

Horn Start HS-200

Operator's Manual

ED12935

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Product1056
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Reproduction Reference
ED12935 – P1056
Horn Start HS-200 Operators Manual

1. This page is for reproduction reference only and will not be included in the manual.
2. Copy this manual on FRONT AND BACK PAGES -8 ½ x 11 paper.
Note: The first page, Cover Page, uses the front of the page (blank on back). Section heading pages always start on a new page; they never start on the back of another page.
3. Drawing included in this manual:

A-23635
A-26797
A-150431
4. Use a blue window cover and a blue back.
5. Punch all pages, window cover, and manual back along the left edge and bind with a binder.
6. Please direct question and suggestions to Engineering Secretarial.

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Section 1: FCC Compliance Statement

1.1 HS-200 Wireless Microphone – FCC Compliance statement

Class A Device Statement

(Section 15.105(a) of the FCC Rules)

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

Section 2: Introduction

2.1 How To Use This Manual

The Daktronics HS-200 Horn Start System uses the latest in electronic components to provide accurate starts for swim timing applications. The HS-200 provides user controlled voice amplifications for voice commands and an easily seen start strobe light. The HS-200 can also interface with a Daktronics' timing system or other brands of timers to provide accurate timing.

The HS-200 System comes equipped with:

- HS-200 Horn Start Console..... **0A-1056-0116**
- Hand held dual switch microphone with coiled cord.... **0A-1056-0117**
- Power transformer with 10' cord..... **0F-1056-0004**
- OmniSport Timer output cord (30')..... **W-1425**
- 15' Microphone Extension..... **0A-1056-0122**
- Horn Start Manual..... **ED-12935**

Important Safeguards:

- Read and understand all instructions.
- Do not drop the control console or allow it to get wet.
- Do not let any power cord to touch hot surfaces or hang over the edge of a table, which would damage or cut the cord.
- If an extension cord is necessary, use a three-pronged, polarized cord. Arrange the cord with care so no one will trip over the cord or pulled it out.
- Always turn off and/or unplug the control equipment when it is not in use. Never yank the power cord to pull the plug from the outlet. Grasp the plug and pull to disconnect.
- To avoid electrical shock, do not disassemble the control equipment or the driver modules. Incorrect reassembly can cause electric shock and faulty operation or permanent damage to the circuits.

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 bottom right corner of the drawing. The manual will refer to drawings by the last set digits and the letter preceding them. In the example, the drawing would be referred to as **Drawing A-114667**. All drawings referred to as such will be inserted at the *end of each section*.

DAKTRONICS, INC. BROOKINGS, SD 57006		
PROJ: 1800 SERIES MESSAGE BOARDS, 2 1/2'		
TITLE: SHOP DWG. 16 HIGH 2 1/2' SMALL MATRIX DISPLAY		
DES BY:	DRAWN BY: JRT	DATE 16APR 98
APPR BY:	1195-R10A-114667	
SCALE	1=30	

Figure 1: Daktronics Drawing

Section 3: System Setup

3.1 System Setup

Reference Drawings:

Typical Swimming Installation On-Deck.....	Drawing A-23635
Typical Swimming Installation In-Deck.....	Drawing A-26797

Refer to **Drawings A-23635** and **A-26797** for information on typical placement of system components.

If individual lane speakers are being used, connect them underneath the starting platforms (individual lane speakers can also be placed on the wall behind the swimmers). Then string cabling from the HS-200 to the lane speakers. Carefully secure all cabling from the HS-200 to the lane speakers. Make sure all cabling on the deck is secured to prevent injury. Connect the cable into the speaker jacks marked "Lane Speaker" on the HS-200 console.

If an auxiliary speaker is being used, place the speaker where desired and string cable from the HS-200 to the speaker. Connect the cable into the speaker jack marked "Aux Speaker" on the HS-200 console.

Connect the timer output cord to the swim timer. If the swim timer is a Daktronics timer, connect the cord to the timer start jacks marked "Daktronics". If another type of timer is being used, connect the timer cord to the timer start jacks marked "N.C." (For "normally closed" output) or "N.O." (For "normally opened" output) depending on the signal the timer requires.

Connect the microphone to the HS-200 into the jack marked "Mic." Turn on the power to the HS-200 unit.

Section 4: Operations

4.1 Operations

Operation of the HS-200 console is very simple and can be mastered with a few minutes of practice. After installation is complete, turn on the power to the unit. Set the volume controls as desired for the main/aux and lane speakers by using the volume control knobs along the left side of the console.

To speak into the unit, depress the large button on the side of the microphone, hold the microphone a few inches from your mouth, and speak directly into the microphone. When not speaking into the microphone, release the microphone knob.

To activate the Horn Start System, depress the large button on the side of the microphone and the small button on the top of the microphone simultaneously.

After a race has been started, the top LED will flash for 18 seconds. This means that if there is a false start the recall signal can be sounded to notify the swimmers of the false start. To sound the recall signal, depress the large button on the side of the microphone and the small button on top of the microphone together while the recall active LED is on. Refer to **Section 3.3 on Start Recall Settings** for information on disabling the recall tone.

4.2 Battery Operation

With a full charge, the HS-200 battery can provide up to 12 hours of continuous operation. When not in use, plug the HS-200 into a 120VAC outlet to recharge the internal battery. The internal circuitry monitors the charging process, so leaving the HS-200 plugged in and charging for extended periods does not damage the internal battery.

The **on/off** switch on the HS-200 does **NOT** need to be turned on to charge the internal battery. The battery charging circuitry will be active whenever the HS-200 is plugged into the wall outlet. When the HS-200 is plugged in and the **on/off** switch is turned **on**, the charging LED will give the battery-charging status.

If the charging LED is **on**, the battery is currently being charged. If the charging LED is **off (or flashing)** and the Battery Full LED is **on**, the battery is fully charged.

When battery power runs the HS-200, the Battery Full and Battery Low LEDs give battery status. The green Battery Full LED is **on** when the internal battery voltage is above 10.5 volts. If the battery drops below this voltage, the red Battery Low voltage will be **on**.

For information about problems with battery charging, please refer to the Troubleshooting section of this manual.

4.3 Changing the Horn Start Settings

The following steps will allow the Horn Start user to enable or disable the recall on the Horn Start:

1. To access the setup, turn the power switch **ON** and immediately press the “Push to talk” lever (the button on the side of the microphone) **three** times.
2. The four LED indicators on the Horn Start will flash, and the speaker will either sound a recall warbling tone or make no sound at all when the recall is enabled or disabled. This applies no matter what start sound is selected.
3. To change the setting, press the “Push to talk” button once.
4. To save the current setting **press and hold** the “Push to talk” button while pressing the top button **twice**. The LED’s should quit flashing. The HS-200 is now configured for the selected recall setting.

The following steps will allow the Horn Start user to configure the unit so it uses the start tone or gun shot sound:

1. To access the setup, turn the power switch **ON** and immediately press the “Push to talk” lever (the button on the side of the microphone) **four** times.
2. The four LED indicators on the Horn Start will flash and the speaker will sound the current setting. This sound will be either the tone or the gunshot.
3. To change the setting, press the “Push to talk” button once.
4. To save the current setting, **press and hold** the “Push to talk” button while pressing the top button **twice**. The LED’s should quit flashing.

Section 5: System Storage

5.1 System Storage

The HS-200 console and speakers should be stored in a cool, dry place, away from the pool environment. All cable should be neatly coiled and stored away from the pool.

The charging circuit is designed so the battery can be charged for extended periods, however, it is not required that the HS-200 be connected to the wall outlet during the off-season. Before storage, allow the HS-200 to be plugged into the wall outlet for 24 hours to fully charge the battery. Allow 24 hours of recharge time after the HS-200 has been taken out of storage as well.

Section 6: Accessories

This section describes some of the accessories that are available with the Horn Start HS-200.

6.1 External Strobe Module

Battery Operation

The HS-200 External Strobe Module includes an internal 12V DC battery that provides up to 12 hours of continuous use. To use the External Strobe Module on battery power, connect the start input banana jacks to either a normally open or normally closed switch input such as the HS-200, a push button switch, or another timing device. To turn the External Strobe module on, connect the banana connector inputs to the starting device, and press the start button. The green “Power On” LED will light and the internal buzzer will sound. The External Strobe Module will flash and the buzzer will sound for each switch input received, provided they occur with at least a 15 second delay. Any switch inputs received within 15 seconds of the previous switch input will sound the internal buzzer but may not flash the strobe.

The HS-200 External Strobe Module will run for approximately 30 hours on standby power. In order to conserve battery life, the External Strobe will turn itself off after one hour with no use. To turn the strobe back on, simply connect to the starting device and press the start button.

When the internal battery reaches a low level, the red “Low Battery” LED will light for approximately 30 seconds and the External Strobe unit will turn off. Any start signal received after the internal battery is low will light the low battery LED momentarily.

AC Power Operation

The HS-200 External Strobe Module includes a circuit that will recharge the internal battery when connected to a 120V AC wall outlet using the 12 V Wall Pack Transformer. When the Strobe Module is connected to AC power, the green “Power On” LED is on and the strobe is ready for use. The internal battery will recharge in approximately three to four hours. Due to internal battery monitoring circuitry, the External Strobe module can be plugged into the wall for extended periods of time without overcharging. The Amber “Charging” LED is illuminated when the internal battery is being charged.

6.2 Wireless Microphone

The HS-200 Wireless Microphone is an accessory that allows the starter to direct and start events without a wired connection to the HS-200. This is possible when the HS-200 is purchased with the Internal Wireless Module accessory, which is installed in the top center of the HS-200 case.

HS-200 Wireless Microphone General Operation

The Wireless Microphone unit operates identically to the wired microphone and uses the same microphone assembly. See the “Operations” section of this manual for more information.

Channel Button

The Wireless Microphone also includes a channel button to select the channel used for transmission to the HS-200 unit. Pressing the channel button on the Wireless Microphone once shows the current transmit channel on the channel digit. Pressing the button while the channel number is displayed moves to the next channel. Ordinarily, the HS-200 main unit will automatically synchronize and change channels with the Wireless Microphone assembly. Should the main unit fail to synchronize, press the channel button on the main unit until the channel digit matches the channel shown on the Wireless Microphone. Channels 0-7 are available for use.

Channel Digit

When the Channel Button is pressed, the Channel Digit shows the current wireless channel. The decimal point on the channel digit illuminates when the microphone side key is pressed, indicating that the Wireless Microphone is transmitting data.

Battery Operation

The Wireless Microphone uses two AA batteries for operation. To replace the batteries, remove the cover on the back of the Wireless Microphone assembly.

The Wireless Microphone should operate for approximately 30-40 hours of meet operation on one set of batteries. When not in use, the wireless microphone consumes only a minimum amount of battery power, thus remove batteries when a meet is completed (unless the unit will be in storage for several months.)

The channel digit shows an “L” when the batteries are low. If an “L” digit appears on the channel digit, replace the batteries in the unit as soon as possible.

HS-200 Internal Wireless Module (IWM) General Operation

Channel Button

Press the Channel Button on the HS-200 IWM to change the current channel. This channel will need also need to be selected on the Wireless Microphone assembly. The channel on the HS-200 IWM should change automatically when a new channel is selected on the Wireless Microphone.

Carrier LED

The Amber “Carrier” LED on the HS-200 IWM illuminates when radio data (or noise) is present in the currently selected channel. Before the start of a meet, watch the “Carrier” LED for any activity other than the HS-200 Wireless Microphone (without pressing the side button on the Wireless Microphone.) Attempt to choose a channel that has a minimum amount of interference for best operation.

Valid Receive LED

The Green “Valid Receive” LED on the IWM illuminates when a valid radio packet has been received from the Wireless Microphone. This LED should be on whenever the Microphone side button is pressed.

Section 7: Troubleshooting

7.1 Troubleshooting

This section gives detailed information about troubleshooting some of the problems that the HS-200 may have. If you are unable to perform the actions listed in this section, contact Daktronics' Customer Service for assistance.

A speaker is not working

Move the speaker in question to a location where one is known to be working properly. If the speaker in question still does not work, the speaker is faulty and must be replaced. If the speaker in question begins to work, the cable that connects to that speaker is at fault and must be repaired or replaced.

The microphone is not working

Make sure the power is **on** and that the volume controls are up high enough to be heard. Press the microphone and start/recall buttons simultaneously to attempt a start. Disconnect and reconnect the microphone to ensure a good connection. If either the start function or microphone still does not work, the microphone must be replaced. Contact Daktronics' Customer Service Department.

The strobe light does not work

Make sure the recall ready LED is on steady. If the Battery Low indicator is **on**, plug the HS-200 into the wall outlet and retry. If the strobe still does not work, contact Daktronics Customer Service Department.

The recall tone does not sound

Make sure that recall is enabled on the HS-200 unit you are using. Refer to the section on "Changing the Horn Start Settings."

The HS-200 will not turn on when attempting to run with battery power.

When plugged into the wall outlet the HS-200 operates correctly, the charging LED is OFF, and Battery Low LED is ON (or flashing).

1. The internal fuse on the HS-200 may be blown. A 2¹/₂ amp AGC fuse protects the internal battery from short circuit. To replace this fuse, first make sure to disconnect the HS-200 from the wall outlet, and make sure the power switch is **off**. Remove the enclosure cover by removing the 10 screws on the top, bottom, and side of enclosure. Once the enclosure is open, disconnect the battery by unplugging the 2-pin Mate-N-Lok™ connector near the bottom center of the printed circuit board. Remove the fuse next to this connector and replace with an AGC 2¹/₂ amp fuse. Reconnect the battery and close the hornstart case.
2. The battery may no longer work or may have been severely damaged due to long periods of usage when the battery was under power. Plug the hornstart into the wall outlet for 24 hours. If the same problem occurs, the battery most likely should be

replaced. Contact Daktronics Customer Service.

Noise Bursts when the Wireless Microphone is being used.

There may be another piece of equipment interfering with the wireless microphone. Attempt to move to a channel with less radio interference. Move to each channel individually and watch the Amber LED labeled “Carrier LED” on the Internal Wireless Module of the HS-200. Look for a channel where the Amber LED stays off when the Wireless Microphone is not in operation. If all channels are noisy, attempt to determine which equipment is interfering by unplugging any electronic equipment in the area.

7.2 Unit Exchange/Replacement Procedure

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 product 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 – 877-605-1115 – 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: 1 (877) 605-1115 (toll free)
or 1 (605) 697-4036

Customer Service Fax: 1 (605) 697-4444

E-mail: helpdesk@daktronics.com

Appendix A: Reference Drawings

The Daktronics drawing number is located in the bottom right corner of the drawing. This manual refers to drawings by listing the last set of digits and the letter preceding them.

The following drawings offer specific information pertaining to the Horn Start HS-200 displays. They are listed in alphanumeric order.

Typical Swimming Installation (on deck)	Drawing A-23635
Typical Swimming Installation (in deck)	Drawing A-26797
Horn Start HS-200	Drawing A-150431