

# RACE AMERICA

INNOVATION. TECHNOLOGY. RELIABILITY.

## *Drag Racing Dial-In Scoreboards*



## *Owners Manual*

Model 4528D - Rev B  
H.x or later firmware

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## LIMITED WARRANTY

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To the original purchaser of this RaceAmerica product, RaceAmerica warrants it to be in good working order for a period of ninety (90) days from the date of purchase from RaceAmerica or an authorized RaceAmerica distributor. Should this product malfunction during the warranty period, RaceAmerica will, at its option, repair or replace it at no charge, provided the product has not been subjected to misuse, abuse, or alterations, modifications, and/or repairs not authorized by RaceAmerica.

Any product requiring Limited Warranty service during the warranty period should be returned to RaceAmerica with proof of purchase. If return of merchandise is by mail, the customer agrees to insure the product, prepay shipping charges, and ship the product to RaceAmerica, Inc.,

ALL EXPRESSED AND IMPLIED WARRANTIES FOR THIS PRODUCT ARE LIMITED IN DURATION TO THE ABOVE NINETY DAY PERIOD.

UNDER NO CIRCUMSTANCES WILL RACEAMERICA BE LIABLE TO THE USER FOR DAMAGES, INCLUDING ANY LOST PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF, OR INABILITY TO USE, SUCH PRODUCT.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

## PRODUCT OVERVIEW

RaceAmerica Drag Race Dial-In Scoreboards are a microprocessor controlled system based upon the 7-segment format display digit using the latest technology Ultra-Bright LEDs. The scoreboard uses a RS232 serial link to receive data to be displayed. The serial link is preconfigured for use with RaceAmerica two lane drag timing systems (model 2650 'XL Advanced', model 2700 XL Wireless and model 2850 'XL Professional'). Each scoreboard contains its own CPU chip to analyze the data string received and correctly display the desired race results (e.g. left/right lane, speed, ET, winner flash).

Race results to be displayed are selected through DIP switches located on the rear panel of the scoreboard.

The Scoreboards can display Dial-ins or Reaction Time for each lane.

Data communication is available via internal wireless data link units (requires timer side wireless transmitter) or hard wired RS232/RS422 connections (scoreboards placed more than 100 ft from the console require conversion to RS422 data format or use of the timers RS422 port where available).

When used with 2700 XL Wireless, 2850 XL Pro and/or XLscore Pro software, brightness control is available for use in various conditions

**NOTE:** THESE PRODUCTS USE ULTRA-BRIGHT LED TECHNOLOGY. DUE TO THE BRIGHTNESS LEVEL OF THIS DISPLAY, CARE SHOULD BE TAKEN, AS WITH ANY BRIGHT LIGHTING SOURCE, TO AVOID PROLONGED VIEWING AT CLOSE RANGE AND SHORT DISTANCES. AS WITH ANY BRIGHT LIGHTING SOURCE, VISION MAY BE AFFECTED SHORT TERM SIMILAR TO CAMERA FLASHES.

## Model 4528D DIAL-IN SCOREBOARD

### PACKAGE COMPONENTS

- 2 - Scoreboard Units
- 2 - Power Patch Cords
- 1 - Owner's Manual

### Model 4528D Available Options:

- 06-Y155 RS232 Cable up to 100'
- 7606B Suspension Arm Stand
- 4500 Data Communication POD (for placement greater than 100ft from timer)
- 4X20A Wireless Network Links (2 or 3 req'd)
- 6512A AC Power Adapter (2 req'd)
- 07-3434 RS422 Cable for use with PODs
- 'B' suffix - Internal rechargeable battery
- 'W'/'X' suffix - Internal Wireless Datacomm link (domestic/intl)
- 6075A - Carry/Storage case (2 req'd)

### LOCAL REQUIREMENTS

Additional items required to operate the 4528 Single Line Scoreboard and options:

- 1 - 12VDC automotive battery for each unit

Other requirements:

- AC power source for AC adapters

### PRODUCT SPECIFICATIONS Model 4528

Display Type:	7-Segment
Digit Size:	5" x 2.75"
Number of digits:	Four
Dimensions (half):	20.3"W x 11.5"H x 3"D
Mounting:	Top 3/16" Eye - 16.6" c
Housing:	Powder coated aluminum
View Filter:	Red Transparent acrylic
View Range:	200' in full sun
Power Req't:	11.5 to 12.6VDC/.8A x 2
Data Comm:	RS232 Serial
Weight (total)	18#

## PRODUCT SET-UP

Model 4528 Dial-In Scoreboard is designed to hang free using the top eyelets supplied with the display. It is suggested to use the hanging method in windy conditions to avoid damage to the display and the display housing. The 4528 scoreboard is intended to display dial-in times at the starting line.

**STEP 1** - Assemble and/or mount the scoreboard.

### STEP 2 - Configure the scoreboard

The scoreboards ship from the factory with the most likely selections enabled for starters. DIP switches control the scoreboards lane, data source and data communication method.

NOTE: IF DIP SWITCH NUMBER 1 IS SET TO 'OFF' DURING THE POWER UP SELF-TEST, THE DISPLAY WILL CONTINUOUSLY LOOP ON THE SELF-TEST UNTIL SWITCH NUMBER 1 IS SET TO THE 'ON' POSITION.

### STEP 3 - Connect the interface

RaceAmerica timers output both RS232 and RS422 serial data formats; be sure to match/convert data formats as follows:

Dial-In boards must receive RS232 data which can be a hard wire connection up to 100 ft away or greater distances with communication PODs or Wireless Link networks.

Several cabling options are available depending on the scoreboard placement on the race track.

Scoreboards without an internal wireless unit use interface cables containing RJ45 modular connectors on both ends of the cable and are connected to the scoreboard using the RS232 SCOREBOARD PORT connector on the back of the scoreboard. When inserting this connector,

press inward until a click is heard to lock the cable in place. If the cable remains loose and no click is heard, carefully bend outward the locking tab on the RJ45 connector approximately 45 degrees from the connector body. Re-insert the cable into the serial port until the click is heard and the cable remains locked in place. To remove this cable, pinch the locking tab against the body of the RJ45 connector and pull the connector out.

For wireless models, an Internal Wireless Data Network or external unit is used. For external wireless installations, connect the 07-4554 cable between the wireless link and the scoreboard (RJ45 connector). The external wireless link unit is mounted on the back of the display. For internal wireless, simply install the antenna on the display and connect the Wireless Data Transceiver at the data source.

### STEP 4 - Connect the power

Power is supplied to each scoreboard unit through the 12VDC POWER INPUT connector located on the rear of the display. Connecting power to the display will set the display into a power-up self-test mode. Once the self-test has successfully completed, the display is ready for use.

## POWER-ON SELF-TEST

When the power source is connected, each display unit begins an internal self-test and external visual check of the display elements.

The self-test begins by stepping through each segment of all digits, one segment at a time including the colon or decimal points. The self-test continues by sequentially illuminating each segment until all segments, colons, and decimal points are on. The self-test continues by drawing a square frame by sliding a small square from left to right, then down and right to left. The square then collapses and the revision level of the code running in the microprocessor is displayed. The display will dim between dimmest and brightest

to show the range of control available (dimming only available with 2700/2850 systems (firmware H.x or newer). When the internal self-test and external visual test is complete, [rEAdy ] scrolls in from left to right and blanks out. The display is now ready for use.

## SCOREBOARD OPERATION

### Model 2600/2650 XL Advanced systems -

The dial-in boards will display the selected non zero dial-in times when [#] **ENTER** is pressed after entering times.

### Model 2800/2850 XL Professional -

The XL Professional systems operate with XL Score Pro software. These systems will display Dial-Ins when selected in the XL Score 'SCOREBD CONTROL' menu; brightness selections will be used to set the display brightness level (E.05 or later XLscore software).

### Model 2700 XL Wireless

When operating from a 2700, the display of RT is controlled from the console. Brightness control is also configured on the console.

## SCOREBOARD CONTROL - XL PRO

RaceAmerica Digital Scoreboards connected to the XL Professional Timing System can be controlled and reconfigured to display specific race information after each race over-riding the DIP switch settings on each scoreboard unit. Clicking on the **SCOREBD CONTROL** button on the Main Menu displays the Scoreboard Control and Configuration Screen shown in Figure 1. The items in the green areas of the screen are enabled by placing an 'X' in the appropriate box by clicking on the box or text of the feature to be enabled. To disable display of the race results on the scoreboards, remove the 'X' from the square by clicking on the box or the text.

Scoreboards are configured with DIP switches to set certain conditions such as hard wired/ wireless and Left/Right Lanes

The following settings can be enabled via DIP Switches.

**REACTION TIME** - displayed at the beginning of the race when both lanes have started (with XL Score Professional software only on 2800/2850 models). RT can not be sent to the scoreboard by the XL Advanced.

**DIAL-INS/INDEX/BRACKETS** - at the start of a race when dial-ins were entered before the start; with XL Score, click **CLEAR ALL/ SEND NEXT** to update the scoreboards. With the XL Advanced, press # [**ENTER**].

**BRIGHTNESS** - select one of the five brightness levels. All units are on High after power-on.

Once the desired configuration is selected on-screen, click on the **CONFIG SCOREBD** button to reconfigure the scoreboards. The scoreboards should show 'rEAdy' and then blank out.

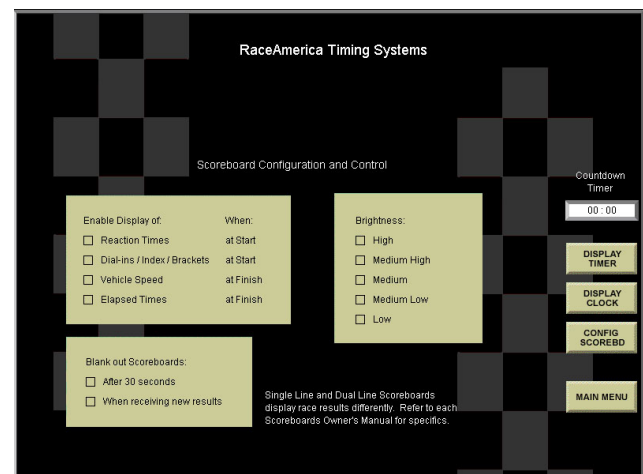


Figure 1 - Scoreboard Control Screen

## DIP SWITCH DEFINITIONS

All scoreboard models have eight DIP switches located on the back of the unit that are numbered from 1 to 8 which can be switched ON or OFF. The ON position is indicated on the switch itself. Each switch function and setting are discussed below.

### Lane Selection

Switch number 3 determines which lane's race results will be displayed:

<u>Lane to Display</u>	<u>3</u>
Left	ON
Right	OFF

### Results Selection

Switch number 4 determines which race results will be displayed:

<u>Results to Display</u>	<u>4</u>
Dial-ins	ON
Reaction Time (RT)	OFF

### Data Comm Format

Switches 7 & 8 are used to set the data connection to be used:

<u>Data Comm</u>	<u>7</u>	<u>8</u>
External wireless	ON	OFF
or Hard wired RS232		
Internal wireless	OFF	ON

## **DISPLAY MAINTENANCE**

The drag racing Scoreboards do not require any maintenance to maintain proper operation. If the scoreboard is to be used in rainy or wet conditions, it is suggested to protect the back panel from direct moisture by shielding the connection to power and the serial data port.

To clean the red acrylic lens, use a non-abrasive cleaner with a soft cloth. This will keep the protective lens clean and maximize visibility and clarity of the digits. If the red lens is soiled with mud or dirt, gently remove the grit using a soft cloth/water being careful not to press when wiping to avoid scratching the red lens acrylic material.

## **SPARE PARTS**

Further to minimize race program interruptions, RaceAmerica recommends some spare parts. While the Scoreboard may not shut down the racing action, a spare emitter/sensor pair and end of track cable sections should be available in the event of an unfortunate accident during a program. Related cables and PODs for the Scoreboard should be considered. Contact RaceAmerica for availability and pricing.

## **SUPPORT AGREEMENTS**

Support agreements are available from RaceAmerica providing Telephone Assistance on technical issues and operational questions, repair and/or replacement of hardware failures, Software and Firmware updates and bug reporting. Contact RaceAmerica for more information and pricing of Support Agreements.



## SCOREBOARD STAND ASSEMBLY INSTRUCTIONS

This assembly instruction is intended for use with six digit eight inch scoreboards and Dial-In scoreboards.

### 7606B Stand Kit Contents

- 2 - Suspension Stand Arms with 'J' hooks
- 1 - Pipe Flange
- 2 - 20 in pipe sections
- 1 - Pipe union
- 1 - Base Plate with Pipe Flange
- 2 - 1/4-20 bolts with wing nuts

### Assembly

1) Assemble the suspension arms with the pipe flange and 1/4-20 bolts at most extreme angle setting. Orient flange and 'J' hooks down.

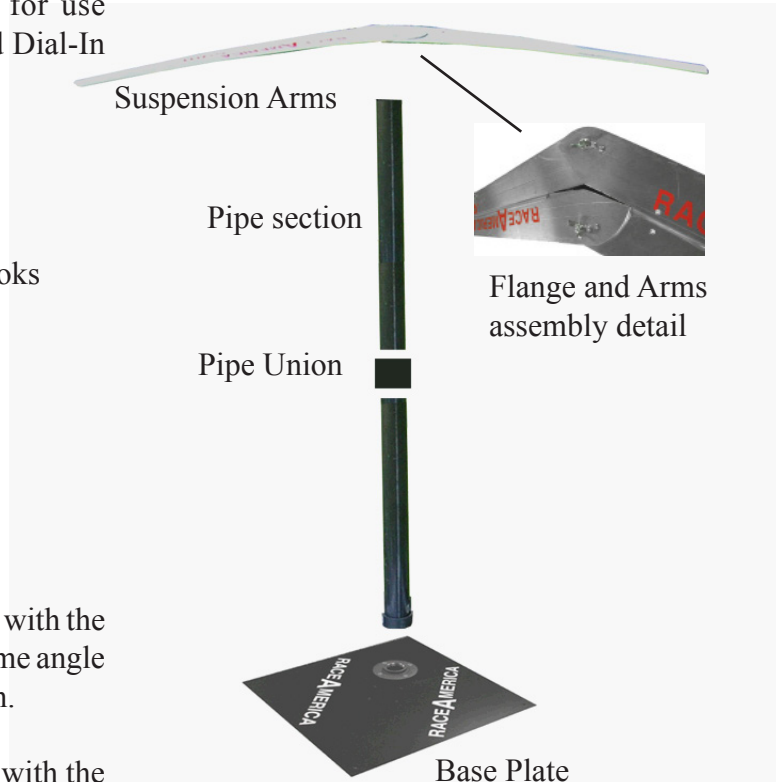
2) Connect the two pipe sections with the coupling and screw into the base plate flange to assemble the post.

3) Carefully screw the suspension arm assembly onto the post. Align such that arms will suspend the display over the center of the base plate on the diagonal for maximum stability.

4) Hang the scoreboard on the 'J' hooks; some droop is normal; the display will swing in the wind.

### Additional Stability - (if required)

1) Place a weight onto the base plate or stake it into the ground



**Fig. 6 - Scoreboard Stand Assembly**

Assembled Suspension Stand

## REVISION HISTORY

- Rev A - 07/08 - New board/CPU chip - built from xx28C Rev R  
Add Dimming (H.x and later) and revise for new board (xxxxD) change DIPs  
New Manual for 4528D dial-In boards only
- Rev B - 06/11 - Delete no longer available DIP switch settings/change to aluminum