

GLOW CUBE PORTABLE SCOREBOARD

Operation/Maintenance Manual

ED10646

Product 1072

Rev. 0 - 16OCT97

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PO Box 5128 331 32nd Ave. Brookings, SD 57006

Phone: (605)697-4400 or (800)843-9879 Fax:(605)697-4700

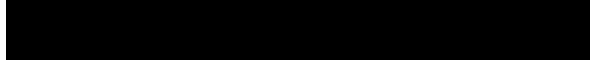


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SECTION 1: INTRODUCTION

Reference Drawing: Cart Assembly and Operation **Drawing A-64422**

1.1 How To Use This Manual

This manual is written to assist in the operation and maintenance of the glow cube portable scoreboard. For questions regarding the safety, installation, operation or service of this system, please refer to the telephone numbers listed on the cover page of this manual.

Important Safeguards:

1. Read and understand all instructions before using the equipment.
2. Do not drop the control console or allow it to get wet.
3. Only use three prong, grounded, 120 VAC outlets for the scoreboard's 120V AC power.
4. Do not disassemble the control console or the electronic controls of the display.
Failure to follow this safeguard will void the warranty.
5. Disconnect power to the scoreboard when it is not in use.
6. Do not leave the scoreboard outdoor in the rain.
7. Store the scoreboard indoors when it is not in use.

The box below is an illustration of Daktronics' drawing numbering system. The drawing number "7087-P08A-69945" is how Daktronics identifies individual drawings. This number is located in the lower-right corner of the drawing. The manual refers to drawings by listing the last five digits and the letter preceding them. In the example below, the drawing would be referred to as "Drawing A-69945." All referred drawings are inserted at the *end of each section*.

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:			
TITLE:			
DES. BY:		DRAWN BY: DOK	DATE: 04-20-95
APPR. BY:		7087-P08A-69945	
SCALE: 1=80			

1.2 Glow Cube Portable Scoreboard Overview

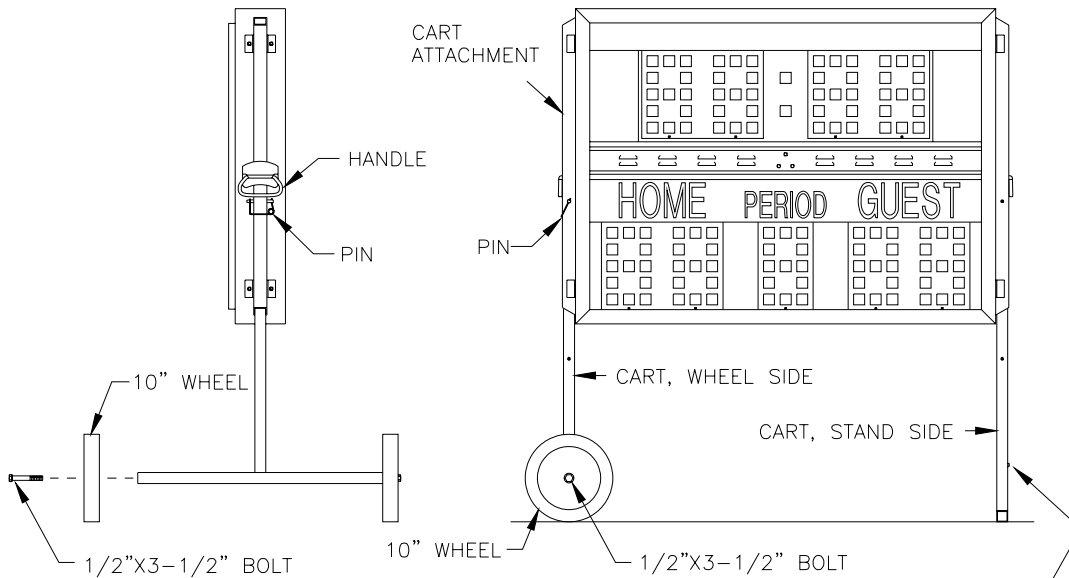
The Daktronics Glow Cube Portable Scoreboard has the following features: The scoreboard internal battery provides power for about 8 hours of normal operation. The scoreboard can also be powered from an external 12V battery or from 120V AC. The internal battery recharges when 120 V AC power is connected. The Glow Cube Portable Scoreboard is illustrated in **Drawing A-64422**.

An attached wheel cart makes the scoreboard portable and raises it for easier viewing. Optional captions for scoring volleyball and baseball are available.

The standard All Sport control console allows the scoreboard to display the time of day.

SIDE VIEW

FRONT VIEW



TO RAISE AND LOWER
THE SCOREBOARD, SIMPLY
PULL THE PINS IN BOTH
SIDES AND SLIDE THE
LEGS TO DESIRED HEIGHT.

WHEN ASSEMBLING CART,
MAKE SURE THE SCREW
HEADS FACE OUTWARD.
THEY PREVENT THE CART
FROM SLIDING ALL THE WAY
INTO THE ATTACHMENT.

Before assembly, inspect the contents of your kit.
Kit should include:

- 1 - CART, WHEEL SIDE
- 1 - CART, STAND SIDE
- 2 - 10" WHEELS
- 2 - 1/2"x3-1/2" BOLTS
- 2 - 5/16" DIAM. PINS

Tools needed to assemble this kit: 3/4" WRENCH

Assembly instructions:

- 1) Locate the wheel side of the cart. The wheel side has threaded plugs in each end. Bolt the wheels onto each side of the cart.
- 2) Slide the wheel side into attachment on scoreboard. MAKE SURE THE SCREW HEAD FACES OUT!
- 3) Locate the stand side of the cart. Slide the stand side into attachment. Once again, MAKE SURE THE SCREW HEAD FACES OUT!

3	05AUG97	CORRECTED SPELLING OF THE WORD "HEIGHT" IN THE LEFT BOX.	MMB		DAKTRONICS, INC. BROOKINGS, SD 57006			
2	10JAN95	CHANGED HANDLE TYPE ON CART.	MGG		PROJ: GLOW CUBE PORTABLE SCOREBOARD			
1	08SEP94	REDUCED HORIZ DIM BY 6".	MGG	AVB	TITLE: CART ASSEMBLY AND OPERATION			
REV.	DATE	DESCRIPTION	BY	APPR.	DES. BY: MGG	DRAWN BY: MGUNDERSON	DATE: 03AUG94	
					REVISION	APPR. BY: AVB	1072-E10A-64422	
						SCALE: 1=20		

SECTION 2: MECHANICAL AND ELECTRICAL OPERATION

Reference Drawing: Cart Assembly and Operation **Drawing A-64422**
Control Panel, GP-99..... **Drawing A-65273**

2.1 Cart Assembly

For assemble instructions, refer to **Drawing A-64422**.

Before assembly, inspect the contents of the kit, which should include:

- 1 - Cart, Wheel Side
- 1 - Cart, Stand Side
- 2 - 10" Wheels
- 2 - 2" x 32" Bolts
- 2 - $\frac{5}{16}$ " Diameter Pins
- (A 12" wrench is needed to assemble the cart.)

To assemble the cart follow these instructions:

1. Locate the wheel side of the cart. The wheel side has a threaded plug in each end. Bolt the wheels onto the ends of the cart.
2. Slide the wheel side into the attachment on scoreboard. **Make sure the screw head faces out.**
3. Locate the stand side of the cart. Slide the stand side into the attachment. Once again, **make sure the screw head faces out.**

2.2 Electrical Operation

Power Switch

The power switch, located behind the rear access door, selects between the internal battery and the external battery. Flip the switch up to the top position to operate the scoreboard from the internal battery. The scoreboard is off when the switch is in the middle position, while the bottom position allows the scoreboard to operate from an external 12 volt battery. If the scoreboard's power cord is plugged into an outlet, then the internal battery is charging, regardless of switch setting. Refer to **Drawing A-65273** for an illustration of the control panel.

Power Source Indicators

Check the LED indicators on the driver, visible through a small window on the lower right rear of the scoreboard. When the scoreboard is connected to 120 volt power, the indicator labeled "BATTERY CHARGER ON" is lit, even if the main switch is turned off.

Flip the main switch up, to the position labeled “INTERNAL.” The scoreboard’s driver will turn all of the glow cubes on, and then off. If the power cord is not connected to 120 volt power, then the driver is operating on power from the internal battery, and the indicator labeled “BATTERY” is lit. If the power cord is connected to 120 volt power, then the driver is operating from power supplied by the transformer inside the scoreboard, and the indicator labeled “120V AC” is lit.

External Battery

To provide power from an external 12 volt DC power source, such as a car battery, use the 12 volt DC cord available from Daktronics. Connect one end to the car’s lighter and the other end to the jack in the scoreboard labeled “EXTERNAL BATTERY 12V DC IN.” Flip the main power switch down, to the position labeled “EXTERNAL.”

Battery Level Indicators

When the internal battery is fully charged, the internal battery level indicator labeled “FULL” is lit. After operating under battery power for a short time, the “FULL” indicator will turn off and the one labeled “MED” will be lit. As power demands fluctuate during operation, the higher level indicator may blink on and off. When the indicator labeled “LOW” is lit, the internal battery is discharged to the point where the scoreboard could soon fail to operate properly. The LED’s do **not** indicate the status of an external battery.

Recharging

To recharge the internal battery, plug the scoreboard’s power cord into a standard 12 volt outlet. If the battery is severely discharged, it may take 15 hours to fully recharge it. If the scoreboard has been powered from the battery for only a few hours, it may require only six to eight hours for a full recharge. The charger may be left connected to power without damaging the battery, so do not worry about overcharging if the scoreboard is plugged in for several days. The built-in charger will **not** recharge an external battery.

Battery Life

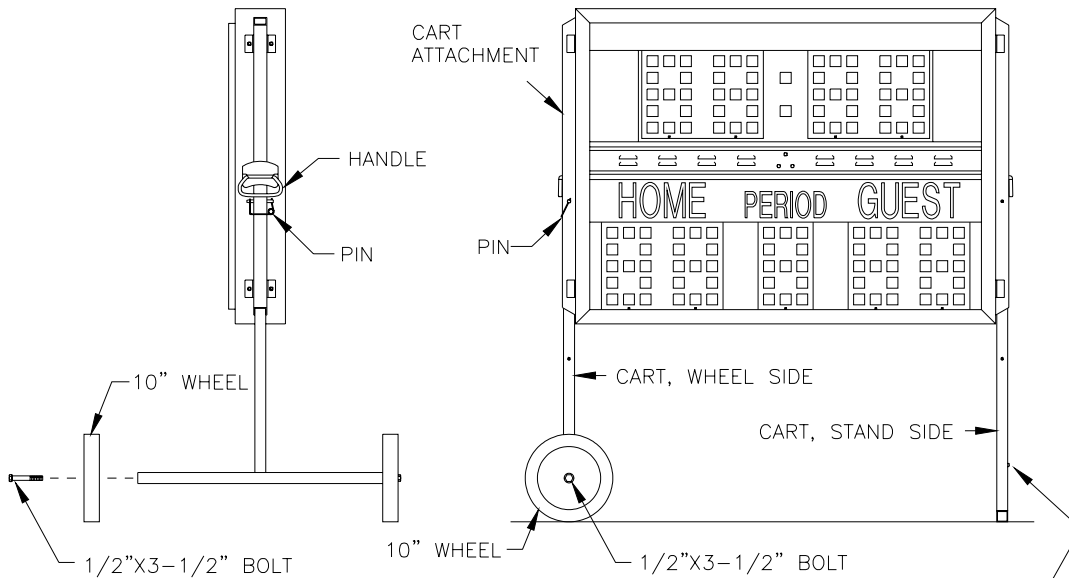
The internal battery is sealed lead-acid type, rated 12 volts at 6.5 amp-hours, which should provide about eight hours of operation from a full charge during normal use. As the battery ages, its ability to hold a charge diminishes, and the operating time on a charge is reduced. The battery’s life is enhanced by keeping it charged, or recharging it soon after it is discharged. Frequently deep-cycling the battery (discharging it below a usable charge level) and only partially recharging it can contribute to early battery failure.

IMPORTANT NOTICE:

The battery in this product contains lead. At the end of the battery’s useful life, do not dispose of it in the municipal waste system. **To do so may be a violation of local, state, or federal environmental regulations. Return the battery to a battery recycling center.**

SIDE VIEW

FRONT VIEW



TO RAISE AND LOWER
THE SCOREBOARD, SIMPLY
PULL THE PINS IN BOTH
SIDES AND SLIDE THE
LEGS TO DESIRED HEIGHT.

WHEN ASSEMBLING CART,
MAKE SURE THE SCREW
HEADS FACE OUTWARD.
THEY PREVENT THE CART
FROM SLIDING ALL THE WAY
INTO THE ATTACHMENT.

Before assembly, inspect the contents of your kit.
Kit should include:

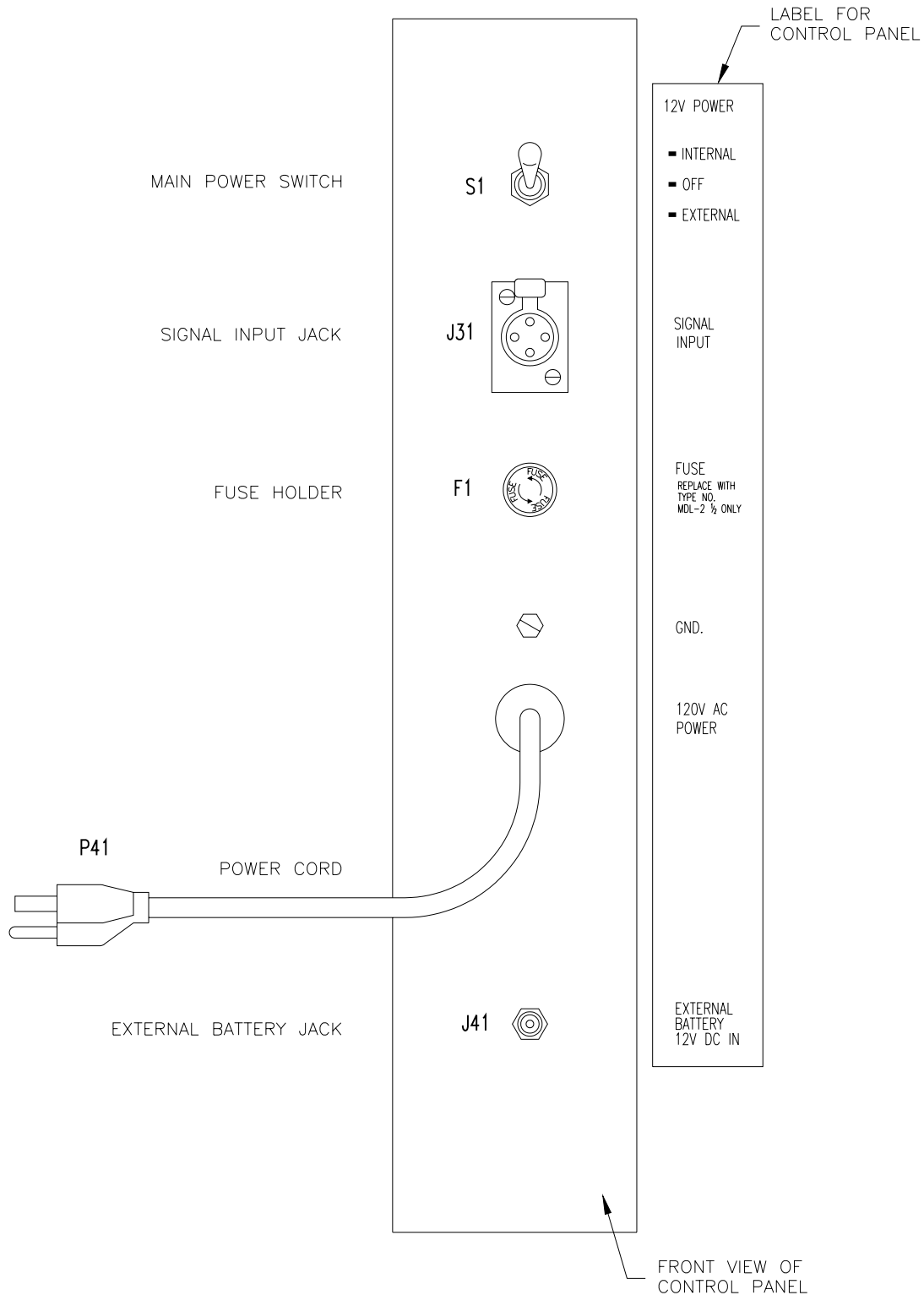
- 1 - CART, WHEEL SIDE
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- 2 - 10" WHEELS
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- 3) Locate the stand side of the cart. Slide the stand side into attachment. Once again, MAKE SURE THE SCREW HEAD FACES OUT!

3	05AUG97	CORRECTED SPELLING OF THE WORD "HEIGHT" IN THE LEFT BOX.	MMB		DAKTRONICS, INC. BROOKINGS, SD 57006			
2	10JAN95	CHANGED HANDLE TYPE ON CART.	MGG		PROJ: GLOW CUBE PORTABLE SCOREBOARD			
1	08SEP94	REDUCED HORIZ DIM BY 6".	MGG	AVB	TITLE: CART ASSEMBLY AND OPERATION			
REV.	DATE	DESCRIPTION	BY	APPR.	DES. BY: MGG	DRAWN BY: MGUNDERSON	DATE: 03AUG94	
					REVISION	APPR. BY: AVB	1072-E10A-64422	
						SCALE: 1=20		



DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: GLOW CUBE PORTABLE SCOREBOARD			
TITLE: CONTROL PANEL, GP-99			
DES. BY: MGG		DRAWN BY: MGG	
DATE: 08SEP94			
REVISION	APPR. BY:	1072-R08A-65273	
	SCALE: 1 = 2		

REV.	DATE	DESCRIPTION	BY	APPR.
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SECTION 3: MAINTENANCE AND TROUBLESHOOTING



IMPORTANT NOTES:

1. Disconnect power before any repair or maintenance work is done on the scoreboard display!
2. Any access to internal display electronics must be made by qualified service personnel.
3. Disconnect power when the scoreboard display is not in use.

Reference Drawing: Component Locations Drawing A-64271
Digit Assignments Drawing A-64272
Power and Signal Wiring Drawing A-64091

3.1 Component Access

Refer to **Drawing A-64271** for component locations.

Battery

The battery is located behind the GUEST score digit card. To access the battery:

1. Remove the left side face retainer.
2. Slide bottom plex sheet out 2 feet.
3. Detach ribbon cables from digit.
4. Remove four screw holding digit card in place.

Transformer

The transformer is located behind the PERIOD digit card. To access the transformer:

1. Remove either side face retainer.
2. Slide bottom plex sheet out.
3. Detach ribbon cables from digit.
4. Remove two screws holding digit card in place.

Driver

The driver is located behind the HOME score digit card. To access the driver:

1. Remove the right side face retainer.
2. Slide bottom plex sheet out 2 feet.
3. Detach ribbon cables from digit.
4. Remove four screws holding digit card in place.

3.2 Digit Access

To open the display, remove the three screws securing the face retainer. Remove the face retainer and gently slide the face panel out of the display. Refer to **Drawing A-64272**.

3.3 Cleaning The Face Panel

To clean the face panel inside and out, use a wet cloth followed by a dry cloth. An anti-static polycarbonate cleaner is highly recommended and will yield the best long term results. How often the face will require cleaning will depend upon the site conditions. The glow cube pixels do not require the face to be cleaned for any reason except for visual impairment.

3.4 Cleaning The Glow Cube Pixels

Clean the cubes only when necessary, and with care. A damp cloth, a soft brush or a feather duster will work the best. Do not use cleaning solvents or sprays. Avoid applying pressure to the cube face. Work in upward strokes only when cubes are yellow side up. Downward strokes are used when all the cubes are black side up. Do not brush in a horizontal direction.

3.5 Digit Removal

Digits need to be removed to replace a glow cube or to replace a driver. First open the scoreboard as described in **Section 4.2**. Disconnect the ribbon cable from the digit to be removed. There is a screw on the top and the bottom of the digit. Remove these screws and gently remove the digit from the scoreboard.

3.6 Driver Removal

To replace a driver, the steps in **Section 4.2** must be followed to open up the display. The driver is located behind digit #1 and digit #2. Next, remove both of these digits following the procedure in **Section 4.4**.

NOTE: make sure the scoreboard is unplugged and the power switch is turned off. Unplug all cables from the driver and remove the nuts holding the driver in place. Carefully, remove the driver and replace with a new driver.

3.7 Power And Signal Wiring

Refer to **Drawing A-64091** to view the power and signal wiring diagram.

3.8 Replacement Parts List

Refer to the table below for replacement parts for the Glow Cube Portable Scoreboard.

Parts Description	Daktronics Part #
Glow Cube Driver	0P-1066-0047
Glow Cube Digit	0P-1066-0042
Glow Cube, #150 Yellow	0A-1066-0001
Battery, 12V, 6.5 AH	BT-1014
All Sport 2400 Control Console	0A-1072-0005
Overlay, Scoring/Timing Code 28	LL-2164
Overlay, VB/BA Multisport Code 74	LL-2165
Overlay, Track Code 41-43	LL-1898
Overlay, Segment Timer Code 91	LL-2339
Overlay, Code 01 Testing	LL-1951
Cable, 50 Ft Signal	0A-1072-0006
Cable, 100 Ft Signal	0A-1072-0007
Cable, 150 Ft Signal	0A-1072-0008
Multisport Caption And Overlay Set	0A-1072-0004

3.9 Unit Exchange/Replacement Procedure

Daktronics exchange program offers our clients the quickest, most economical, service for returning products in need of repair. If a component fails, Daktronics will send the customer a replacement. The customer, in turn, sends the failed component to Daktronics. This not only saves money but decreases the time the product is inoperable. Daktronics offers repair and return on a timely basis; in urgent situations, every attempt is made to ship by the fastest transit method available.

1. **Packaging for Return:** Package and pad the item well to prevent damage during shipment. Electronic components, such as printed circuit boards, should either be installed in an enclosure or placed in an anti-static bag before boxing.

Please enclose your name and address and list all the symptoms of the failed product. Please be as specific as possible.

2. **Driver Packaging Instructions:** Drivers should be placed in a static-free enclosure for return shipping. An anti-static convoluted foam packing is available from Daktronics (part number PK-1135). The shipping box (Daktronics part number PK-1006) should be used along with the foam.

3. **Where to Send:** Contact your local representative prior to shipment to acquire a Return Material Authorization Number (RMA#). Include this number with the returned item; this will expedite the repair of your unit.

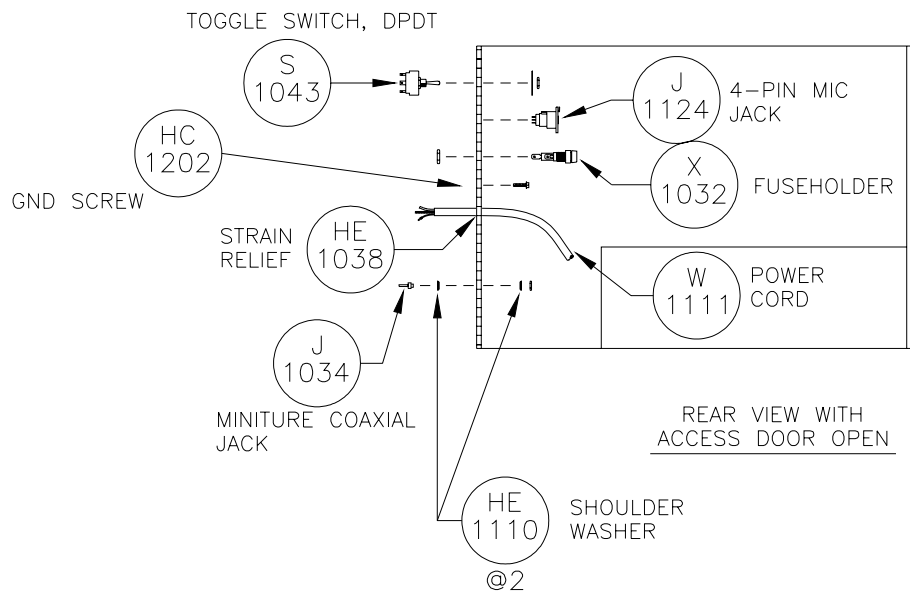
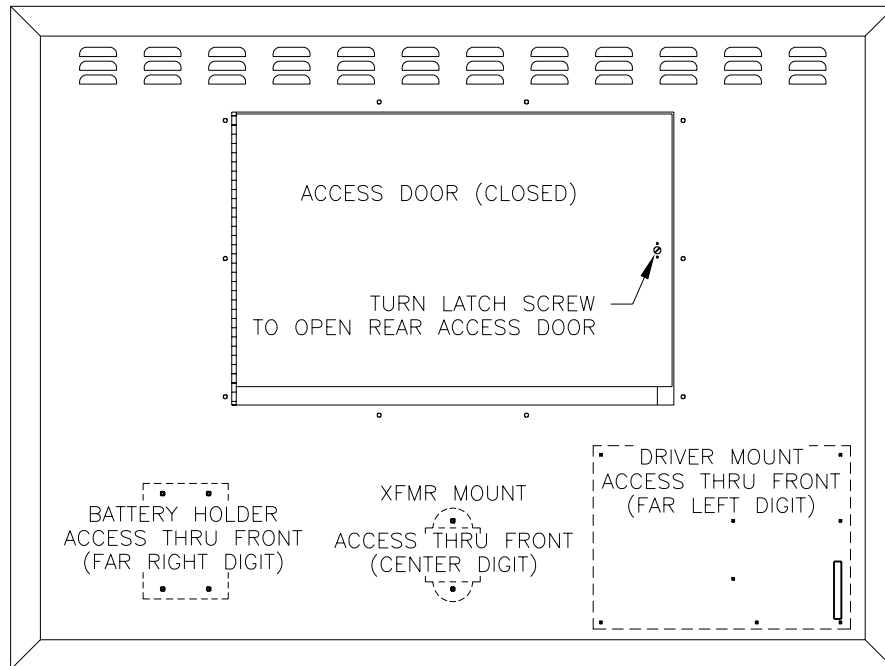
When returning defective items under the exchange program, please use the UPS Blue Return Tags found in the package containing the exchange unit sent from Daktronics. This will speed up the transaction and help avoid confusion when the part is returned to Daktronics. **The defective**

item must be returned within 15 days of receiving a replacement part. Using the UPS Blue Return Tag within the 15 day time frame will eliminate the possibility of late charges being assessed against your account.

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

Phone: Toll Free: 1-800-843-9879
or 1-605-697-4400

REAR VIEW



DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GLOW CUBE PORTABLE SCOREBOARD

TITLE: COMPONENT LOCATIONS

DES. BY: MGG

DRAWN BY: MGUNDERSON

DATE: 15JUL94

REVISION

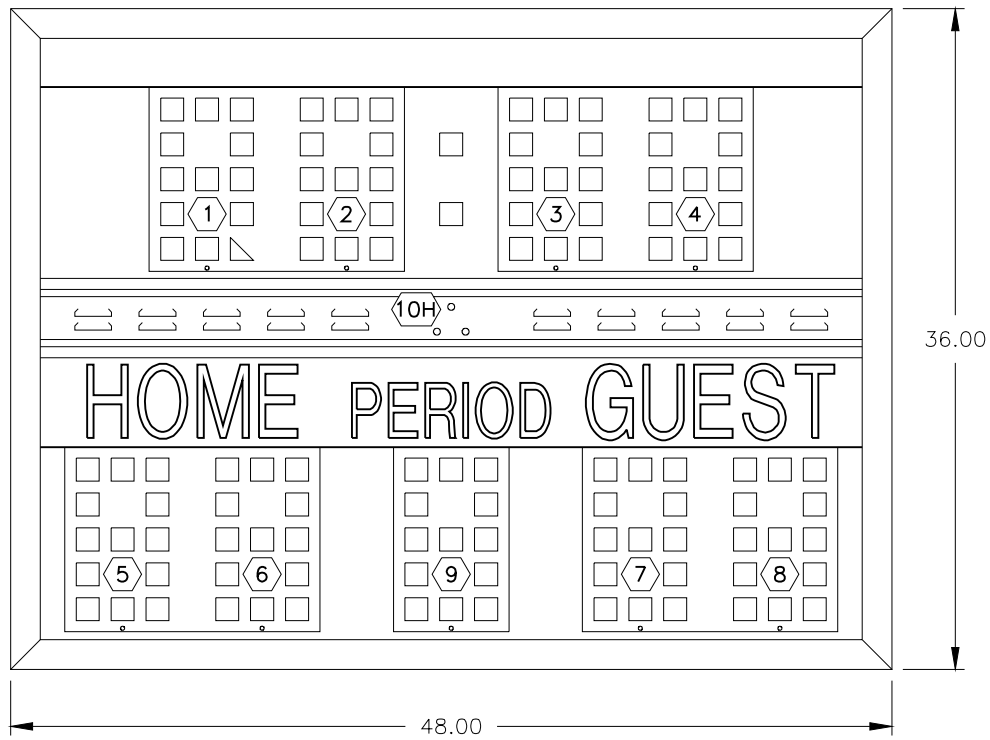
APPR. BY:

SCALE: 1 = 10

1072-E10A-64271

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FRONT VIEW



NUMBER IN HEXAGON INDICATES
DIGIT NUMBER. EXAMPLE:

= DIGIT #6

HORN IS WIRED TO 10H

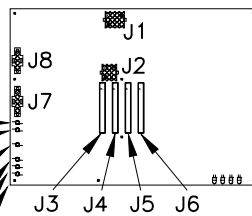
DRIVER TO DIGIT WIRING:

JACK J-3 TO DIGIT #1
JACK J-4 TO DIGIT #5
JACK J-5 TO DIGIT #9

DRIVER

LED INDICATOR
LIGHT FUNCTIONS:

AC ON
12VDC ON
CHARGE
BATT FULL
BATT MED
BATT LOW



NOTE: LEDs FACE BACKWARDS ON DRIVER
AND ARE READ FROM THE REAR.

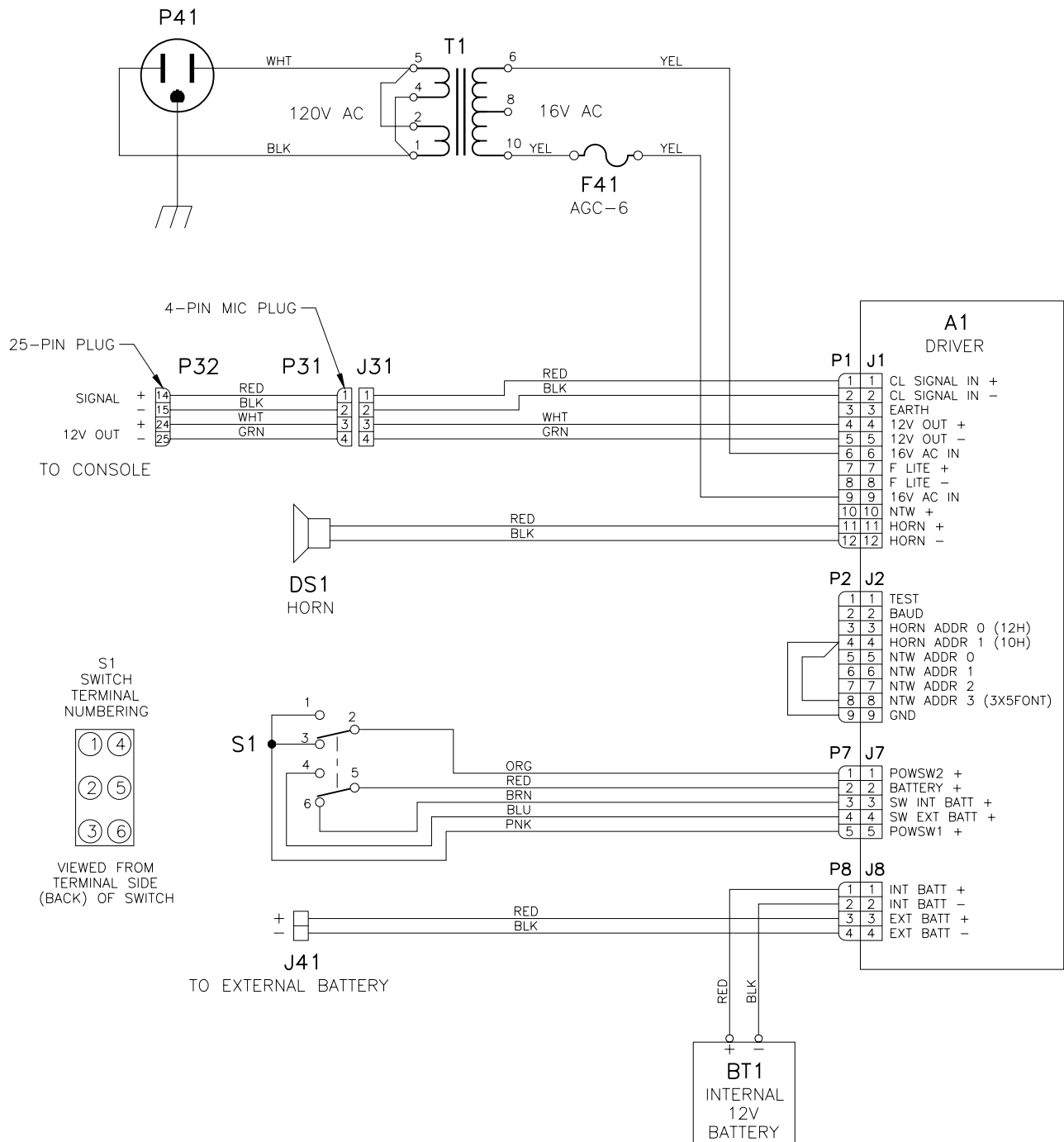
DRIVER IS LOCATED BEHIND THE
"HOME" SCORE DIGIT CARD.

TO ACCESS DRIVER:

- 1) REMOVE THE RIGHT SIDE PLEX RETAINER.
- 2) SLIDE BOTTOM PLEX SHEET OUT 2 FEET.
- 3) DETACH RIBBON CABLES FROM DIGIT.
- 4) REMOVE FOUR SCREWS HOLDING DIGIT CARD IN PLACE.

REV.	DATE	DESCRIPTION	BY	APPR.
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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: GLOW CUBE PORTABLE SCOREBOARDS			
TITLE: DIGIT ASSIGNMENTS			
DES. BY: MGG		DRAWN BY: MGUNDERSON	
		DATE: 19JUL94	
REVISION	APPR. BY:		1072-E10A-64272
	SCALE: 1 = 10		



DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GLOW CUBE PORTABLE SCOREBOARD

TITLE: POWER AND SIGNAL WIRING

DES. BY: MGG

DRAWN BY: MCGUNDERSON

DATE: 27MAY94

REVISION

APPR. BY:

SCALE: NONE

1072-R03A-64091

1	18AUG94	ADDED SWITCH TERMINAL NUMBERING DIAGRAM.	AVB	AVB
REV.	DATE	DESCRIPTION	BY	APPR.

