

NK

SpeedCoach™

SPEED, DISTANCE, TIME & RATE METER

INSTALLATION & OPERATION MANUAL

Code Version 1032

THANK YOU ...

FOR PURCHASING the NK *SpeedCoach*™ system. We have designed the SpeedCoach system to provide you with all the basic information you need to train effectively – speed, distance, elapsed time, stroke rate and stroke count, as well as 25 intervals of memory so you can review your performance after a race or piece. We have also made every effort to make the SpeedCoach system easy to install and use.

PLEASE take a moment to review these instructions before installing and operating your unit.

YOUR SPEEDCOACH system should provide you with years of trouble-free service but we are always here to help if a problem arises. To order parts or accessories or obtain technical support, please call 610-447-1555. You may also e-mail orders to orders@nkhome.com and send questions to our support representatives at support@nkhome.com. Technical information and online ordering can be found at our web address: www.nkhome.com.

SpeedCoach™ System Installation/Operation Manual Revision 2

Date September 17, 2001

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NK

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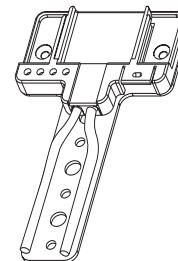
MAINTENANCE, ETC.

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1: PREPARE

- A) Before starting, review all installation instructions.
- B) Following the guidelines provided for each item, select your mounting locations. Make sure you will be able to see the display unit and it will not interfere with your rowing/paddling. Make sure you will be able to place the impeller unit and speed sensor in an acceptable location (see page 7).

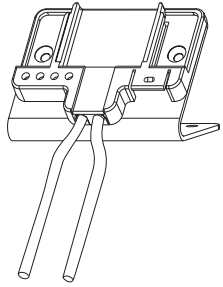
2: INSTALL THE MOUNTING BRACKET



A) FOOTSTRETCHER BRACKET:

- 1) **DRILL** two holes in desired location on footstretcher with 3/16" (5 mm) bit.
- 2) **ATTACH** bracket with bolts, tooth washers and nuts.

2: INSTALL THE MOUNTING BRACKET... cont.

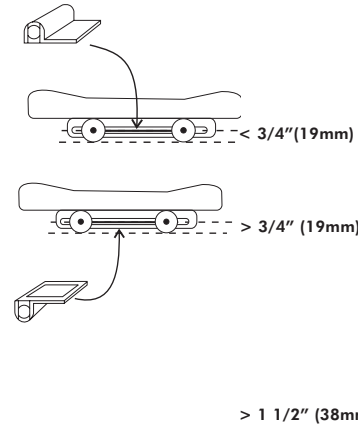


- B) DECK/WING RIGGER BRACKET:
- 1) **CLEAN** mounting location with provided alcohol wipe.
 - 2) **PEEL** protective paper from adhesive pad on bracket.
 - 3) **PRESS** the bracket in place. **NOTE!** The adhesive tape requires at least 24 hours to cure to full strength.

2

3: INSTALL SEAT MAGNET

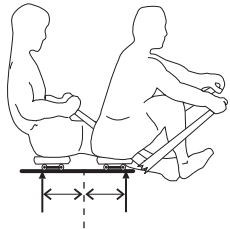
For Rowers Using Optional Seat Sensor Only



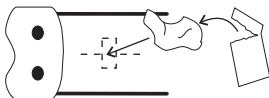
- 1) **MEASURE YOUR WHEEL CARRIAGE:** The seat magnet must pass within $\frac{3}{4}$ " of the stroke rate sensor. First, measure the distance between the deck and the wheel carriage.
 - a) **IF IT IS LESS THAN $\frac{3}{4}$ " (19 mm),** install the magnet on the TOP of the wheel carriage or under seat.
 - b) **IF IT IS MORE THAN $\frac{3}{4}$ " (19 mm), BUT LESS THAN $1\frac{1}{2}$ " (38 mm),** install the seat magnet on the UNDERSIDE of the wheel carriage.
 - c) **IF IT IS MORE THAN $1\frac{1}{2}$ " (38 mm),** install the seat magnet on the UNDERSIDE of the wheel carriage AND use a spacer (make out of wood or plastic) to bring the magnet within $\frac{3}{4}$ " of the sensor.

3

4A: INSTALL RATE SENSOR (black sensor)

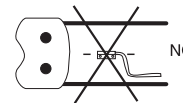
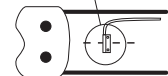
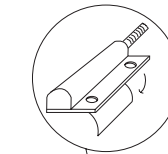


- 1) **LOCATE AND MARK** the approximate center of the path of SEAT TRAVEL.
- 2) **LOCATE AND MARK** the middle of the SEAT TRACKS.
- 3) **CLEAN** the marked location using the alcohol swipe provided.



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4A: INSTALL RATE SENSOR...CONT.



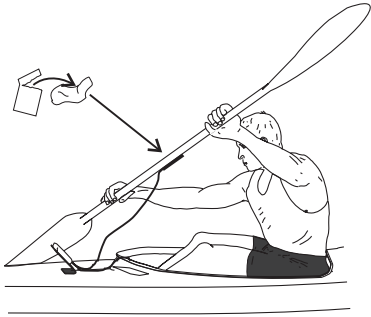
- 4) **PEEL** the protective paper from the adhesive pad on the sensor.
- 5) **PRESS** the sensor firmly in place at the marked location. *Make sure the sensor is across (perpendicular to) the centerline of the boat.* **NOTE!** The adhesive tape requires at least 24 hours to cure to full strength.
- 6) **SECURE** the wire using the provided wire clips.

Wait 24 hours before rowing!

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4B: INSTALL PADDLE SWITCH

For Kayakers Using Optional Paddle Switch Only



- 1) Clean mounting area (center of paddle shaft) with alcohol.
- 2) Peel backing paper from loop (soft) Velcro® strip and press firmly on to mounting area.
- 3) Peel backing paper from hook (hard) Velcro® strip and press firmly to back of paddle switch.
- 4) Attach paddle switch to handle.

6

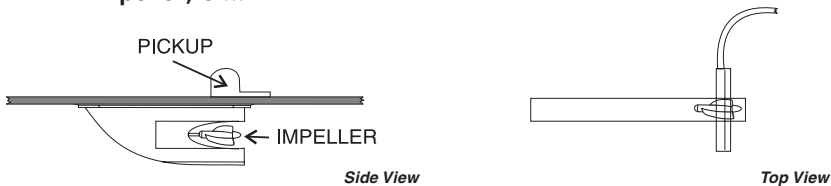
5: INSTALL IMPELLER UNIT

- 1) Choose mounting location:
 - a) The unit is factory calibrated for impeller installation at 16'3" (5 meters) from the bow of the boat. If you installed differently, you should recalibrate your unit (see "Calibration", pg 24).
 - b) The impeller unit does not have to be on the midline of the boat, but must stay submerged. Make sure the impeller is positioned so that the speed sensor will reach and can be mounted directly above it.
 - c) Mount impeller on a thin area of the hull, not over reinforcements or framing.
- 2) Mount impeller one of two ways:
 - a) **Permanent Mounting:** Clean hull and impeller surfaces with alcohol pad. Apply impeller to hull using the double-stick tape provided. Press impeller in place firmly. Wait 24 hours before using.
 - b) **Removable Mounting:** Clean hull and impeller surfaces with alcohol pad. Apply impeller using a strip of electrical or packing tape along each side edge of the impeller, apply the impeller. Be sure to cut tape don't tear it to ensure clean, smooth edges along surface.

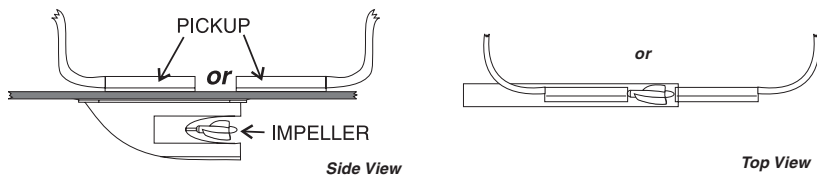
7

6: INSTALL SPEED SENSOR (blue sensor)

- 1) Choose your mounting orientation -- either:
 - a) Across the long axis of the boat, with the pickup centered over the impeller; or...



- b) Parallel to the long axis of the boat, the pickup centered over the width of the impeller and offset to the bow or stern of the impeller as shown.



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6: INSTALL SPEED SENSOR... cont.

- 2) Mount sensor:

- a) Clean mounting area with alcohol pad.
 - b) Peel backing paper from bottom of sensor.
 - c) Press sensor firmly to inside of hull.
-

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7: SET UP DISPLAY UNIT

Follow "Setup" on pgs 14-17 and "Calibration" on pgs 24-25 to:

- 1) Calibrate your unit, if desired. (Recommended if your impeller unit is not 16'3" (5m) from the bow or more precise readings are desired.)
- 2) Select the desired display units.
- 3) Select the correct stroke rate setting:



Rowers:

- a) If using seat switch, select "2-stroke" setting.
- b) If not using seat switch, select "0-stroke" setting. (Stroke rate will be calculated from boat speed changes.)



Kayakers:

- a) If using paddle switch, select "1-stroke" setting.
- b) If not using paddle switch, select "0-stroke" setting. (Stroke rate will not be displayed.)



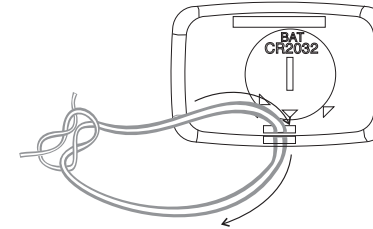
Canoeists:

Select "0-stroke" setting. (Stroke rate will be calculated from changes in boat speed.)

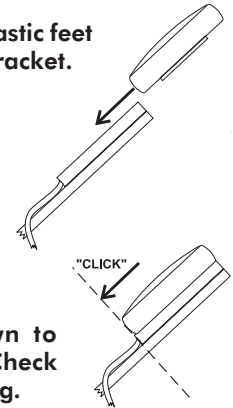
10

OPERATION

We recommend you install the strap and attach it to the boat while using your display unit as added insurance against loss.



- 1) Line up plastic feet with slots in bracket.



- 2) Slide down to lock in place. Check that unit is snug.

*Be sure lanyard is out of the way.

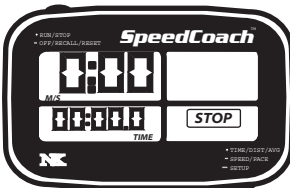
11

TURNING THE UNIT ON



a

Press the top button once to turn unit on. The first screen (a) will show you the total distance since purchase or the last battery change.

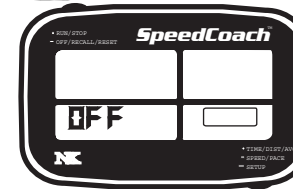


b

After 4 Seconds, the "Ready" screen (b) will appear.

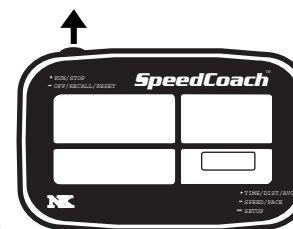
12

TURNING THE UNIT OFF



a

To turn the unit off, simply press and hold the top button for 1 second until "OFF" appears in the lower left-hand window (a).



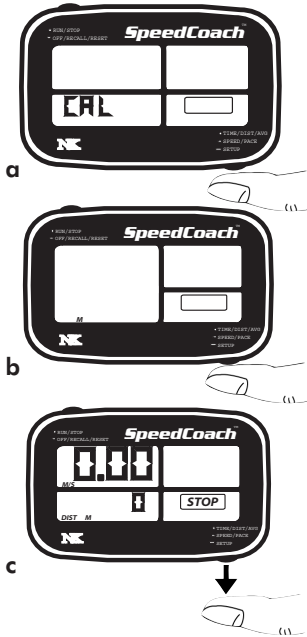
b

At this point, release the button and the unit will shut off (b).

*All data in memory will be retained unless battery is removed.

13

UNIT SELECTION



To select and change the units which your unit will display, press and hold the lower button. After 3 Seconds, the unit will pass through the calibration mode(a) and scroll through each available unit (b). When your desired unit appears in the lower left window, release the button (c).

The scrolling order is as follows:

M = 4 Second Hold / Release

KM = 5 Seconds / Release

NM = 6 Seconds / Release

MILE = 7 Seconds / Release

****You may have to perform this task twice if you wish to change the Units, as well as the Stroke Mode...**

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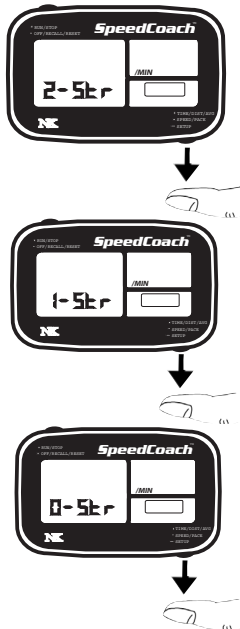
UNIT SELECTION (cont.)

UNITS SELECTION AND MEMORY

SETUP SHOWS	DISTANCE UNITS	SPEED UNITS	PACE UNITS	MEMORY INTERVAL	TOTAL MEMORY
M	M (meters)	M/S (meters per second)	/500 M (projected time for 500 meters)	100 M (100 meters)	2500 M 2500 M
KM	KM (kilometers)	M/S (meters per second)	/500 M (projected time for 500 meters)	0,500 KM 0,500 KM (500 meters)	12,50 KM 12,50 KM
NM	NM (nautical Miles)	KTS (knots, nautical miles per hour)	/NM (projected time for 1 naut mile)	0,500 NM 0,500 NM (1/2 naut mile)	12,50 NM 12,50 NM
MILE	MILE (statute miles)	MPH (statute miles per hour)	/MILE (projected time for 1 statute mile)	0,500 MILE 0,500 MILE (1/2 statute mile)	12,50 MILE 12,50 MILE

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STROKE MODE SELECTION



To select and change the Stroke Mode which your unit will display, press and hold the lower button. After 7 Seconds, the unit will scroll through the unit selection and begin scrolling through each available Stroke Mode. When your desired Stroke Mode appears in the lower left window, release the button.

The scrolling order is as follows:

2-Str = 8 Second Hold / Release

1-Str = 9 Seconds / Release

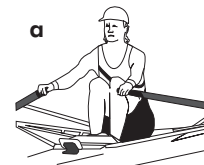
0-Str = 10 Seconds / Release

16

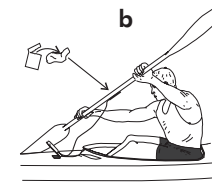
STROKE MODE SELECTION

Rowers using seat switch (a) should use the "2-Stroke" setting; Kayakers using the paddle switch (b) should use the "1-Stroke" setting; Canoeists AND Rowers and some Kayakers* not using the optional rate switch (c) should use the "0-Stroke" setting. The SpeedCoach will calculate stroke rate from the changes in speed through the water.

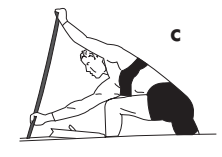
*Kayakers who maintain too consistent of a speed must use the paddle switch to obtain stroke rate.



ROWER
(using seat switch)



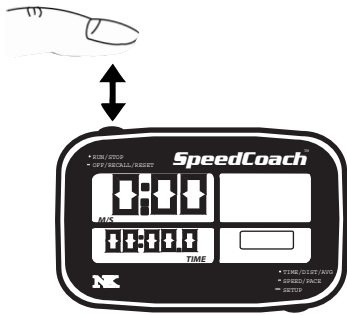
KAYAKER
(using paddle switch)



CANOEIST
or...
(Rower or Kayaker NOT using rate switch)

17

READY TO RUN



a

When the unit is displaying the ready screen, press the top button to get out of "STOP" mode. The "STOP" indicator will now disappear (a).

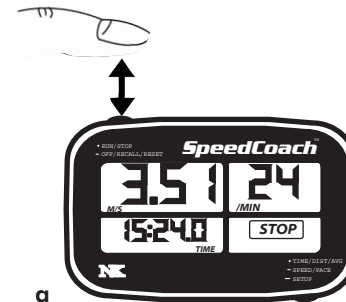


b

Once you begin to row or paddle, the unit will start displaying information (b).

18

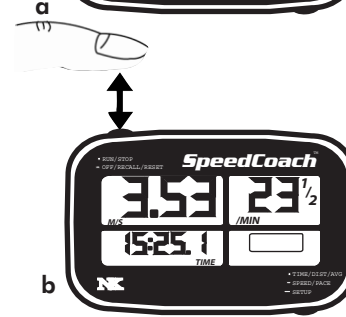
STOPPING THE TIMER



a

Once begun, the timer may be stopped at any time. Press the top button to stop the timer (a). The "STOP" indicator will appear in lower right window.

* STOP mode will pause the timer and distance log, however, the Pace/Speed and Stroke Rate will continue to update.

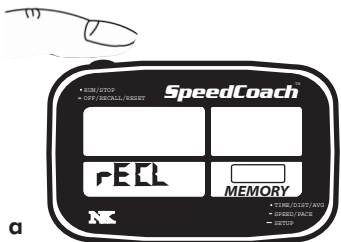


b

When ready to begin again, press the top button; the "STOP" indicator will no longer be displayed. The timer and distance log will now resume.

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RECALLING THE MEMORY



a

To recall the memory hold down the top button for 2 Seconds until "rECL" appears in the bottom left-hand window (a). At this point, release the button and the first memory point will appear (b).

MEMORY RECALL

TOP LEFT - INTERVAL NUMBER

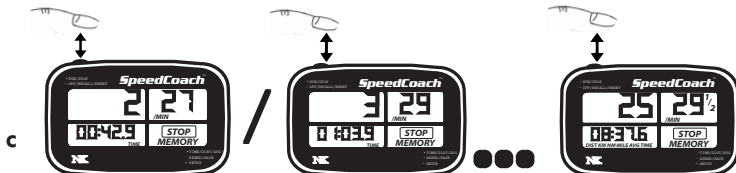
TOP RIGHT - AVG RATE OVER INTERVAL

BOTTOM LEFT - TIME/DIST or AVG SPD

Each press of the top button after that will allow you to scroll through the 25 stored memory points (c), as well as a point displaying the overall average.



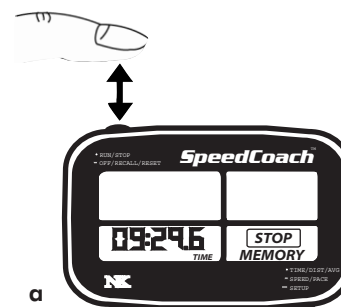
b



c

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RECALLING THE MEMORY (cont.)



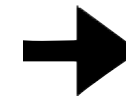
a

Once you have reached the 25th memory point, there will be one more piece of memory stored (a). This point is taken when the row is ended, at which time the overall averages and distances are shown.

To exit MEMORY MODE, hold top button for two seconds (b). When you see the screen go blank, release the button. You will then return to RUN MODE (c).



b

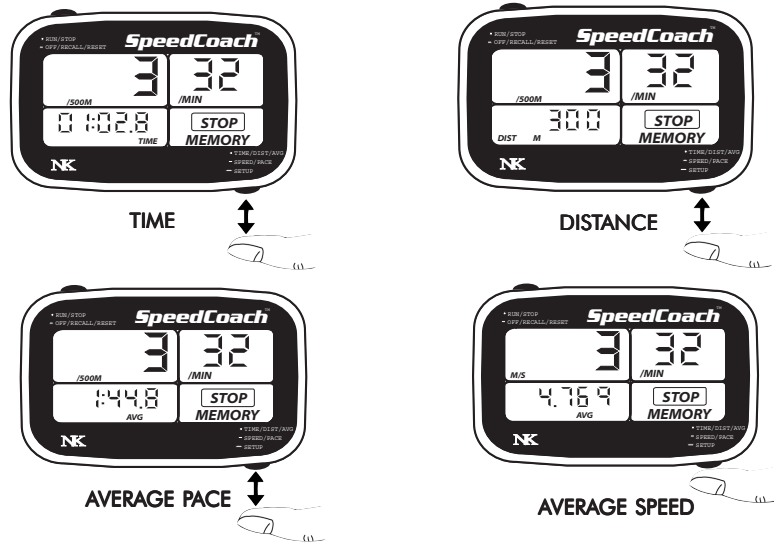


c

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RECALLING THE MEMORY (cont.)

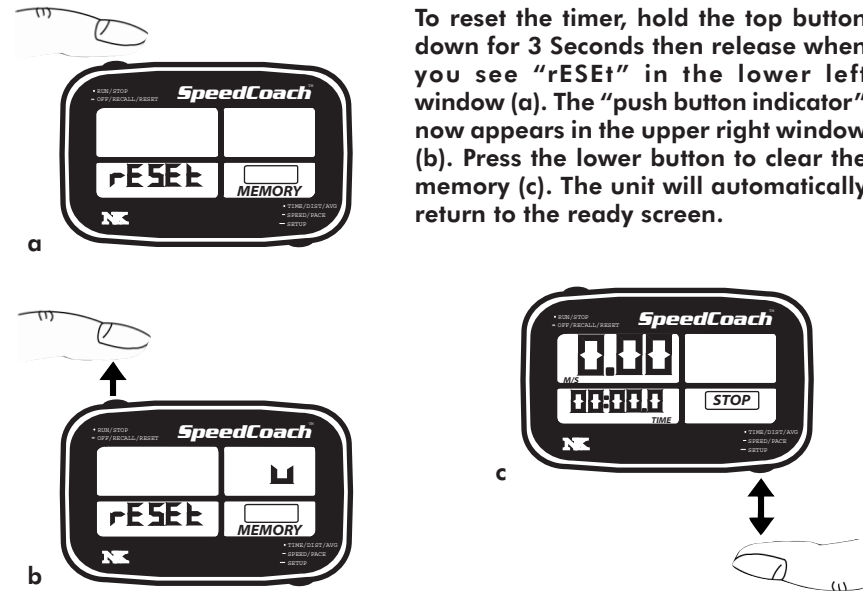
When you have stored a piece into the SpeedCoach, at any given data point you can review the information in 4 different ways:



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RESETTING YOUR TIMER

To reset the timer, hold the top button down for 3 Seconds then release when you see "rESEt" in the lower left window (a). The "push button indicator" now appears in the upper right window (b). Press the lower button to clear the memory (c). The unit will automatically return to the ready screen.



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CALIBRATION

The SpeedCoach is factory calibrated to provide accurate performance in most shells with the impeller installed 16'3" (5 m) from the bow. Calibration is an optional step which allows the display unit to compensate for different impeller locations, and to perform accurately to your boat. You do not need to calibrate your system if you are concerned only with comparing performance from day to day. To calibrate your system, row or paddle over a measured distance on still water (on flowing water, row or paddle both up and down stream and average the results shown on your display). Then, use the following formula to obtain your new calibration value:

$$\frac{(\text{OLD CAL VALUE})(\text{TRUE DISTANCE})}{\text{DISPLAYED DISTANCE}} = \text{NEW CAL VALUE}$$

For example, if you know you covered 1 mile, but your display shows 0.92, your calibration value will be:

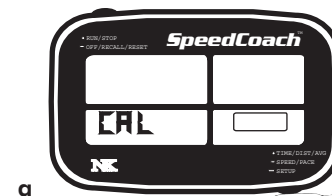
$$\frac{(1.00)(1.00)}{0.92} = 1.086$$

PLEASE NOTE: Calibration is boat and impeller location-specific: if you move your unit to a new boat, or modify the location of your impeller, it is recommended that you recalibrate the unit.

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CALIBRATION (cont.)

To change the calibration number, hold the bottom button in for 3 Seconds until you see "CAL" in the lower left screen (a), then release. Now you will see the number with the first digit flashing (b).

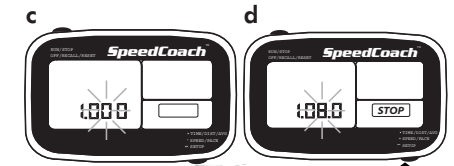
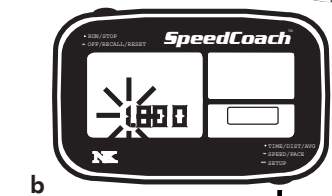


Press the bottom button to change this number.

Hold bottom button for 1 second to move between digits (c).

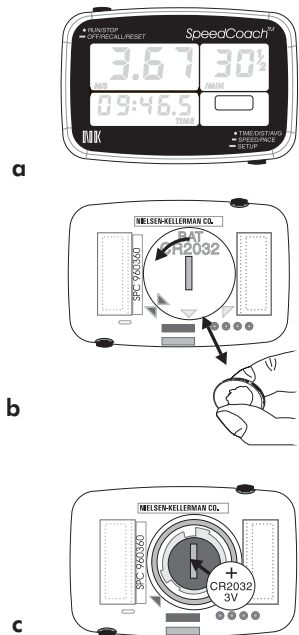
Repeat hold and press to move through and change all appropriate digits (d).

Hold to exit.



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REPLACING THE BATTERY



If the display seems faint (a) then the battery is probably low.

To replace the battery, open the battery door with a flat head screw driver (b) (a coin will also work).

Remove battery door and replace the 3V Lithium CR2032 battery with new one (c) and replace door.

To zero out the distance log, hold the top button down for 10 seconds with the battery out. Then replace battery.*

***If you have calibrated your unit, you will need to re-enter your adjusted calibration factor after removing the battery.**

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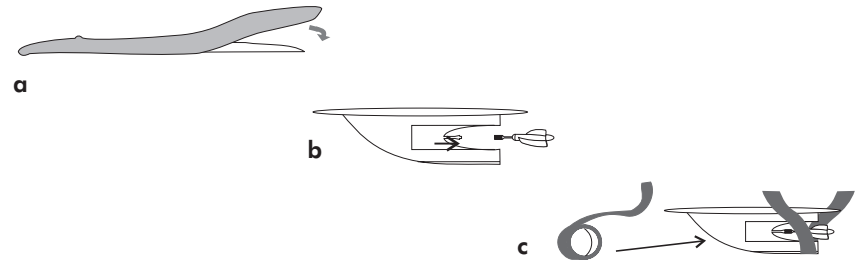
STORAGE AND TRANSPORTING

After 17 minutes of not taking strokes or pressing buttons the SpeedCoach unit will AUTOMATICALLY shut off.

It is always best to remove the unit from the boat when not in use and store it in the pouch to protect from scratching or other damage.

TO PROTECT IMPELLER UNIT FROM GRIT AND EXCESS WEAR:

- 1) Cover boat and impeller unit (a) or...
- 2) Remove impeller (unscrew) from mounting (b) or...
- 3) Tape impeller (with removable tape) to keep it from spinning (c).



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TROUBLESHOOTING

Always try to borrow a fellow rower's SPC so that you can narrow down the variables. By testing your boat's docking set up with a functional unit, and having your unit tested in a functional docking set up, you can help determine where the problem exists. Make sure the SPC you are using has a calibration of 1.000 and is set on 2- Stroke Mode.

INITIAL CHECKLIST:

If a functional unit will not work in your boat, then the problem most likely exists with your wiring and/or docking harness...

1. Check to make sure there are no cuts, nicks or pinched areas along the wire. (a flashlight will be helpful here).
2. Be sure that both sensors are aligned correctly (see Installation).
3. Be sure that there is no debris or corrosion on the impeller.
4. Check that the metal contacts on the mounting dock are flush with the surface of the dock, (contacts may be cleaned with 600 grade emery paper to ensure true surface).

DO NOT use solvents on the docking station, it may cause damage & voids warranty.

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PROBLEM 1: SPEED OR PACE READINGS ARE INACCURATE

TROUBLESHOOT 1: IS THE CALIBRATION VALUE SET CORRECTLY?

The calibration value should be set at 1.000 unless you have completed the necessary steps to re-calibrate your unit. The check and/or reset your calibration value see "CALIBRATION" pages 24-25.

TROUBLESHOOT 2: IS THE IMPELLER PROPERLY INSTALLED?

The impeller is to be placed 5m from the bow of the boat (see INSTALLATION pg7). If for any reason you cannot place the impeller in the proper location, the unit will provide incorrect information unless recalibrated (see above).

TROUBLESHOOT 3: DOES THE IMPELLER SPIN FREELY?

If the impeller begins to accumulate any debris or slight corrosion, it may not spin freely which will lead to inaccuracy. If you are unable to clear the debris, a new impeller can be purchased. If impeller is still covered by the 1-year warranty, the customer can return the faulty impeller for a replacement. The impeller may be unscrewed and relaced without removal of the hull mount. Note: Any slight hum created by the impeller should fade within a week or so.

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PROBLEM 2: NO STROKE RATE OR RATE SEEMS INCORRECT.

TROUBLESHOOT 1: IS UNIT MAKING CONTACT WITH BRACKET?

The unit must have clear contact with contact pins on mounting bracket. Push unit into mounting bracket until "click" is heard. Be sure lanyard is not interfering with the connection.

TROUBLESHOOT 2: IS THE MAGNET AND SENSOR ALIGNED?

Double check the set-up and orientation of the seat magnet and black sensor (see pages 3-6).

TROUBLESHOOT 3: IF RATE SEEMS HIGH, CHECK STROKE MODE.

If your stroke rate consistently seems very high, almost double what it should be, the unit may be in single stroke mode (1-Str). Make sure unit is set in double stroke mode (2-Str) or appropriate setting for application (see pages 16-17).

TROUBLESHOOT 3: IS THE UNIT IN MEMORY MODE?

If there is no rate, time or distance displaying make sure the unit is not in MEMORY mode. If so, hold top button for 2 seconds to exit. If timer is only displaying rate and split but no time or distance, the unit is in STOP mode. Press top button once to exit STOP mode.

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FOR MORE INFORMATION

If you have any additional questions or problems concerning the installation, operation or maintenance of your *SpeedCoach* system, please contact NK at (610)447-1555 or call your in-country representative. You can also reach NK by faxing to (610)447-1577 or by emailing to: support@nkhome.com.

Visit our website www.nkhome.com

WARRANTY

Every *SpeedCoach* system is covered by a full one-year parts and labor warranty. Beyond the first year, factory service is available for the life of the system, no matter who owns it.

Please contact NK for warranty assistance.

NK

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