

SpeedCoach[®]XL

Instruction Manual for XL3 and XL4 Models

NK

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**Please register your product at www.nkhome.com/register/
to ensure your full 2-year warranty.**

Thank you for purchasing the SpeedCoach XL from NK! And congratulations for being part of the 1% of the population who actually reads instruction manuals. If you stick with it, you'll be rewarded with not only a comprehensive understanding of how the XL works, but also with some training tips and tricks from Olympic coxswain and rowing celebrity Yaz Farooq.


We're convinced that you'll find the XL to be the simplest SpeedCoach you've ever used, but it's still a good idea to read the manual. The manual is divided into two sections: Using the SpeedCoach XL, and Setup for the SpeedCoach XL. If you just want to use the XL right out of the box, scan over the "Using" section and you're off. When you're ready to really use the XL to it's fullest potential, read over the "Setup" section for information on the menus, memory and general product specifications. There is also an index on the last page of the manual for quick reference.

As always, we have a full staff of people at NK ready to help out, so please call or email with questions. You can also visit www.nkhome.com for additional product and support information.


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Using the SpeedCoach XL

To turn the XL on, simply hold the  button for 2 seconds. You will hear 3 beeps as the startup screen is displayed. The two-second button hold avoids the unit being inadvertently turned on if bumped in your bag. The SpeedCoach XL powers on in Just Row Mode.

The SpeedCoach XL is compatible with all SpeedCoach wiring harnesses and impellers. Simply slide the unit into the docking station until it clicks. You may wish to secure the unit to your boat with the lanyard in the event that it is bumped off the docking station.

To turn the XL off, hold the  button for 3 seconds.

Just Row Mode

Just Row Mode describes the most basic way to use the XL. It means you are rowing without running a programmed workout. You will see measurements for each individual stroke, making it easy to track performance through any session.





What you will see in Just Row Mode:







Screen Windows:



- A: Speed or Pace
- B: User Selected: time, average speed/pace, distance, number of strokes
- C: User Selected: time, average speed/pace, distance, number of strokes
- D: Stroke Rate
- E: Heart Rate (XL4 only)
- F: System Window - Battery Indicator, Time and Unit Name

Active Buttons:

-  Start/Stop
-  Window B Select
-  Window C Select
-  Main Menu

Window A displays either speed or pace (predicted split) for the previous stroke, and updates every stroke. To change between speed and pace, see page 10.

Windows B & C display your choice of distance, time, stroke count, or average speed or pace. To cycle through these measurements in Window B, press the  button. To cycle through these measurements in Window C, press the  button. These windows can be changed at any time, and are cumulative measurements calculated from the last timer reset. To start the timers, press the  button and then begin rowing. The seat magnet passing over the sensor will activate the timer. Press the  button to stop the timer. The xSTOPx icon will indicate that the timers are not running.

To reset the timers (Windows B & C), hold down both the  and  buttons for one second. If you hold down the buttons while the timer is running, it will stop and reset. When the timers are reset, any previously stored data will remain logged in the memory. Resetting the timers simply sets the cumulative information back to zero. When you begin to record information after a reset, the date and time that you started recording will also be stored.

Window D displays the stroke rate for the previous stroke, and will update every stroke.

Window E displays heart rate if the heart rate sensor and chest strap are in use. The heart rate measurement will update every pulse beat. In XL3 units, or if a chest strap or sensor is not in use it will be blank.

Window F displays the System information: battery life indicator, the time of day and the name of your unit. (The time of day is displayed only when the radio is turned off.)

Just Row Memory stores information in segments called intervals whenever the timers are running. You can set your storage interval to any: distance (eg. every 100 meters), time (eg. every 1 minute) or number of strokes (eg. every 10 strokes). For each interval, the XL will store: time, speed/pace, distance, number of strokes, and heart rate (XL4 only), the date and time the session began, and the interval number (eg. #1 of 12). The factory default storage interval is 100 meters, and the Just Row memory bank can store 1500 memory points. With a memory bank this large, you can store multiple rows in the memory for later review (depending on your storage interval). This information can be uploaded to a computer using the optional SpeedCoach Interface. When you review the stored data, it is easy to identify intervals since each is stored with the date and time it was rowed. To review Just Row Memory, see page 8.

Workout Mode

A workout is when the XL runs a series of pre-programmed intervals.




When running a workout, you will see:



Screen Windows:

- A: Speed or Pace
- B: Workout Interval (either distance, time or number of strokes) - counts DOWN. "WO" indicates that a workout is running.
- C: User Selected: time, average speed/pace, distance, number of strokes - counts UP.
- D: Stroke Rate
- E: Heart Rate (XL4 only)
- F: System Window - Battery Indicator, Channel Number, Signal Strength and Unit Name

Active Buttons:

-  Start/Stop
-  Window C Select
-  Main Menu

The workout measurements will appear identical to Just Row mode, with the exception of Window B. This window will always display the current interval counting down. At the end of each interval, the XL will beep three times to indicate that it will begin counting down the next interval. In between windows B and C, a bar chart will indicate the progress of the workout.

The XL can store 5 different workout programs with up to 20 intervals in each. Each interval within a workout can be set for a specific distance, time or number of strokes (and you can mix these in a workout), and a workout can also be set to repeat, or "LOOP". These 5 workouts can be assigned names, and can easily be edited and saved.

Workout Memory can store up to 500 intervals. Cumulative or average measurements are stored for each interval. For example, if you ran a workout that was 500 meters with 2 minutes rest, your first interval would correspond to the 500 meter piece, then the interval point would correspond to the 2 minute piece. Memory will ONLY be stored for each workout interval, and NOT according to the Just Row memory settings.

To edit Workout parameters, review the Workout Memory, and clear the Workout Memory, see page 9.

Using the Radio (Wireless Network) Functions

All XL3 and XL4 units are more than performance monitors for in the boat. They are also powerful frequency-hopping transmitters and receivers. In basic terms, this means the performance measurements can be transmitted from the boat to the coach in real-time.

Use of the radio functions requires a network of at least two XL units: one set up as a transmitter (Boat), and one set up as a receiver (Coach). Every XL3 and XL4 display unit can perform both of these functions - it is simply a setting in the Radio Menu. All units intended to communicate with each other must be set up on a secure network, which is also done in the Radio Menu. A network is defined by the Group Name and Private ID settings. You can think of the Group Name as the name of your club or school, and the Private ID as the password. Units without matching Group Name and Private ID will not communicate with one another. In short, Coaches with different network settings will not be able to access your Boats' information and vice versa.

Up to 9 Boats can be used on one network, and unlimited Coaches can view the Boats' data. If more than one Boat is used on a network, each Boat must be assigned a different channel number between 1 and 9 to avoid interference. It is a good idea to give each Boat unit a Unit Name to help with identify it, like "MIKE 1X". Any networked Coach within range of these Boat units will have access to their stroke-by-stroke measurements.

The SpeedCoach XL's radio has a line-of-sight range of approximately 400 meters, or 1/4 mile. (Meaning that from one antenna, you can see the other antenna without obstruction.) Additionally, the antenna should be vertical for optimal performance.

Many regattas do not allow communication devices of any type in rowing shells during competition. Please check with your regatta organizers to find out if the regatta allows communication devices before racing with the XL radio activate.

The XL is factory programmed with the radio turned OFF. To turn on and configure the radio, see page 10.

Using the Radio - Rower

With the radio enabled, you'll see:



Screen Windows:

- A: Speed or Pace
- B: Workout Interval OR User Selected - time, average speed/pace, distance, number of strokes
- C: User Selected: time, average speed/pace, distance, number of strokes
- D: Stroke Rate
- E: Heart Rate (XL4 only)
- F: System Window - Battery Indicator, Channel, Signal Strength and Unit Name

Active Buttons:

- ⏻ Start/Stop
- ▶ Window B Select (Just Row only)
- ▶ Window C Select
- ⏪ Main Menu Setting

When rowing with the radio activated, the display will appear nearly identical to rowing with the radio off. You can use the Just Row or Workout modes exactly as previously described. The only difference is that Window F will display the channel, unit name and signal strength and antenna symbol instead of the time of day. The signal strength is indicated by a vertical bar next to the antenna symbol. The open antenna symbol (looks like a chicken's foot) indicates that the radio is on and set to Boat mode. If there are no Coach units in range, an "x" will replace the bar.

Using the Radio - Coach

With the radio enabled and the unit in Coach Mode, you'll see:



Screen Windows:

- A: Speed or Pace
- B: Workout Interval OR User Defined: time, average speed/pace, distance, number of strokes
- C: User Selected: time, average speed/pace, distance, number of strokes
- D: Stroke Rate
- E: Heart Rate (while viewing XL4 data only)
- F: System Window - Battery Indicator, Channel, Signal Strength, Multiple Channel Indicator & Unit Name

Active Buttons:

- ▶ Window B Select (Just Row only)
- ▶ Window C Select
- ⏪ Main Menu - convenient for checking for boats in range and refreshing the network in this menu.
- ▲ Channel Up
- ▼ Channel Down

The Coach unit does not have any control over the Boat units. You cannot start or stop a boat's timer, start a workout or reset the unit. Also, no data will be stored by units set in Coach mode. However, because the Coach unit is receiving all data from the Boat units, it can cycle between time, average speed/pace, distance and number of strokes in windows B and C by pressing the ▶ and ▶ buttons. When a Boat unit is running a workout, the Coach unit's window B will display the current workout interval and window C can cycle between time, average speed/pace, distance and number of strokes.

To view the data from different Boats in your network, press the ▲ and ▼ buttons. Each Boat's channel number and unit name will be displayed with their performance data, making it easy to identify which boat you are monitoring. Additionally, at any time, pressing the ⏪ button twice will open a list of all boats in range (in the same network).

When you have multiple Boats and/or Coaches in a network coming in and out of range, it is possible for Boats to "disappear" from the Boats in Range. Simply refresh the network by pressing the ⏪ button to enter the Main Menu and select "Refresh Network?". This is due to the complex nature of the network that is set up by the SpeedCoach XL, and anytime the network is intermittent or inconsistent, "Refresh Network" is a simple resolution.

If there are no boats in range, the Coach unit will continually look for Boat units. "Reconfiguring Radio" will appear on the screen.

Mounting brackets are available from NK to secure the XL to a motorboat or bicycle.

Menu Options & Setup

The SpeedCoach XL's menus are quite easy to navigate thanks to a large screen and context sensitive of buttons. Additionally, there are "hints" on the screen that help indicate button functionality.



Menu Navigation:

- Press the **←** button to enter the Main Menu.
- Press the **▲** and **▼** buttons to move the scroll bar up and down to the desired menu item.
- Press the **←** button to select the highlighted menu item.
- Press the **⏻** button to exit the menu.



Changing Menu Options:

- To change a menu setting, press the **←** button to select the setting. The highlight will indicate the setting or value that can be changed.
- Press the **▲** and **▼** buttons to increase or decrease the value, or to cycle through the setting options.
- Press the **⏻** button to exit the setting without making the changes, or...
- Press the **←** button to accept the value or setting.

The options in the Main Menu are:


Heading	Functions
Off	Turn the unit off
Just Row (Boat mode only)	Review stored data, set up storage interval, reset timers, clear Just Row memory
Workout (Boat mode only)	Run and edit workouts, review workout data, clear workout memory
Boats in Range (Coach mode only)	Lists the Boat units with channel number that are in range.
Refresh Network (Coach mode only)	Configures the radio
Radio Settings	Turn radio on/off; set radio mode, channel, unit/group/private ID names
Display Settings	Set units of measure, speed mode, backlight and contrast settings
System Settings	Set the stroke type, date, time, or perform a system reset
Calibration	Enter the calibration number or run a calibration routine
PC Interface	Upload information to a computer with the optional interface
About	Display model and software number

OFF

Select to turn the unit off. You may also hold down the **⏻** button for 3 seconds to turn the unit off.

Just Row (only available in Boat Mode)

This menu sets up the Just Row memory bank and operation of the XL in Just Row mode, and also allows you to review Just Row Memory.



Just Row	Enter Just Row mode with timers as they were when last stopped.
Review Memory	Review the 1500 data points stored in the Just Row memory bank: the number of used and free data points will be displayed for 2 seconds, followed by a performance screen with the data from the first interval. (You can select to display distance, time, number of strokes or average speed/split using the ▶ and ▶ buttons.) See chart below for information on how memory is stored in Just Row Mode. Cycle through the stored intervals: use the ▲ and ▼ buttons - you can go forwards or backwards. Press the ⏻ button to exit the memory review.
	Indicates Recall Mode Current Memory Point Total Memory Points Stored Date & Time the Session Began
Reset Timers	Reset the timers in Just Row mode. None of the stored data is erased.
Clear Memory	Clear all stored data in the Just Row memory bank. ALL Just Row data is erased.
Memory Type	Set the storage interval type for the Just Row memory bank to either: strokes, time or distance.
Memory Interval	Set the length of the storage interval for the Just Row memory bank to either: a number of strokes, an amount of time, or a specific distance.

Interval data is stored differently in Just Row and Workout Modes:

Measurement	Just Row	Workout
Time	Cumulative time since clear or reset	Interval split time
Distance	Cumulative time since clear or reset	Total Interval distance
Rate	Rate at end of Interval	Rate at end of Interval
Stroke Count	Cumulative count since clear or reset	Stroke count for Interval
Speed/Pace	Interval average	Interval average
Avg Speed/Pace	Cumulative average since clear or reset	Cumulative Average for all WO (from last clear)
Heart Rate	Last reading in Interval	Last reading in Interval

Workout (only available in Boat Mode)

This menu edits and stores up to five workouts, reviews Workout Mode data stored in run workouts, and clears the Workout Memory bank.

<p>Run/Edit Workouts</p> <p>Select a workout to run or edit.</p> <p>Editing Workouts</p>  <p>Workout Name</p> <p>Interval Number</p> <p>END of Workout</p> <p>Interval Length</p> <p>LOOP Indicates Everything Above This Line Will Repeat</p>	<p>Edit a workout by pressing the ► button: set the interval type (distance, number of strokes or time), and then the interval duration. To add rest to the workout, simply enter your rest as a separate interval. (You will need to remember which intervals were work and which were rest when reviewing the workout data.) Repeat a group of intervals by selecting LOOP as the interval, then determine how many times you'd like it to loop. (LOOP will repeat ALL intervals from the beginning, including previous loops.) To end a workout, select END as the interval type. You may also edit the name of the work out - simply scroll the cursor to the workout title line and adjust.</p> <p>Exit the Workout Edit Mode by pressing the ⏻ button.</p> <p>The XL stores 5 workouts with up to 20 intervals each.</p>
<p>Running Workouts</p>	<p>Press the ⏪ button to run the highlighted workout.</p>
<p>Review Memory</p>  <p>Indicates Recall Mode</p> <p>Current Memory Point</p> <p>Total Memory Points Stored</p> <p>Date & Time the Session Began</p>	<p>The Workout Memory bank can store up to 500 data points across all workouts. The number of used and free data points will be displayed for 2 seconds, followed by a performance screen with the data from the first interval. Use the ▲ and ▼ buttons to cycle through the intervals- you can go forwards or backwards. You can select display of distance, time, number of strokes or average speed/split using the ▷ and ► buttons. See chart on page 8 for information on how memory is stored in Workout Mode.</p> <p>Press the ⏻ button to exit the memory review.</p>
<p>Clear Memory</p>	<p>Clear all stored data in the Workout memory bank. ALL Workout data is erased.</p>

Boats in Range (only in Coach Mode)

This setting lists the boats (with channel number and user name) from your network that are within range of the Coach unit.

Refresh Network (only in Coach Mode)

Interference can come from a variety of things. If you are experiencing intermittent or inconsistent data transmission, "Refresh Network" should resolve it.

Radio Settings

This menu establishes a network for data transmission.

Radio	On or Off. Note: when not using the radio, preserve the battery life by turning the radio off.
Mode	Coach or Boat. Determine if the unit will be transmitting information (Boat) or receiving information (Coach).
Channel	Numbers 01 - 09. Boats in the same network must be set to different channels. However, channels do not need to be consecutive on units that are on the water at any given time. *This option is NOT present when the unit is set to Coach Mode.
Unit Name	6 alpha-numeric character name to identify the Boat unit.
Group Name	6 alpha-numeric character name of your network. The Group Name must be EXACTLY the same in all units intended to communicate with each other. Generally, the Group name will relate to your team or club.
Private ID	6 alpha-numeric character password to the network. The Private ID must be EXACTLY the same in all units intended to communicate with each other.

Display Settings

This menu adjusts the units of measure, the speed mode and display appearance.

Units	<p>Set to:</p> <ul style="list-style-type: none"> - Meters, meters per second, and /500 meter - Miles, miles per hour, and /mile - Kilometers, kilometers per second, and /kilometer - Nautical miles, knots, and /nautical mile <p>NOTE: if the units of measure are changed, any previously stored data will not be recalculated for the new units of measure.</p>
Speed Mode	Choose either: Speed or Pace (predicted split)
Backlight	<p>Set to:</p> <ul style="list-style-type: none"> - ON (is always on) - OFF (is always off) - AUTO (illuminates automatically in low-light)
Contrast	Adjust between: 0 and 30

System Settings

This menu contains various system settings.

Stroke Type	Set to: Seat: Calculates the stroke rate based on a seat magnet (rowing shells with a seat magnet). Touch Pad: Calculates the stroke rate based on touching a touch pad. In this mode, stroke rate is updated every 2 strokes. Impeller: Calculates the stroke rate based on changes in boat speed measured by the impeller (canoes and rowing shells with out a seat magnet). Paddle: Calculates stroke rate based on a paddle switch (kayaks). In this mode, stroke rate is updated every 2 strokes.
Date	Set the current date.
Time	Set the current time. Select 24 to set the clock with military time, or scroll through hours to set AM/PM.
Full System Reset	Select YES to initiate a full system reset. This will return ALL settings to the factory settings. (See page 12 for the list of factory settings.) ALL memory is erased. NOTE: After performing a System Reset, the battery indication will be estimated until the battery has been fully charged. See page 13 for more on charging the battery.

Calibration

For maximum accuracy, your SpeedCoach should be calibrated to adjust for your boat's unique impeller installation and hull shape. (However, even if your unit is not properly calibrated, it will ALWAYS show immediate, relative changes in boat speed and can be a very useful training tool.)

The SpeedCoach XL has integrated a Calibration Routine that simplifies calibration of the unit to a specific boat by automatically calculating the appropriate calibration number after rowing some known distance.

To calibrate your unit, you may either enter a known calibration value, or run the calibration routine. When running the calibration routine, the SpeedCoach XL will guide you through pieces of known land distance and automatically calculate the appropriate calibration value. You need to have a marked rowable distance. Enter this distance into the "Cal Distance" line in the Calibration Menu. Then select "Run Cal Routine" and follow the instructions on the screen. If you row on a body of water with current or tide, the calibration routine will require you to row the piece twice - once upstream and once downstream - so the current does not incorrectly affect your calibration number. Once properly calibrated, the measured distance, speed and pace will always be correct, regardless of current or tide.

Please note that calibration is boat and impeller location specific; i.e. each boat has a unique calibration number, and if the impeller is moved, the unit needs to be recalibrated. If you are in a team situation where there are many SpeedCoach units being used in many different boats, it is helpful to note the boat's calibration number somewhere on the boat - such as on the deck by the mounting dock - so rowers can make sure the display unit they are using has the correct calibration number for the specific boat.

The XL uses the following formula to calculate the calibration value:

$$\frac{(\text{Old Cal Value}) (\text{True Distance})}{\text{Displayed Distance}} = \text{New Cal Value}$$

For example, if the known rowed distance is 1 mile, but the display shows 0.92, the calibration value would be:

$$\frac{(1.00) (1.00)}{0.92} = 1.086$$

PC Interface

Initiates communication with a PC. The optional SpeedCoach Interface required. The SpeedCoach Communicator software comes with the interface hardware, or can be downloaded for free from: www.nkhome.com.

About

Displays the model, software version, ID and FCC information for the unit. US/FCC: KQLAC4490-100, CAN/IC: 2268C-AC4490. The code version is also displayed on the splash screen when the unit is powered on. H 1.08 is the code version, and Amer, Eur or Aus indicates the region that the radio is approved for use. (Amer - North America, Eur - Europe and UK, Aus - Australia and New Zealand.) The XL 3/4 radio is not approved for use in any other countries.

WARNING: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Factory Default Settings

All new XL units are shipped from NK with the following settings. Performing a full system reset will restore all settings to these factory defaults.

Just Row Mode:	Memory type: Distance Memory interval: 100 m	Display Menu:	Units: m, m/s, /500m Speed Mode: Pace Backlight: Auto Contrast: 11
Workouts:	Workout 1: 4x (5' on, 4' off) 5min, 4min, Loop 4x Workout 2: 2x 1000, 2x 500 1000m, 4min, 1000m, 4min, 500m, 3min, 500m Workout 3: 2x (6x (30 st, 20 st) 30 strokes, 20 strokes, Loop 6x, 10min, Loop 2x Workout 4: Pyramid (Time) 4min, 3min, 2min, 1min, 2min, 3min, 4min, 10min, Loop 2x Workout 5: 4x (500 on, 1 off) 10strokes, 500m, 1min, Loop 4x	System Settings:	Stroke type: Seat Date: 2006 Jul 01 Time: AM 12:00:00
Radio Settings:	Radio: Off Mode: Boat Channel: 01 Unit Name: ABC123 Group Name: ABC123 Private ID: ABC123	Calibration:	Cal value: 1.000
		Cal Distance:	500
		Window A:	Speed
		Window B:	Distance
		Window C:	Time
		Window D:	Stroke Rate
		Window E:	Heart Rate (XL4), Blank (XL3)
		Window F:	Time, User ID, Batt
		Memory:	Just Row: 1500 data points Workout: 500 data points

Heart Rate Sensor (XL4 Model Only)

In order to display heart rate on the SpeedCoach XL2 display unit, you must have a sensor attached to the unit and mounted on your boat, and you must be wearing a chest strap. Most coded or non-coded chest straps will work with the XL. To attach the sensor to the XL, simply insert the plug and twist. Then run the wire along the side of the boat, securing it with the included cable ties inbetween the track and the gunwale. The ideal location to mount the sensor is on the side of the boat, in line with the stroke rate sensor and oriented perpendicular to the stroke rate sensor. If the sensor is mounted inbetween the tracks, the seat magnet can potentially cause inconsistent heart rate readings. Try to mount the sensor so that the chest strap always remains within 3 feet of the sensor.

At present, NK can only guarantee interference-free readings for XL heart rate monitors when there is only ONE chest-belt transmitter within a 6-foot range of the heart rate sensor at any time. As a result, it is possible to use two monitors in most pairs or doubles by placing the stroke seat sensor close to the stern end of the seat deck, and the bow-seat sensor close to the bow end of the deck. In larger shells, the monitors and sensors will need to be at least two seats apart (i.e. at 2 and 4 seats, not at 2 and 3 seats). In larger team boats, it is likely that heart rate systems in adjacent seats will interfere with each other. (This includes having a rower wear a personal heart rate monitor in a seat adjacent to a rower using an XL4.)

Batteries

The SpeedCoach XL uses a lithium-ion battery, similar to the one used in cell phones. These batteries are both rechargeable and user-replaceable. To charge your XL, simply slide it into the charging station. The screen will indicate that the unit is charging and what percent of the battery is charged. A dead battery requires 5 to 7 hours to fully charge. It is not necessary to let the battery completely drain between charging - frequent charging will not diminish the battery's life.

Daily battery life is diminished faster with frequent backlight use, and when transmitting or receiving data. Typical battery life from a full charge:

Unit	Backlight off	Backlight on
Coach Unit	16 hours	13 hours
Boat Unit	24 hours	18 hours
Radio off	92 hours	39 hours

The battery indicator can be used as a guide to estimate how much battery life remains on your SpeedCoach XL. When the battery is fully charged, there are five bars comprised of 5 pixels each on the battery indicator.

Each pixel represents approximately the following amount of time:

Unit	Backlight off	Backlight on
Coach	1 pixel = 38 minutes	1 pixel = 31 minutes
Boat	1 pixel = 1 hour	1 pixel = 43 minutes
Radio off	1 pixel = 3.6 hours	1 pixel = 1.6 hours

The battery in the XL should last 3 to 5 years before it needs to be replaced (depending on use.) Replacement batteries are user-installable. Contact NK to purchase a new battery.

When your battery is completely drained or replaced, or following a full system reset, the battery indication will be estimated until the unit has been fully charged. The battery icon will be a solid battery rather than an outline to indicate the estimate mode. When the battery has been fully charged, the battery indicator will be calculated exactly again.

The memory and settings (except date and time) will be saved during a battery drain or replacement.

It is highly recommended that users DO NOT open the battery door unnecessarily. Once the battery door is open, the Speedcoach is not waterproof. The battery door must be reinstalled (with the battery door's o-ring) for the unit to be waterproof again. Instructions are supplied with replacement battery packs or online: www.nkhome.com.

Antenna

When attaching the antenna, *finger tighten only, no more than four full turns. Over-tightening may damage the antenna. Do not over-tighten!*

The antenna may be removed simply by unscrewing it at its base. This plug is a water-tight connection, and the XL's waterproofness will not be diminished if it is used without an antenna attached. However, it is recommended that you leave the antenna attached whenever possible, even if the radio function is turned off. This will ensure that the plug stays dry and does not corrode. The carry pouch provided with your XL has a slot in the side designed for use with the antenna attached to the unit. Simply slide the antenna through the slot first, then fit the unit into the case and zip closed. Additionally, there is a loop in the pouch that the antenna can fit into when not attached to the unit.

Training with the SpeedCoach XL

by Yaz Farooq

Ten years ago, Nielsen-Kellerman introduced its first speed computer, aptly named the "PaceCoach." I was the cox for the U.S. women's eight under head coach Hartmut Buschacher, and NK generously sent us a unit to use for training. We embraced it immediately. For the first time, coxswains and rowers were able to see their 500m splits instantaneously. The PaceCoach also gave speed in meters per second, stroke rate, distance traveled, and you could program the unit for timed and distance pieces. Because the technology was so new to the rowing world, USRowing asked me to write an article for American Rowing magazine. We named it, "Demystifying the Pace Coach," and it detailed how coaches and teams could truly use the unit to optimize training.

Now, a decade later, NK continues to show why they are the leaders in developing on-the-water rowing feedback equipment. When they asked me to test-drive the new Speed Coach XL and write a piece on how to make the most of it, of course I couldn't resist. A lot has changed since the introduction of the PaceCoach-most significantly the XL's ability to transmit the speed readings from the in-shell unit to the coach's motorboat. No longer does the coach have to rely on asking a cox to shout out readings during a piece, or have to wait until after the piece to find out the split average from the rowers.

Install it and GO!

As soon as the XL wiring and impeller are installed you can slide the XL unit onto its mount and immediately start watching your splits. If you have one in your coaching launch, go ahead and turn on the "radio" feature and experience transmitting your splits from "boat" to "coach" in real time from as far as 400 meters away. Your coach will see *the exact same data* you're seeing: splits, meters, time, stroke rate, even heart rate if you're using the heart rate monitor feature. Some rowers and teams will be content with this and go no further. My advice: Don't stop there!

The unit is so easy to use that all of us who test drove it did so without receiving instructions. The menu is virtually self-explanatory. A few things I'd advise you to check out and take advantage of:

- Go ahead and name your unit something "speedy," and plug in the "Group Name" & "Private ID." This allows your coach to know which boat he or she is monitoring, and also ensures that no one else can intercept your readings.

- Notice that the "time of day" is displayed in the lower right hand corner. If you're at a regatta, plug in "regatta time." And it even has military time for those international races. No worries about getting to the starting line on time now!

Really Using the Features

Now that you've got all of this instantaneous feedback, how do you use it? Odds are you bought this unit because you're on a competitive team and/or you want to truly monitor your training program. That's exactly why we embraced the XL's predecessors on the National Team. Here are a few ways to truly use the SpeedCoach XL's information:

Steady State/Aerobic Base training: Back in my day, we would actively use the "pace" reading with the goal of maintaining a certain split range for the entire workout. I'll use some of these examples as we monitored everything that we did. Our split goal for 4 x 20 minutes at stroke rate 20 was 1:50-1:52 (/500). With the XL, the heart rate feature is very handy for this workout. A typical heart rate for most of our rowers was 140-148. But if someone's heart rate was soaring by the end of the workout, we knew that they were either working too hard to maintain the target, or maybe they were feeling under the weather. Now with the XL, the coach can monitor pace, distance traveled, elapsed time and heart rate simultaneously and LIVE.*

Technique evaluation: With instantaneous feedback literally at the coach's fingertips throughout the workout--the XL seriously advances how a coach can implement technical improvements. Now when a coach is giving the crew instructions on things to change-like quicker leg drive at the catch, unified body swing timing, or even just cleaning up the finishes-s/he can see how it affects the speed immediately. A really cool thing to witness is how a technical improvement by ONE person in an eight can often improve the splits a couple of seconds.

Race Level: The things you can do here are pretty amazing. Because the unit is so versatile, you can do racing pieces and interval work using meters, strokes, and/or time. You can even combine all of those measurements in one workout. For a race prep workout of 4 x 500m, for example, I can actually program in 30 minutes for warm-up. Then I'll plug in 500m, 5 minutes rest, and "loop" it four times. Last, I'll add a 20 minute cool down. Because I can input all of these items in ONE workout, it's a great training tool for coxswains for warm-up

times. Last, I'll add a 20 minute cool down. Because I can input all of these items in ONE workout, it's a great training tool for coxswains for warm-up management and sticking to the workout plan. Meanwhile, when I am coaching I can see all of the readings from the launch, so I know exactly how the cox is doing as the workout progresses, and I can give him/her feedback to stay on top of it.

Note: Your unit comes with five pre-programmed workouts. Try them out to get a feeling for all of the different kinds of pieces you can monitor and execute with the XL.

Other Uses

Rigging evaluation: Trying to decide if you should load those oars up another centimeter? Maybe next season's crew averages 10 pounds lighter and is significantly shorter. Use the XL to determine the optimal rigging set-up and corresponding stroke rate target for your crew.

Multiple Boats: How cool that a coach can monitor up to nine boats at a time. I can't even think of a national team coach that needs more than that!

Seat Racing: If you pre-program seat racing pieces into the workout menu, the XL can manage the pieces (ensuring that the rest time is equal) and provide feedback for the actual pieces themselves. Again, you can use any or all of the options for pieces: distance, time and strokes.

Memory/Software, did anyone say, "Training Log?"

The XL showcases its flexibility again in the memory portion of the "Just Row" menu. You can set the unit to record in "distance," "time" or "strokes." For a 2k piece, I'd likely use "distance" intervals of "100m." Paging through 100m at a time would give me a ton of info: how well we started, how the splits adjusted as we stepped down to race pace, how well we sustained our speed, and how well we pushed for the line. For long steady state rows, "time" might be a better option. There, my crew might want to see the splits every few minutes, again with the goal of maintaining a steady speed and stroke rate. But say in another practice we're working specifically on starts-really trying to analyze how effective our first 10 strokes are. Now I'd set it to "strokes" with intervals of "1 stroke." We might then do a series of 10 stroke starts, focusing on different things for each one. Then we could page back through the splits and compare them.

The SpeedCoach XL software, when released, will work identically to the current Speed Coach Gold software. Over the years, the coaches I've worked with have found the software to be incredibly helpful. Not only can you print out entire workouts

instantaneously, but now you'll have a detailed and accurate log that includes speed/pace readings, stroke rate, heart rate, elapsed time, etc.

Side Notes

Remember that wind and waves are factors in boat speed. In a headwind speed and pace splits will be slower. Conversely, they'll be faster in a tailwind up to a point. And of course, if the water is rough, you're typically going to go slower. Take all of these into account when setting split/speed goals for workouts.

When doing interval work, or any short race level pieces where you want to compare them to one another: make sure that your boat is up to speed by the beginning of the piece. This way, your comparisons will be accurate.

Final Words of Advice

Use the SpeedCoach XL and your brain simultaneously. Don't become so reliant on the SpeedCoach XL readings alone that you fail to feel how you're moving the boat. You can pull great splits, and still may not be rowing a sustainable rhythm. True speed is a combination of effective technique and intelligently applied power. The SpeedCoach XL is designed to give you direct and immediate feedback as to how far you are propelling the boat, stroke rate, and elapsed time. Your head is attached to your body to remind you of common sense things. For example, if you use split targets for racing, make sure the conditions fit your targets. And of course, if you're pulling the pre-planned split in a race and find that you're still behind "Team X" you'll still have to strategize how to move past them if you want to win!

Enjoy your SpeedCoach XL. If you embrace it, you'll not only use it, you'll love it. And with the ability to continuously upgrade the unit you currently own, it will only keep getting better.

Good Luck and Good Speed!

Yasmin "Yaz" Farooq has been involved in coxing and coaching for over 20 years. As the coxswain for the US National Team Women's Eight from 1989-1996, she competed in the 1992 and 1996 Olympic Games.

Now, as a coxswain coach for high school and collegiate coxswains and coaches, Yaz works with individuals and programs. She also races actively on the masters circuit and coxes and coaches for the Oregon Association of Rowers masters in Eugene, Oregon. Yaz served as color commentator for NBC's telecasts of the Sydney and Athens Olympics.

* See pages 12-13 for limitations when using a HR monitor with an XL.

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For email assistance with the installation or operation of your NK product, write: techsupport@nkhome.com.

For help with an apparent malfunction, or to arrange or inquire about a repair, write: repairs@nkhome.com.

Or call 800.784.4221 (610.447.1555 outside the USA), Monday through Friday, 9:00 - 5:00 EST.

Please register your product at www.nkhome.com/register/ to ensure your full 2-year warranty.