properly grounded.
3. Disconnect power to the clock when it is not in use.
4. Disconnect power when servicing the clock.
5. Do not modify the clock structure or attach any panels or coverings to the clock without the written consent of Daktronics, Inc.

The box at right, **Figure 1**, is an example of the Daktronics drawing numbering system. An identifying label appears in the lower-right corner of each drawing. The number "7087-P08A-69945," located at the bottom of the label, is how Daktronics identifies individual drawings. This manual refers to drawings by their last five digits and the letter preceding them. In the label illustrated, the drawing would be referred to as "**Drawing A-69945**." Drawings are typically inserted at the end of the section in which they are first referenced, but may be grouped in an appendix.

| DAKTRONICS, INC.  BROOKINGS, SD 57006 |
|---|
| PROJ: BASKETBALL |
| TITLE: SEGMENTATION, 7 SEG BAR DIGIT |
| DES. BY: BPETERSON    DRAWN BY: TNELSON    DATE: 8 JUL 02 |

APPR. BY: AVB

SCALE: 1 = 4

7087-P08A-69945

**Figure 1:** Daktronics Drawing Label

All references to drawing numbers, appendices, figures, or other manuals are presented in **bold** typeface, as shown in the example below:

"Refer to **Drawing A-114667** for the location of the load center."

In addition, any drawings referenced within a particular subsection are listed at the beginning of that subsection in the following manner:

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

Drawings specific to bar-digit locker room clocks described in this manual (including shop drawings, schematics and system riser diagrams) are located in the **Appendix**.

Daktronics identifies manuals by the ED number located on the cover page of each manual. For example, this manual would be referred to as **ED12315**.

Equipment serial and model numbers can be found on the ID label, located on the back of the clock cabinet. When calling Daktronics Customer Service, please have this information available to ensure that your request is serviced as quickly as possible.

Daktronics displays are built for long life and require little maintenance. From time to time, however, certain display components will have to be replaced**.** Daktronics has shipped a number of replacement parts with your order. A Replacement Parts List in **Section 4.6** lists names and part numbers of some other components that may need to be replaced during the life of this display.

Contact Daktronics Customer Service or your project manager with any questions regarding your timing display.

# Section 2:  Product Overview

The TI-2011 and TI-2013 are fixed LED digit displays equipped with 4" red LED digits. The displays are connected to the signal from the main scoreboard in the arena and will display the same time that is shown on the scoreboard. These locker room clocks have an optional horn feature as well. The TI-2011 and TI-2013 locker room clocks are operated using either an All Sport or a Pro Sport control console.

The All Sport console is a state-of-the-art scoring and timing system. The console's Liquid Crystal Display (LCD) will guide you through the operation of the system. Refer to the **All Sport Operators Manual**, **ED11976**, for more information.

The Pro Sport console is an easy to use, multi-functional controller. Pro Sport LCD screen will guide you through the operation of the system. Refer to the **Pro Sport Operators Manual**, **ED08274**, for more information

## 2.1    TI-2011 Model

The TI-2011 Locker Room Clock is a surface mounted clock. The TI-2011 is hung directly on the wall with mounting screws, or anchors.

## 2.2    TI-2013 Model

The TI-2013 Locker Room Clock is designed to be recessed into a wall. The rear of the cabinet has been specifically designed to fit into a 13-inch cutout. The face panel is flush with the wall.

# Section 3: Mechanical and Electrical Installation

There are two optional methods for mounting the locker room clocks: flush mounting or surface mounting. A flush mounted display is set into an opening that is cut into the wall. This mounting procedure allows only the front features of the display to protrude from the wall. A surface mounted display is mounted in a separate cabinet that is attached to the outside of the wall.

## 3.1　Surface Mount Method

**Reference Drawing:**
　　Shop Drawing, TI-2011 Locker Room Clock ...................................... **Drawing A-132307**

The surface mount cabinet mounts to a 2-gang device box mounted in the wall. When properly installed, display cabinet will hide the box. Refer to **Drawing A-132307** for the dimensions of the cabinet and locations of the mounting holes. The left end of the display cabinet mounts to device mounting holes in the box, and the right end of the cabinet is attached to the wall with appropriate wall anchors. Drill holes in the wall and install anchors at the locations shown in the drawing. The customer is responsible for providing mounting anchors and screws.

Install a 120 V AC, 15 amp duplex receptacle in the left half of the device box. The right half of the box will be used for signal wires. Route the signal wires through the box and allow them to extend at least 12" from the front of the box.

Connect the signal wires to the terminals on the left side of the display. Plug the 120V power cord into the receptacle in the wall. Mount the display cabinet to the wall.

## 3.2　Recess Mount Method

**Reference Drawing:**
　　Shop Drawing TI-2013 Locker Room Clock ...................................... **Drawing A-134285**

To mount a display with the recess wall mount method, the wall opening must be at least 4" deep. Cut a rectangular opening, $6^1/_2$" high by 13" wide. Provide a 120 V AC, 15-amp power receptacle inside the wall, to one side of the intended display location. Also, provide one pair shielded cable for signal, 24 AWG minimum.

Connect the power cord from the display to the receptacle in the wall. Connect the signal wires to the terminals on the left side of the display. Insert the display into the opening and secure it to the wall with appropriate anchor screws through the four holes in the front. Due to the variety of wall materials that may be used, the anchor screws are not provided with the system.

# Section 4:  Maintenance and Troubleshooting

**IMPORTANT NOTES:**

1. **Disconnect power before performing any repair or maintenance work on the locker room clock.**

2. **Only qualified service personnel should have access to internal display electronic components.**

3. **Disconnect power when the locker room clock is not in use.**

## 4.1    Component Access

**Reference Drawings:**
   Shop Dwg, TI-2011 Locker Room Clock............................................ **Drawing A-132307**
   Shop Dwg, TI-2013 Locker Room Clock............................................ **Drawing A-134285**

To gain access to the internal components of the display, follow these steps, and refer to **Drawings A-134285 or A-132307.**

1. Remove the cap screws on top and bottom of the clock.
2. The digit block will now be exposed. To remove the digit plate, remove the four screws that are holding it in place.

## 4.2    Digit Replacement

To replace digits:

1. Remove the cap screws on top and bottom of the clock.
2. The digit block will now be exposed. To remove the digit plate, remove the four screws that are holding it in place.
3. Remove the digit.
4. Replace the digit panel with the new one by plugging the driver into the new digit panel and securing it with the four screws.

## 4.3    LED Driver

**Reference Drawing:**
   Schematic; TI-2013, TI-2011 ............................................................ **Drawing A-135165**

The task of switching LED's on and off is performed by the LED driver (refer to **Drawing A-135165**). The driver for the locker room clocks has a three connector, which provides power and signal to and from the driver. .

| Connector No. | Function |
|---|---|
| 4 | Power Input |
| 3 | Signal in and out |
| 5 | Horn Control |

The LED digit panel is connected to the driver through a 40-pin header. This connection allows the driver to turn on the appropriate digits as told by the incoming signal.

## 4.4    Troubleshooting

In the unlikely event that your display malfunctions, this section lists some symptoms that may be encountered with the scoreboard, and possible corrective actions.

| Symptom/Condition | Possible Cause or Corrective Action |
|---|---|
| Scoreboard will not light. | • Console not connected or poor connection.<br>• No power to the control console.<br>• No power to the display.<br>• Loose incoming signal terminal at the display. |
| Garbled display. | • Control console malfunction.<br>• Internal LED driver malfunction. |
| Digit will not light. | • Poor contact at driver connector. |
| Segment will not light. | • Driver malfunction.<br>• Poor contact at driver connector. |
| Segment stays lit. | • Driver malfunction. |

## 4.5    Replacement Parts

To prevent loss due to theft, Daktronics recommends purchasing a lockable cabinet to store manuals and replacement/spare parts.

| Part Description | Daktronics Part No. |
|---|---|
| Driver AS 4000 | 0P-1150-0179 |
| Driver AS 5000 | 0P-1150-0180 |
| Transformer | T-1072 |
| Digit, 4" Red Block | 0P-1150-0181 |

## 4.6    Daktronics Exchange and Repair and Return Programs

To serve customers' repair and maintenance needs, Daktronics offers both an exchange program and a repair and return program.

Daktronics' unique exchange program is a quick, economical service for replacing key components in need of repair. If a component fails, Daktronics sends the customer a replacement, and the customer, in turn, sends the failed component to Daktronics. This not only saves money but also decreases scoreboard downtime. Customers who follow the program guidelines explained below will receive this service.

Daktronics provides this service to ensure users get the most from their Daktronics products. Please call the Help Desk – (877) 605-1114 – if you have questions regarding the exchange program or any other Daktronics service.

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

If the replacement part fixes the problem, package the defective part in the same box and wrapping in which the replacement part arrived, fill out and attach the enclosed UPS shipping document, and return the part to Daktronics.
In most circumstances, you will be invoiced for the replacement part at the time it is shipped. This bill is due when you receive it.

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

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

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

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

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

**Packaging for Return:** Package and pad the item well so that it will not be damaged in shipment. Electronic components such as printed circuit boards should be installed in an enclosure or placed in an antistatic bag before boxing. (Antistatic foam packaging and circuit-board shipping boxes are available from Daktronics). Please enclose your name, address, phone number and a clear description of symptoms.

*How to reach us:*

*Mail*:      Daktronics, Inc., Customer Service
             P.O. Box 5128
             331 32nd Avenue
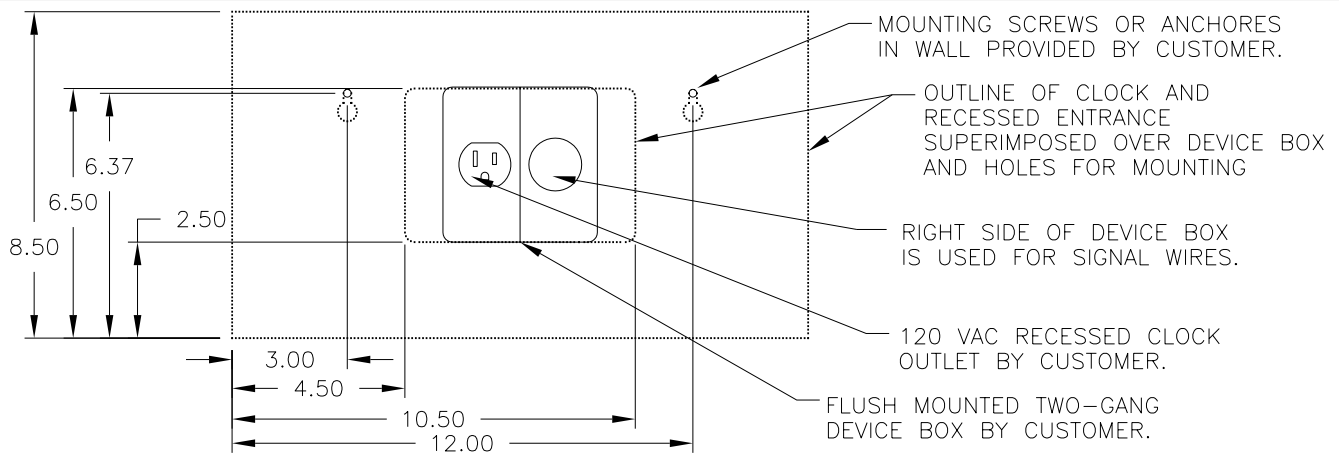             Brookings, SD 57006

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

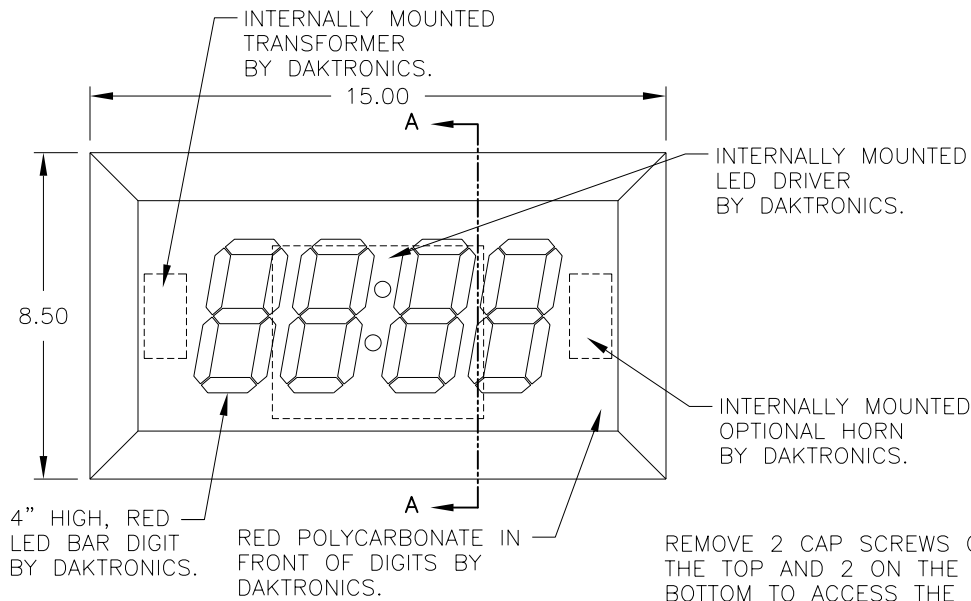*Fax*:       605-697-4444

*E-mail*:    helpdesk@daktronics.com

# Appendix A: Reference Drawings

MOUNTING SCREWS OR ANCHORES
IN WALL PROVIDED BY CUSTOMER.

OUTLINE OF CLOCK AND
RECESSED ENTRANCE
SUPERIMPOSED OVER DEVICE BOX
AND HOLES FOR MOUNTING

RIGHT SIDE OF DEVICE BOX
IS USED FOR SIGNAL WIRES.

120 VAC RECESSED CLOCK
OUTLET BY CUSTOMER.

FLUSH MOUNTED TWO-GANG
DEVICE BOX BY CUSTOMER.

6.37
6.50
8.50
2.50
3.00
4.50
10.50
12.00

FRONT VIEW
(SUGGESTED OUTLET PLACEMENT AND HOLE PATTERN IN WALL)
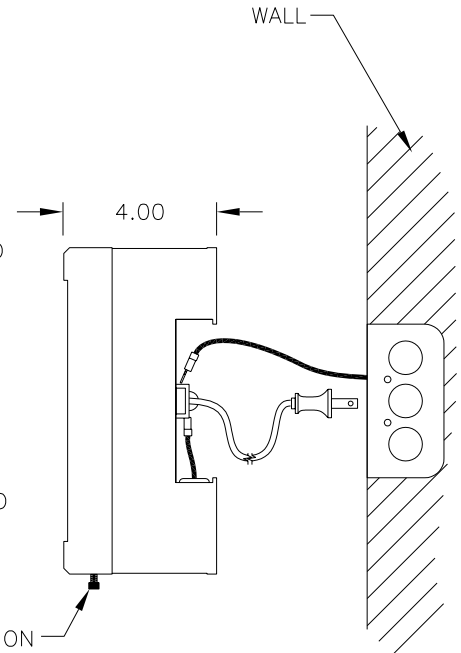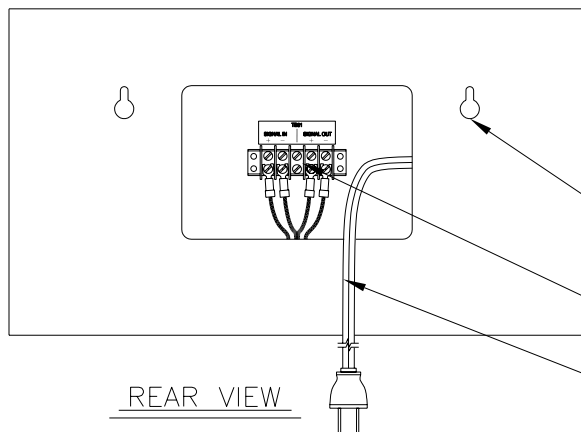
WALL

INTERNALLY MOUNTED
TRANSFORMER
BY DAKTRONICS.

INTERNALLY MOUNTED
LED DRIVER
BY DAKTRONICS.

15.00
8.50
4.00

A
A

INTERNALLY MOUNTED
OPTIONAL HORN
BY DAKTRONICS.

4" HIGH, RED
LED BAR DIGIT
BY DAKTRONICS.

RED POLYCARBONATE IN
FRONT OF DIGITS BY
DAKTRONICS.

REMOVE 2 CAP SCREWS ON
THE TOP AND 2 ON THE
BOTTOM TO ACCESS THE
INSIDE OF THE CLOCK.

FRONT VIEW

SECTION: A-A

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. DISPLAY IS ALL ALUMINUM
   CONSTRUCTION.
3. THE POWER REQUIREMENTS ARE
   10 WATTS @ 120 VAC.

SLOTTED FOR UP TO #10
ANCHORS OR SCREWS @2

SIGNAL TERMINATION BLOCK
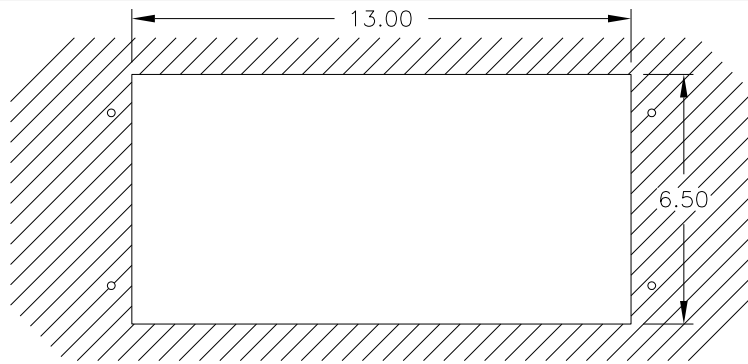BY DAKTRONICS

5' POWER CORD
BY DAKTRONICS

REAR VIEW

| REV. | DATE | DESCRIPTION | BY | APPR. |
|------|------|-------------|-----|-------|
| 04 | 24 OCT 03 | ADDED ADDITIONAL DIMENSIONS TO THE SUGGESTED OUTLET PLACEMENT AND HOLE PATTERN IN WALL VIEW. | CJB | |
| 03 | 01 NOV 00 | WIDENED THE OPENING OF THE RECESSED ENTRANCE TO FIT OVER OUTLET. | EPR | |
| 02 | 27JUL00 | UPDATED TITLE AND ADDED DRIVER NOTE. | BDP | |
| 01 | 18JUL00 | REMOVED NOTE 4 | BDP | |

DAKTRONICS, INC.   BROOKINGS, SD 57006

PROJ: STANDARD INDOOR LED SCOREBOARDS
TITLE: SHOP DWG, TI-2011 LOCKER ROOM CLOCK
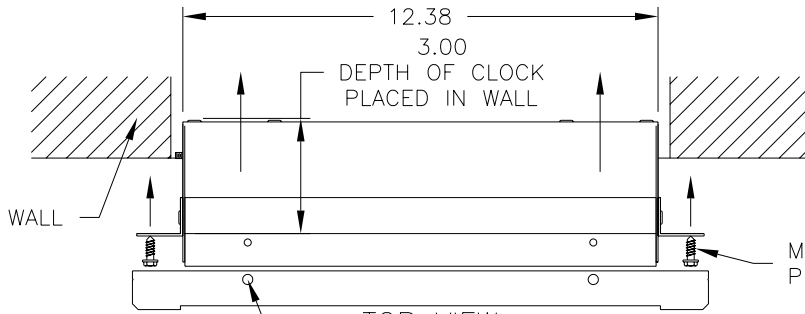DES. BY: BPETERSON   DRAWN BY: BPETERSON   DATE: 18MAY00

REVISION 04
APPR. BY:
SCALE: 1=5
1152-E10A-132307

13.00

6.50

FRONT VIEW
(SUGGESTED CUTOUT IN WALL)
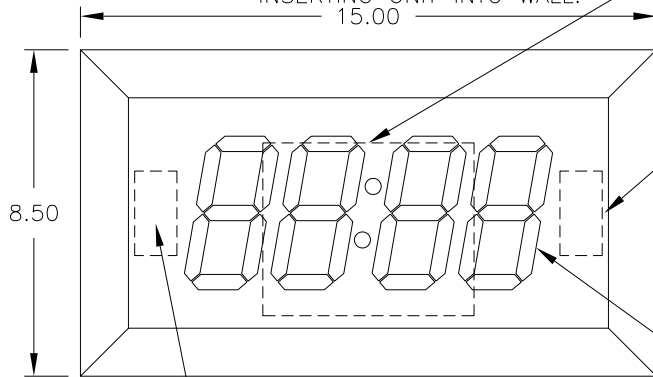
NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. DISPLAY IS ALL ALUMINUM CONSTRUCTION.
3. THE POWER REQUIREMENTS ARE 10 WATTS @ 120 VAC

12.38

3.00
DEPTH OF CLOCK PLACED IN WALL

WALL

TOP VIEW
REMOVE CAP SCREWS BEFORE INSERTING UNIT INTO WALL.

MOUNTING SCREWS OR ANCHORS PROVIDED BY CUSTOMER.

INTERNALLY MOUNTED LED DRIVER BY DAKTRONICS.

15.00

8.50

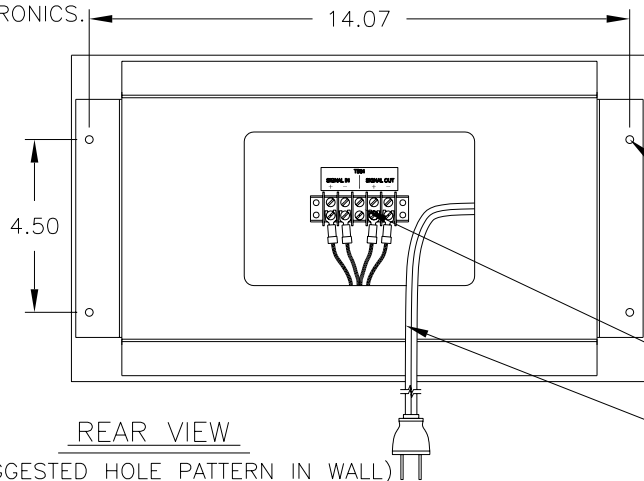INTERNALLY MOUNTED OPTIONAL HORN BY DAKTRONICS

1.00
DEPTH OF CLOCK SHOWING OUT OF WALL

INTERNALLY MOUNTED TRANSFORMER BY DAKTRONICS.

FRONT VIEW

4" HIGH RED LED BAR DIGIT

REMOVE 2 CAP SCREWS ON THE TOP AND 2 ON THE BOTTOM TO ACCESS THE INSIDE OF THE CLOCK.

RIGHT SIDE

14.07

4.50

SIGNAL IN    SIGNAL OUT

HOLES FOR UP TO #10 ANCHORS OR SCREWS @4

REAR VIEW
(SUGGESTED HOLE PATTERN IN WALL)

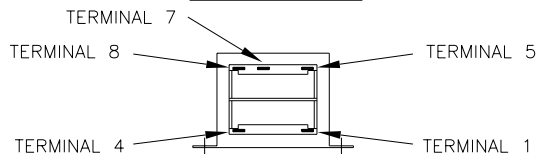SIGNAL TERMINATION BLOCK BY DAKTRONICS

5' POWER CORD BY DAKTRONICS

DAKTRONICS, INC.   BROOKINGS, SD 57006

PROJ: STANDARD INDOOR LED SCOREBOARDS
TITLE: SHOP DWG, TI-2013 LOCKER ROOM CLOCK
DES. BY: BPETERS          DRAWN BY: EREBHAH          DATE: 30JUN00

REVISION    APPR. BY:

1152-E10A-134285

SCALE:    1=5

| 02 | 01 NOV 00 | WIDENED THE OPENING OF THE RECESSED ENTRANCE TO FIT OVER OUTLET. | EPR | |
| 01 | 27JUL00 | UPDATED TITLE AND ADDED DRIVER NOTE. | BDP | |
| REV. | DATE | DESCRIPTION | BY | APPR. |

POWER LED

RX SIGNAL LED

DRIVER 0P-1150-0179 OR
0P-1150-0180

SIGNAL
IN/OUT

J3

HORN
JACK

J2

J4

POWER/
SWITCH
INPUT
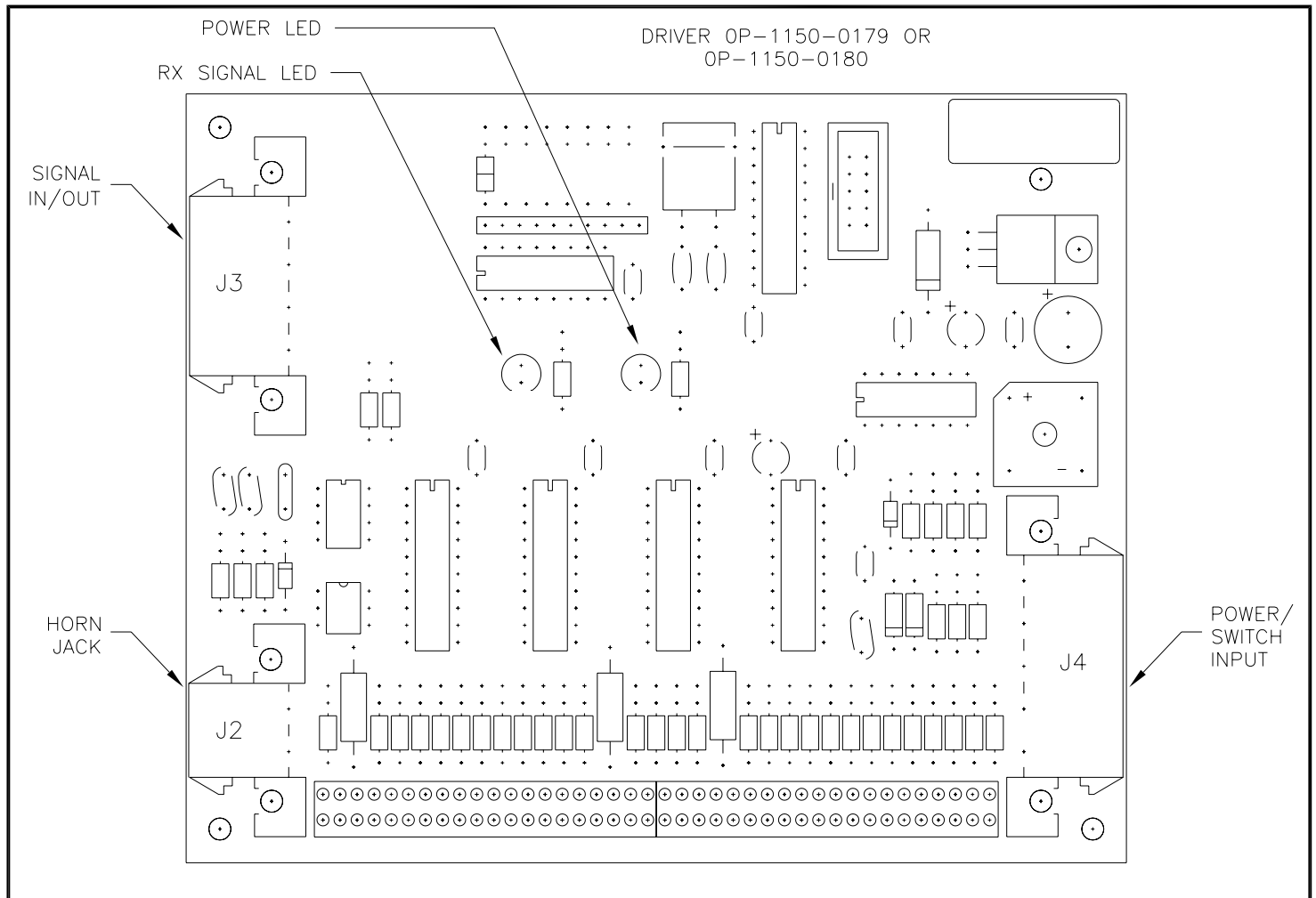
0A-1152-0435
HARNESS; TI-2013

SIDE VIEW

TERMINAL 7

TERMINAL 8

TERMINAL 5

TERMINAL 4

TERMINAL 1

P41
W-1312 (PWR CORD)

WHT 16 AWG (GROOVED)          1

WHT 16 AWG (SMOOTH)          4

5    10V BRN (18 AWG)

7

8    10V ORG (18 AWG)

P4
1
2
3
4
5

T1

TB31

CL IN +        1

CL IN −        2

GND            3

CL OUT +       4

CL OUT −       5

P3

RED 18 AWG          1
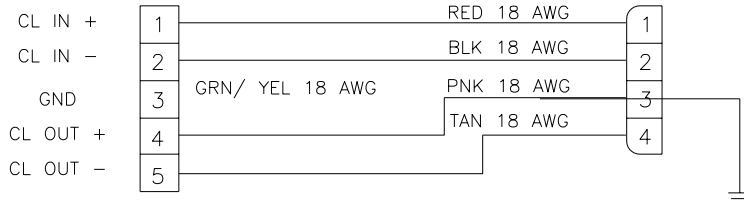
BLK 18 AWG          2

GRN/ YEL 18 AWG

PNK 18 AWG          3

TAN 18 AWG          4
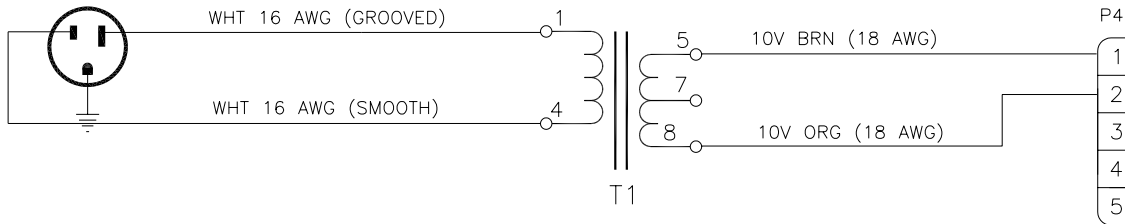
TEST HARNESS USING SIGNATURE TESTER MMJ
-CONNECT WHITE CORD TO J9
--CONNECT T11 TO S10 AND T14 TO S9
-CONNECT P3 TO J82
--CONNECT RED WIRE TO C1
--CONNECT BLACK WIRE TO C2
--CONNECT PINK WIRE TO C3
--CONNECT TAN WIRE TO C4
--CONNECT GND (GRN/YEL) TO C7 & C8
-CONNECT P4 TO J68 (USE EXTENSION)
--CONNECT T18 TO S8 AND T15 TO S7
SIGNATURE VALUE OF 5F7F73

| 04 | 27 JUL 04 | ADDED 6" GROUND WIRE | RT | |
| 03 | 15 DEC 03 | UPDATED DRAWING DETAILS TO SHOW MORE INFORMATION ON THE TRANSFORMER. | MWM | |
| 02 | 13FEB02 | CHANGED TB31-3 CL OUT+ TO TB31-4 AND TB31-4 CL OUT- TO TB31-5 | NMB | |
| 1 | 19 JULY 00 | ADDED DRIVER SPECIFICATION VIEW | EB | |
| REV. | DATE | DESCRIPTION | BY | APPR. |

DAKTRONICS, INC.   BROOKINGS, SD 57006

PROJ: STANDARD LED SCOREBOARDS

TITLE: SCHEMATIC; TI-2013

DES. BY:                    DRAWN BY: RASMUS          DATE: 14JUL00

| REVISION | APPR. BY: | |
| 04 | SCALE:     1=1 | 1152-R03A-135165 |