

ergometer

USER'S MANUAL

PART 1 - Assembly	2
Parts List and Parts Descriptions	2-3
Assembly Instructions	4-10
Monitor Installation	11-16
Post-Assembly Safety Checklist	17
Recording Order Information	18
PART 2 – Using the Vasa Ergometer	19
Safety Review	19-22
Resistance Settings	23-25
Using the Vasa Monitor.....	26-37
Monitor Summary of Functions.....	38
PART 3 – Technique & Form	39
Swim Stroke Technique	40-44
Surf Paddling Technique	45-46
Kayak & Canoe Paddling Technique	47-48
Nordic Poling Technique	49-50
Other Exercises.....	51-52
PART 4 – Swim Training Tips & Workouts	53
High Elbow and Pulling Path	53
Drills for Improving Swim Technique.....	54-58
Stroke Rates of Olympic Swimmers	59
Training Videos	59
Workouts & Tips from Coach Richard Shoulberg	60
Workouts: General	61-63
Workouts: Triathlon/Open Water Swim	64-67
Training Log	68
Racing: Vasa Challenge & World Rankings	69-70
Training Notes	71
PART 5 - Maintenance & Troubleshooting	72
Maintenance Instructions.....	72-77
Troubleshooting	78-79
Guarantee & Warranty Information.....	80-81
PART 6 - Vasa Extras	82
Accessories & Replacement Parts	82-83



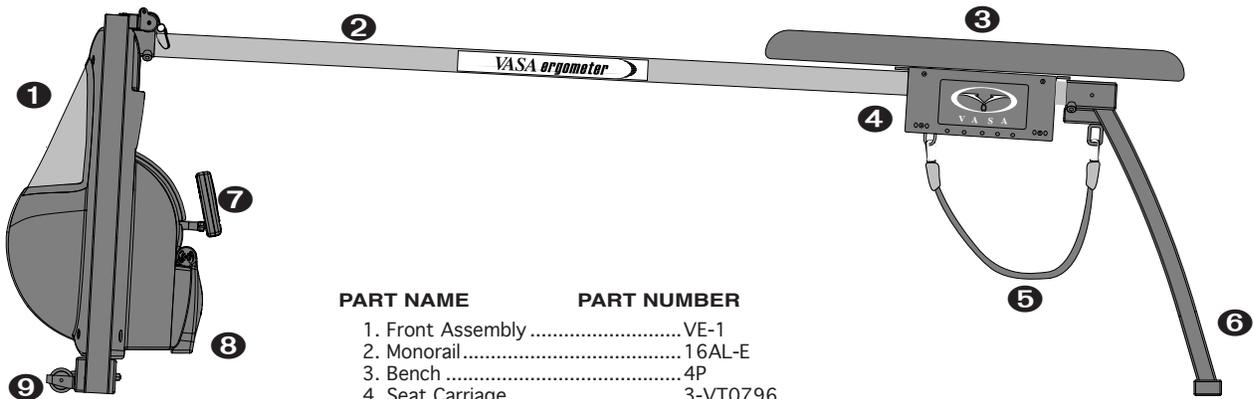
VASA, INC.
1 ALLEN MARTIN DRIVE
ESSEX JUNCTION, VERMONT USA 05452
TEL: 802.872.7101
FAX: 802.872.7104
EMAIL: info@vasatrainer.com
WEB: www.vasatrainer.com



PART 1 - ASSEMBLY

1.1 - VASA ERGOMETER - PARTS DESCRIPTIONS

ergometer



PART NAME	PART NUMBER
1. Front Assembly	VE-1
2. Monorail	16AL-E
3. Bench	4P
4. Seat Carriage.....	3-VT0796
5. Tether Cord	VE-TETHER
6. Rear Stanchion	VE-2
7. Monitor	VM-1
8. Damper Door	VE1-DD
9. Wheel Bracket Assembly.....	VE-1-WBA

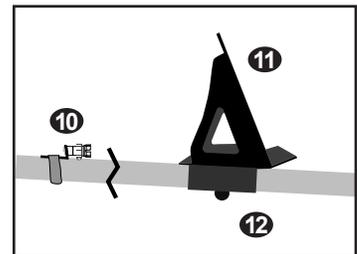
(Swim paddles, exercise handles not shown)

If KAYAK Ergometer, also includes these parts (see inset):

10. Monitor mount bracket	VE-K-MMB
11. Foot Bracket	VE-K-FB
12. FB Mounting bracket.....	VE-K-FP-C

(Exercise handles, kayak shaft not shown)

Kayak Parts



Please READ entire assembly section before beginning assembly.

The parts for your Vasa Ergometer are packed in three boxes (four if you upgraded to an XL bench). Please unpack and assemble your new Vasa Ergometer in the SPECIFIC ORDER outlined on the following pages. We recommend unpacking and assembling the parts from Box 1 and Box 2 (and 4 if applicable), and then unpacking and attaching the front assembly from Box 3. This specific order is to avoid any damage to the front assembly.

IMPORTANT: Please save Box 3 and its inner packaging. Box 3 and its packaging is specifically designed to protect the front assembly. In the unlikely event that you would need to ship the Vasa Ergometer, we recommend using Box 3 and its packaging to ship the front assembly.

VASA ERGOMETER - PARTS LIST

BOX 1 CONTENTS (measuring 36"x16"x9")

PART NAME	PART #	QUANTITY	LOCATION
REAR STANCHION ASSEMBLY	VE-2	1	BOX 1
STANDARD BENCH (or XL Bench)	4P (XL UPGR)	1	BOX 1 (BOX 4)
SEAT CARRIAGE ASSEMBLY	3-VT0796	1	BOX 1
WHEEL BRACKET ASSEMBLY	VE-1-WBA	1	SMALL BOX INSIDE BOX 1
TETHER CORDS (M, H)	VE-TETHER	2	SMALL BOX INSIDE BOX 1
INSTRUCTION MANUAL	IM	1	SMALL BOX INSIDE BOX 1
HARDWARE BAG	(see below)	1 bag	SMALL BOX INSIDE BOX 1
button head screw - 2 1/2"	11P	2	
hex jam nut	18PS	2	
hex cap screw - 1" (yellow zinc)	14SC	4	
lock washer	14A-P	4	
flat washer	19P	4	
hex key allen wrench - 3/16"	12A-PS	1	
hex key allen wrench - 5/32"	12B-PS	1	
wrench - 7/16"	14B-PS	1	
wrench - combo 9/16" & 1/2"	14D-PS	1	
screwdriver	VE-1-SDR	1	

If you ordered the SWIM ERGOMETER, you will receive these additional items:

EXERCISE HANDLES	8M-WHD	2	SMALL BOX INSIDE BOX 1
POWER PADDLES	PWR PPAD	1 pair	SMALL BOX INSIDE BOX 1

BOX 2 CONTENTS (measuring 89"x3"x3")

MONORAIL	16AL-E	1	BOX 2
----------	--------	---	-------

BOX 3 CONTENTS (measuring 35"x29"x18")

FRONT ERGOMETER ASSEMBLY	VE-1-FF	1	BOX 3
MONITOR (with 2 "AA" batteries)	VM-1	1	SMALL BOX INSIDE BOX 3

If you ordered the KAYAK ERGOMETER, you will receive these additional items:

KAYAK ERG FOOT BRACE	VE-K-FB	1	BOX 3
FOOT BRACE MOUNTING BRACKET	VE-K-FP-C	1	BOX 3
CONNECTING HARDWARE	(see instructions sheet with foot brace)		BOX 3
KAYAK SHAFT ASSEMBLY	VE-K-SHAFT	1 (2 sections)	BOX 3
MONITOR MOUNT BRACKET ASSEMBLY	VE-K-MMB	1	BOX 3
3M DUAL LOCK VELCRO STRIP	VE-K-DLV	2	BOX 3

NOTE: Look for the KAYAK SYMBOL throughout the manual (shown here ) for key instructions specific to the Kayak Kit.



1.2 - ASSEMBLING YOUR VASA ERGOMETER

Unpack and assemble your new Vasa Ergometer in the specific order outlined below (unpack and assemble the parts from Box 1 and Box 2 as instructed, then you will unpack and attach the front assembly from Box 3). This specific order is to avoid any damage to the front assembly.

IMPORTANT: Please save Box 3 and its inner packaging for the unlikely event that you would need to ship the Vasa Ergometer. Box 3 and its packaging is specifically designed to protect the front assembly.

STEP 1: UNPACK BOX 1 AND BOX 2 (DO NOT UNPACK BOX 3 YET)

1.1. Unpack Box 1 and Box 2 and lay the contents out on the floor.

NOTE: **DO NOT UNPACK BOX 3.** Once the monorail, bench and rear stanchion are assembled, you will slide the front assembly out of Box 3 and attach it directly to the monorail.

BOX #1																					
<p>STANDARD BENCH (4P) XL BENCH IN BOX #4</p>	<p>REAR STANCHION (VE2)</p> <p>TETHER CORDS (VE-TETHER)</p> <p>SEAT CARRIAGE (3-VT0796)</p> <p>WHEEL BRACKET ASSEMBLY (VE-1-WBA)</p>																				
<p>HARDWARE BAG INCLUDES:</p> <table border="0"> <tr> <td></td> <td>2 1/2" button head screw (2)</td> <td></td> <td>3/16" hex key allen wrench (1)</td> </tr> <tr> <td></td> <td>hex jam nut (2)</td> <td></td> <td>5/32" hex key allen wrench (1)</td> </tr> <tr> <td></td> <td>1" hex cap screw (4)</td> <td></td> <td>7/16" wrench (1)</td> </tr> <tr> <td></td> <td>lock washer (4)</td> <td></td> <td>9/16"-1/2" combo wrench (1)</td> </tr> <tr> <td></td> <td>flat washer (4)</td> <td></td> <td>screwdriver (1)</td> </tr> </table>			2 1/2" button head screw (2)		3/16" hex key allen wrench (1)		hex jam nut (2)		5/32" hex key allen wrench (1)		1" hex cap screw (4)		7/16" wrench (1)		lock washer (4)		9/16"-1/2" combo wrench (1)		flat washer (4)		screwdriver (1)
	2 1/2" button head screw (2)		3/16" hex key allen wrench (1)																		
	hex jam nut (2)		5/32" hex key allen wrench (1)																		
	1" hex cap screw (4)		7/16" wrench (1)																		
	lock washer (4)		9/16"-1/2" combo wrench (1)																		
	flat washer (4)		screwdriver (1)																		

IN BOX #1 - SWIM VERSION	BOX #2
<p>POWER PADDLES (PWR PPAD)</p> <p>EXERCISE HANDLES (8M-WHD)</p>	<p>MONORAIL (16AL-E)</p>

BOX #3	IN BOX #3 - KAYAK VERSION
<p>FRONT END ASSEMBLY</p> <p>PERFORMANCE MONITOR (VM-1) LOCATED WITHIN INTERNAL BOX</p>	<p>FOOT BRACE (VE-K-FB) & BRACKET (VE-K-FMB)</p> <p>MONITOR MOUNTING L-BRACKET (VE-K-MMB)</p> <p>DUAL LOCK VELCRO (VE-K-DLV)</p> <p>KAYAK SHAFT 2 PIECES (VE-K-SHAFT)</p>

STEP 2: ASSEMBLE BENCH TO SEAT CARRIAGE

2.1. Lay the padded bench on the floor so the side with the four holes (with threaded metal nuts inside the bench) is facing up.

2.2. Position the seat carriage so that the metal bracket with the drilled holes is face down on the bench (Figure A). Line up the middle holes of the bracket with the holes in the padded bench. NOTE: The bench will be wider on one end than the other. Position the seat carriage so that the U-bolt on the seat carriage is at the narrower end of the bench.

2.3. Put one lock washer onto each of four 1" hex cap screws (brass colored). Then put one flat washer onto each of the four 1" screws.

2.4. Thread one screw with both washers through the middle hole on the corner brackets of the seat carriage (Figure B) and into the holes in the padded bench. Tighten the screws with the 7/16" wrench until the lock washer and the bolt are snug.



CAUTION: Do not over tighten the hex cap screws, as this could pull out the metal T-nuts inside the bench.

rolling too far forward.

Figure A

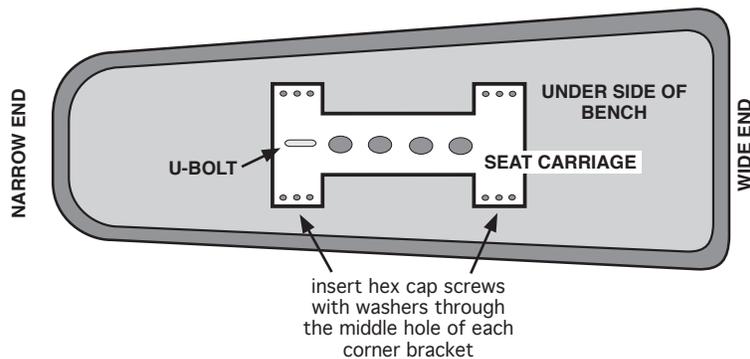
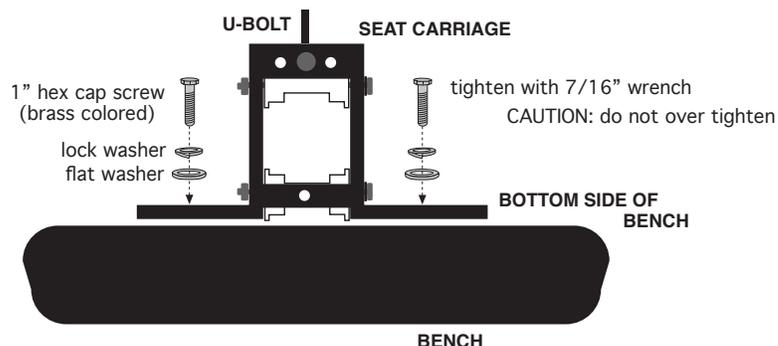


Figure B



STEP 3: PADDED BENCH ASSEMBLY ONTO MONORAIL

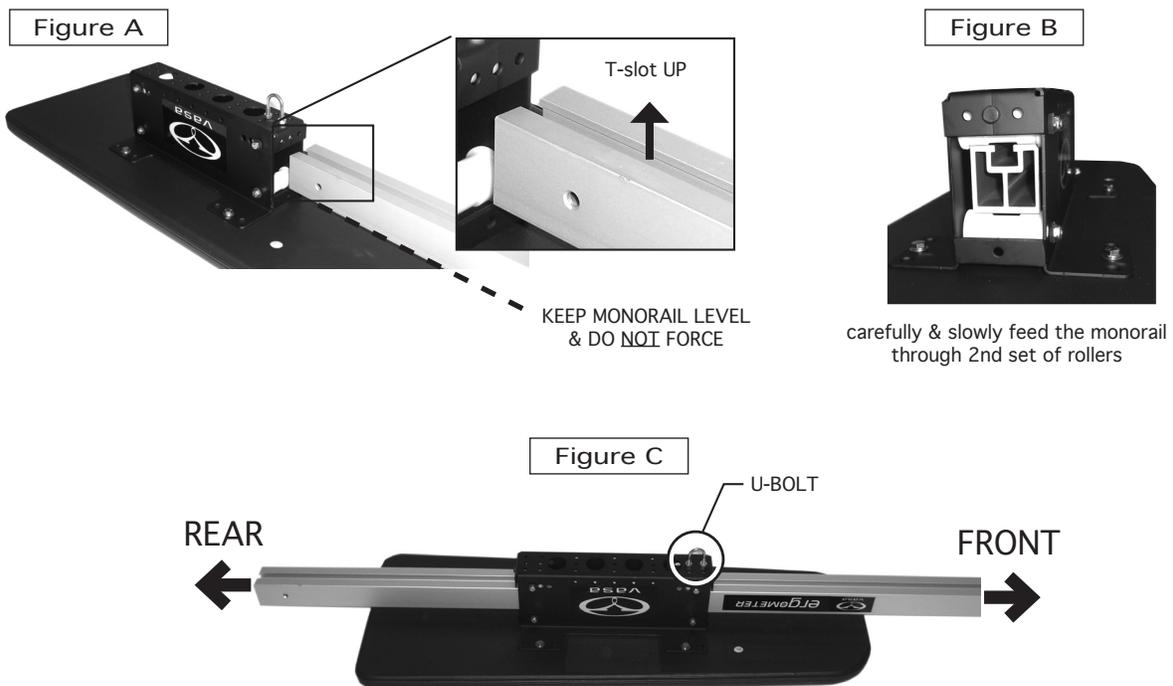
3.1. Lay the bench assembly (with the seat carriage up) on the floor next to the monorail.

CAUTION: To prevent damaging seat rollers when installing the monorail, carefully and slowly feed the monorail into the first set of rollers. Do NOT force through rollers. Hold the monorail level during the installation.

3.2. Keep the monorail level with the T-slot channel facing up. Slowly feed the monorail between the first set of rollers (Figure A).

3.3. Gradually guide the monorail through to the second set of rollers (Figure B), continuing to keep it level. DO NOT FORCE through, so as not to damage the rollers.

3.4. After installing the rail through the seat carriage, it should look like Figure C.

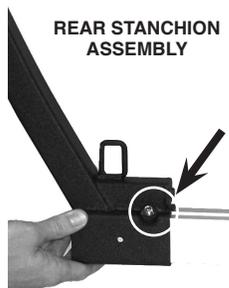


NOTE: You may find that the seat carriage seems “tight” on the monorail, rolling with some resistance. This is normal, since the rollers need to conform to the monorail. You’ll need to do about 25 - 100 repetitions on your Vasa Trainer before the rollers wear and conform to the monorail and roll smoothly. As the rollers wear, they’ll leave some residue on the monorail which needs to be wiped off regularly with a ScotchBrite pad, or a non-abrasive or cloth rag. Any dust or residue accumulation on the monorail will inhibit optimal functioning of the rollers. See maintenance section of this manual for instructions on how to clean your monorail.

STEP 4: MONORAIL INTO THE REAR STANCHION ASSEMBLY

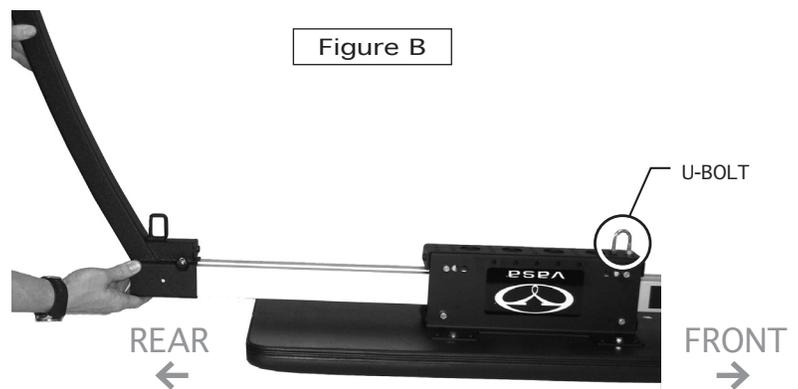
- 4.1. Loosen the socket set screw on the corner of the rear stanchion head (Figure A) using the 3/16" hex key Allen wrench.
- 4.2. Hold the rear stanchion assembly upside down and slide the bracket over the rear section of the monorail (Figure B).
- 4.3. Align the holes and insert a 2 1/2" button head screw through bracket and monorail. Thread the hex jam nut on the end of bolt. Tighten to secure with a 5/32" Allen wrench and 7/16" wrench (Figure C).
- 4.4. Tighten the socket set screw against monorail using the 3/16" hex key Allen wrench. This will secure the monorail to the inside of the sleeve so that it won't loosen or rattle while in use (Figure C).
- 4.5. Affix a tether cord to the rear stanchion D-ring and the U-bolt on the seat carriage (Figure D).

Figure A



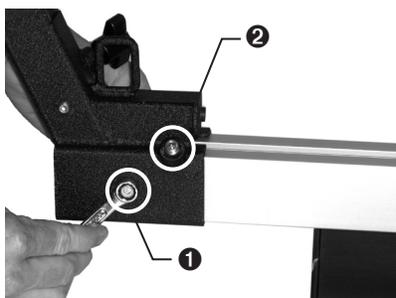
loosen the socket set screw

Figure B



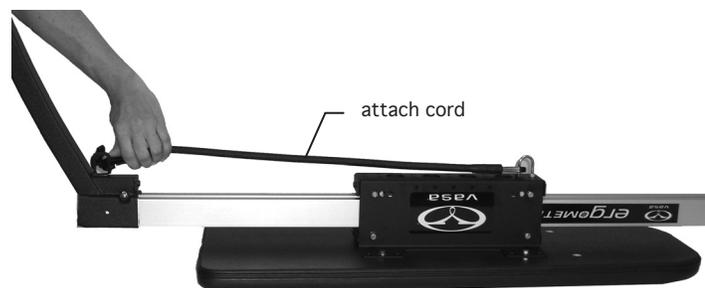
slide the bracket on to the REAR of the monorail.
NOTE: The U-bolt is closer to front

Figure C



1. insert and tighten 2 1/2" button head screw and hex jam nut.
2. tighten socket set screw with 3/16" hex key wrench

Figure D



attach the tether cord to the seat carriage U-bolt and the rear stanchion D-ring

STEP 5: UNPACKING FRONT ERGOMETER ASSEMBLY (BOX #3)

5.1. Lay the front end box down on "SIDE 1" (Figure A).

5.2. Open bottom end of box (Figure B). DO NOT OPEN TOP OF BOX. Remove the cardboard insert & set aside. Leave the bag on the assembly.

5.3. Slide the assembly & bag out of the box (Figure C). Remove the smaller inner box (containing the Monitor) and set aside until Step 9.



Figure A

1. lay box on SIDE 1

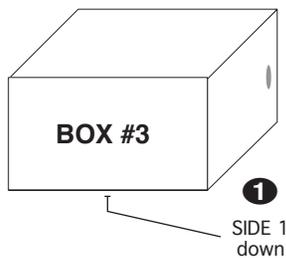


Figure B

2. open bottom of box

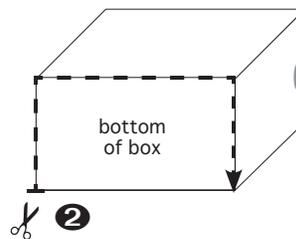
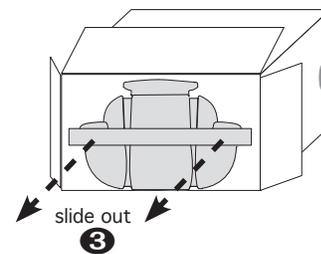


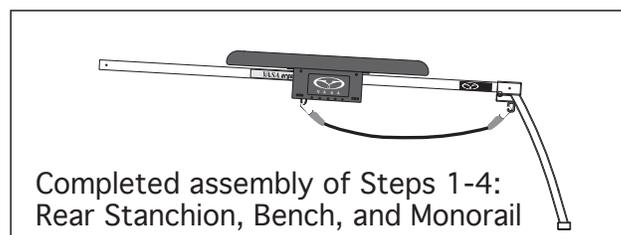
Figure C

3. pull out (with bag)



CAUTION: DO NOT STAND THE FRONT ASSEMBLY UPRIGHT UNTIL DIRECTED. It will not stand securely by itself. Hold securely until it is attached to the monorail in STEP 6.

IMPORTANT: Before continuing, have the parts in STEP 1-4 (from the User's Manual) pre-assembled and close at hand. You will need to attach the front assembly to the monorail.





KAYAK EQUIPMENT - SUPPLEMENTAL INSTRUCTIONS REQUIRED

If you have purchased a KAYAK ERGOMETER or KAYAK KIT, please locate the separate instruction sheet packaged with the Kayak Foot Brace (part #VE-K-FB). You will need to install kayak specific parts at this point prior to continuing with your assembly.

STEP 6: ATTACH FRONT ERGOMETER ASSEMBLY TO MONORAIL & ADD WHEEL BRACKET

6.1. Lift the front assembly upright and insert front end of monorail into front assembly sleeve (Figure A). Align the holes. **Be sure to have a secure hold on the frame so it does not fall over.**

*NOTE: You may need to loosen the socket set screw on the corner of the front Ergometer assembly (Figure B) using the 3/16" hex key allen wrench. **Do not remove** the socket set screw.*

6.2. Insert one 2 1/2" button head screw through the sleeve and the monorail (Figure B). Thread and tighten one hex jam nut with 5/32" allen wrench and 7/16" wrench.

6.3. Tighten the socket set screw against monorail using the 3/16" allen wrench. This will secure the monorail to the inside of the sleeve so that it won't loosen or rattle while in use (Figure B).

6.4. Install the Wheel Bracket Assembly (located in Box #1) on the bottom of the front of frame (Figure C). Use two 1/2" button head screws and 5/32" allen wrench to attach.

Figure A

1. lift front end upright
2. slide monorail into front stanchion sleeve

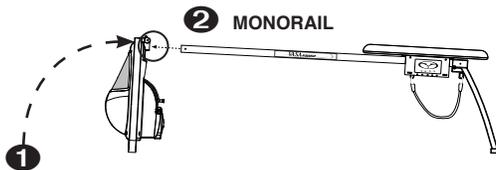


Figure B

3. install 2 1/2" bolt with locking nut
4. secure set screw

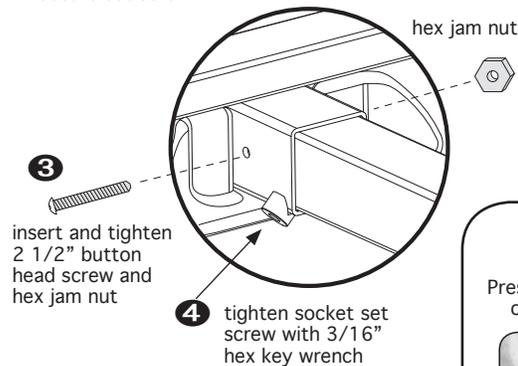
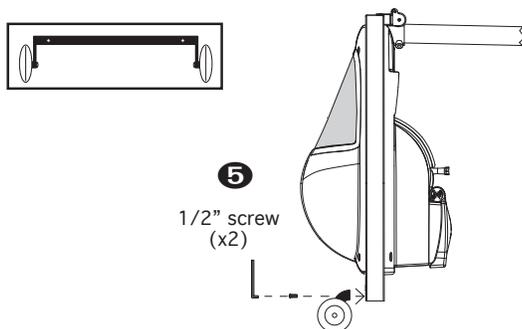


Figure C

5. attach wheel bracket



INSTALLATION TIP

Press the rear cover in to allow more clearance for the 2 1/2" screw.



THUMB IS PUSHING COVER IN

STEP 7: ATTACHING PADDLES OR HANDLES TO DRIVE CORD

7.1. Choose which attachment you would like to use for your workout: swim paddles, exercise handles, kayak shaft or canoe paddle.

7.2. Take the drive cord clip (Figure A) on each end of the drive cords, and snap desired attachment into the connection loop/ring (Figure B).



NOTE: The Kayak Shaft is shipped in two sections. You must pre-assemble the kayak shaft before attaching it to the drive cords. Assembly of Kayak Shaft shown below (Figure C).

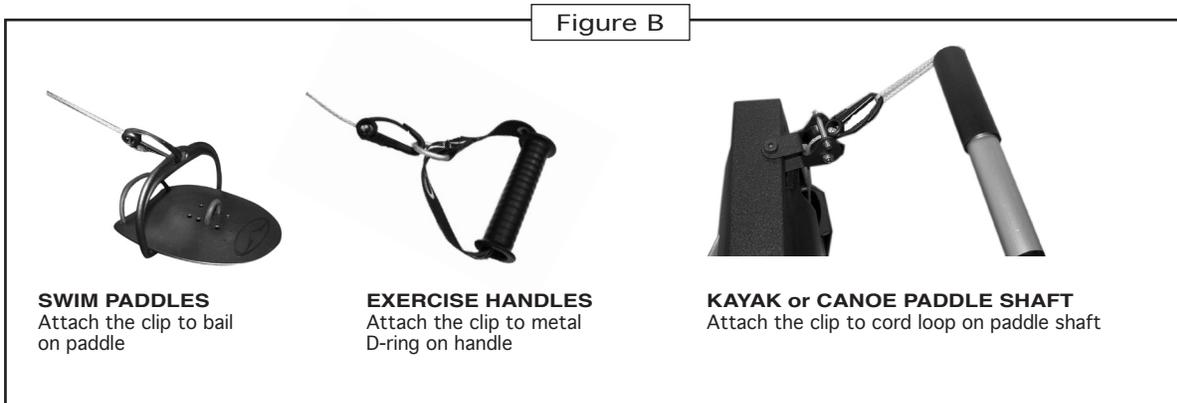
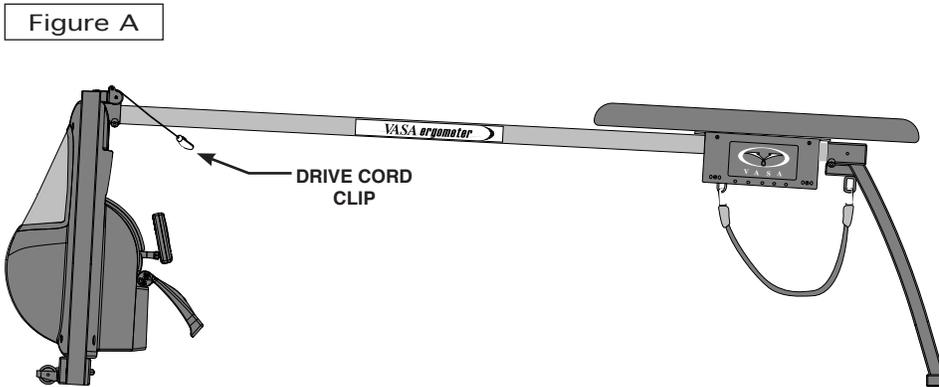
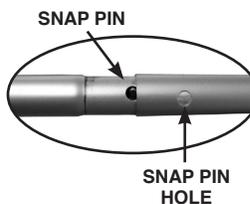


Figure C

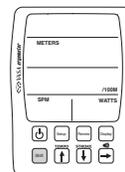
Join the two snap pin sections of the Paddle Shaft together.



PERFORMANCE MONITOR INSTALLATION OVERVIEW

The following steps will walk you through the proper installation of the Performance Monitor. The "Monitor Location" section will review the various monitor locations. Select the location that will provide the best visibility for your training needs.

- Steps 8-10 cover:
- Battery Installation
 - Attaching the Cables
 - Monitor Location Options
 - Monitor Installation and Adjustment



Performance monitor operation will be covered in **Part 2** of this manual.

CAUTION: The monitor is a sensitive unit. Please handle with care at all times.

STEP 8: INSTALLING BATTERIES IN THE PERFORMANCE MONITOR

- 8.1. Locate the performance monitor in the small box packed inside BOX 3.
- 8.2. Insert the two "AA" batteries (included) into the battery compartment on the back side of the monitor.

IMPORTANT: REMOVE THE BATTERIES if the Vasa Ergometer will be idol for 3 months or more.

STEP 9: ATTACHING THE CABLES TO THE PERFORMANCE MONITOR

NOTE: Step 9 is informational only at this time. Do NOT connect the monitor to connection cables until directed to in Step 10.

- 9.1. The back of the monitor has three connection ports: X, R, and L (Figure A). You will only be using the ports labeled "R" and "L". **Do NOT use the port labeled "X"**.
- 9.2. Locate the two cables extending from rear cover. The cables will be exiting from either:
 - 1) the cable channel above the damper door (Figure B); or
 - 2) through a 5/8" hole below the monorail bracket of the front frame (Figure C)
- 9.3. One of the cables will have a BLACK STRIPE at the end of the cable next to the connection end. Connect the **BLACK** cable into the **L port** on the back of the monitor (Figure D). Connect the remaining unmarked cable into the R port.

IMPORTANT: Always power the monitor OFF after you connect the cables to reset.

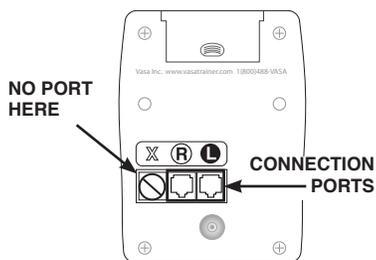


Figure A

Use L and R labeled ports only. Do NOT use X port.



Figure B

Cables extending through cable channel ABOVE damper door.



Figure C

Cables extending through hole ABOVE cable channel.

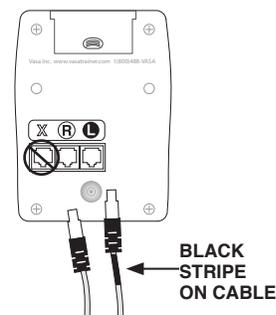


Figure D

Connect cable with the BLACK STRIPE to "L" port. Connect the other cable to "R" port. DO NOT USE "X" PORT.

STEP 10: POSITIONING THE PERFORMANCE MONITOR

There are four mounting options based on the type of training you will be doing on your Vasa Ergometer. Review all the mounting options below to decide which will be the best location for your specific training needs. Specific installation instructions on the following pages.

A) SWIM - LOW MOUNT (Standard)

BEST LOCATION FOR: Swimmers & Surfers.
Ideal for workouts lying on the bench.

NOTE: Install on stem so the monitor can be adjusted (tilted) and secured for best viewing angle.

Installation Instructions for SWIM MOUNT: See STEP 10-A



1) SWIM LOCATION
Mounted Low on Stem

B) KAYAK - HIGH MOUNT

BEST LOCATION FOR: Kayak & Canoe paddlers.
Ideal for workouts sitting on the bench.

NOTE: Install on stem so the monitor can be adjusted (tilted) and secured for best viewing angle.

Installation Instructions for KAYAK MOUNT: See STEP 10-B



2) KAYAK LOCATION
Mounted High on Rail Stem



CAUTION: Do NOT USE THIS MOUNT when performing workouts while lying on the bench. As the bench travels up the rail, you could damage the monitor or injure yourself.

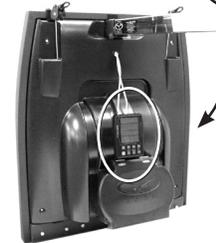
Can Alternate between these two mounts

C) MULTI-PURPOSE - ALTERNATING HIGH/LOW MOUNT

BEST LOCATION FOR: Various workouts (exaple: Swim & Kayak)
Ideal for a variety of workouts requiring both lying or sitting on the bench.

NOTE: Easily switch from High (Rail) Mount to Low Mount in seconds. Both locations allow for securing set angle for best viewing.

Installation Instructions for MULTI-ALTERNATING: See STEP 10-C



3) MULTI/ALTERNATING LOCATION
Mount either High or Low
(both on Stems)

D) MULTI-PURPOSE - FIXED MOUNT

BEST LOCATION FOR: Multiuser(s) with different needs.
Stationary/Fixed position that does not require any set-up.

NOTE: **Least desirable location.** Angle of the monitor is fixed which will NOT allow you to adjust the tilt.

Installation Instructions for MULTI-FIXED: See STEP 10-D



4) MULTI - FIXED POSITION
Mounted Middle on Velcro

Detailed instruction for each monitor location to follow.

STEP 10-A: LOW POSITION MONITOR MOUNT

Best viewing angle for exercises done lying on the bench.
(Swim, Surf Paddling, etc.)

You will be attaching the monitor to the monitor mounting stem located just above the damper door on the front ergometer assembly (Figure A). Cable wires should be coming out of cable channel above the damper door.

10A.1. Attach the cables to the monitor as described in STEP 9.

NOTE: The monitor may automatically turn ON when the cables are connected. Before beginning your workout, turn the monitor OFF and wait a second or two until you hear a beep. Push the ON button to power back on and begin your workout.

10A.2. Slide the hose clamp over the stopper pin and position the clamp over the end of the socket (cover prongs). Insert the monitor mounting ball into the socket (Figure B).

10A.3. Establish the desired viewing angle and secure it by tightening the hose clamp with your screw driver (Figure C). This step ensures the monitor will not move out of position while machine is in use. You may need to tighten periodically if the monitor is adjusted frequently.

10A.4. The monitor mounting stem is designed to allow for customized viewing. To adjust the ANGLE (tilted up and down, tilted right and left), use the ball and socket (Figure D). To move the POSITION (right side or left side), be sure to use the stem to slide the monitor right or left (Figure E).

IMPORTANT: Do NOT slide the monitor to adjust Left and Right position. You will NOT have to loosen the Hose Clamp for any of these adjustments.



Figure A

Best position for Swimming, Surfing, etc. (lying on the bench)

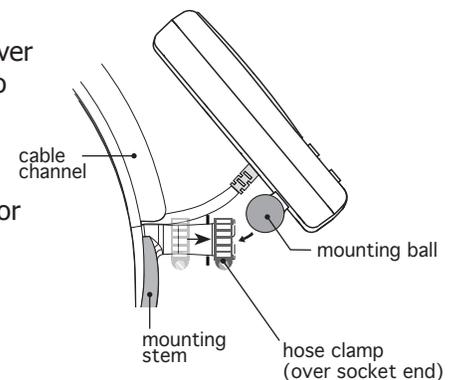


Figure B

Join mounting ball and socket together

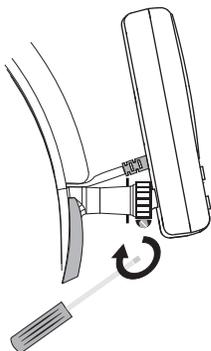


Figure C

Tighten hose clamp by turning "clockwise"



Figure D - adjusting ANGLE

adjust ANGLE by rotating on ball and socket. Do NOT slide left and right, use stem to slide

SLIDE STEM ONLY



Figure E - adjusting POSITION

adjust POSITION of monitor by sliding stem Left & Right

Do NOT use monitor to slide left to right



STEP 10-B: HIGH POSITION MONITOR MOUNT

Best viewing angle for exercises done from seated or kneeling on bench.
(Kayak, Canoe, Nordic Poling, Physical Therapy)

You will be attaching the monitor to the removable bracket that will be mounted to the monorail (Figure A). Cable wires must be routed through the center hole located 2 inches below the monorail bracket. This will provide optimal viewing of the monitor during kayak or canoe paddling workouts.

10B.1. Place the Bracket on the monorail **6 inches** from the metal monorail bracket (Figure B) with the mounting socket facing the bench.

10B.2. Wrap the Velcro cinch strap around the monorail, feed the Velcro through the buckle end, pull to tighten, and press Velcro down to fix bracket in place (Figure C).

10B.3. Attach the cables to the monitor as described in STEP 9. The cables will be on each side of the rail for this mounting system.

NOTE: The monitor may automatically turn ON when the cables are connected. Before beginning your workout, turn the monitor OFF and wait a second or two until you hear a BEEP. Push the ON button to power back on and begin your workout.

10B.4. Align the hose clamp at the end of the socket (as in Figure D). Insert the monitor mounting ball into the mounting socket on the bracket.

10B.5. To secure the position of the monitor at the desired viewing angle, tighten the hose clamp with the screw driver (Figure E). Tighten periodically as needed.

10B.6. The monitor mounting stem is designed to allow for customized viewing. To adjust the ANGLE (tilted up and down, tilted right and left), use the ball and socket (Figure F).



Figure A

Best position for Kayaking, Canoeing, etc. (sitting on the bench)

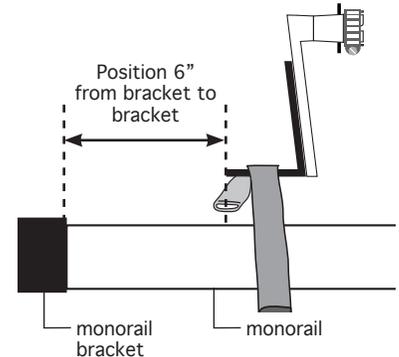


Figure B

Attach L-bracket to monorail. Cinch down Velcro strap to secure in place.



Figure C

Bracket attached to monorail.

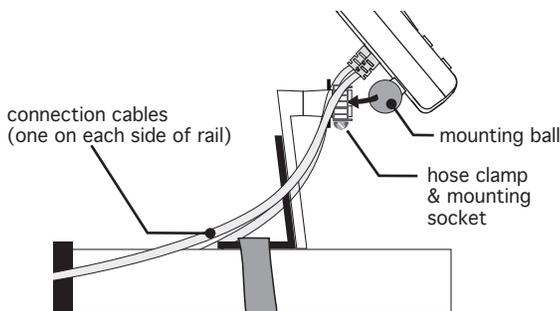


Figure D

Join mounting ball and socket together

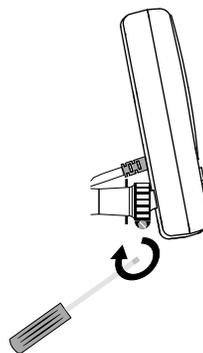


Figure E

Slide hose clamp over prongs & tighten clamp by turning "clockwise"

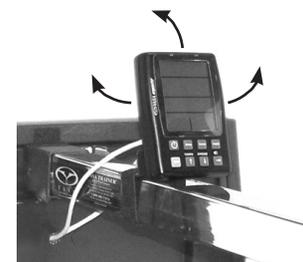


Figure F - adjusting ANGLE

Adjust ANGLE by tilting position of monitor. Clamp will hold desired angle.

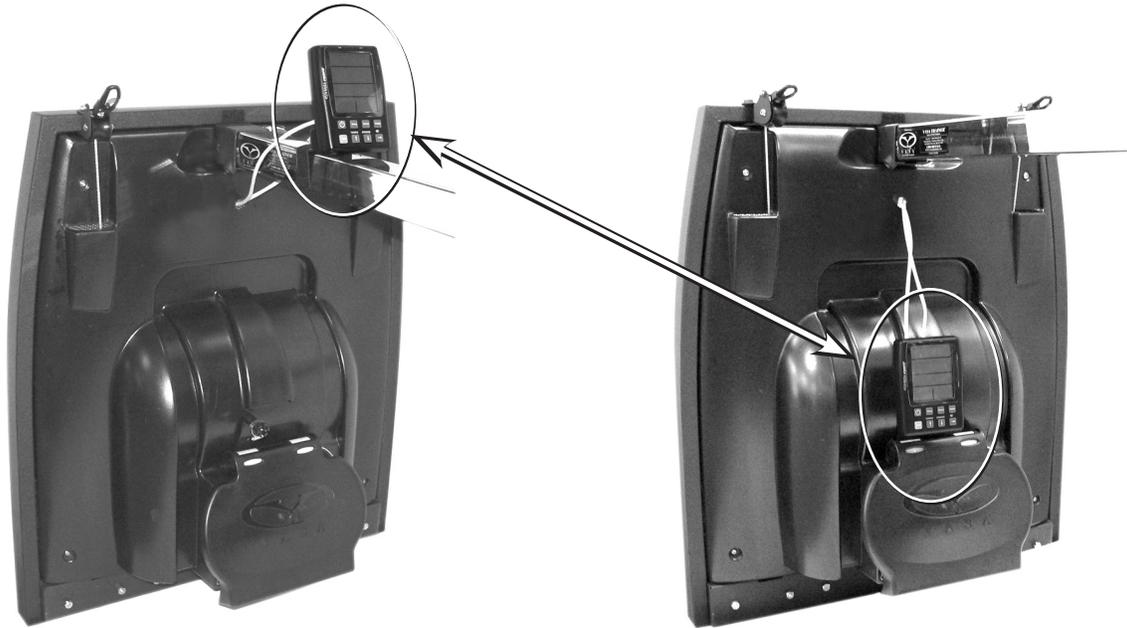
STEP 10-C: MULTI-POSITION MONITOR MOUNT

Best if you need to alternate between LOW and HIGH mounted positions frequently.

You will be attaching the monitor with either the L-bracket that is be mounted to the monorail (see STEP 10B) or a slight variation of the lower monitor stem mount (shown in STEP 10A). The cable wires be routed through the center hole located 2 inches below the monorail bracket. This will provide optimal viewing of the monitor for athletes looking to use their Vasa Ergometer for a variety of workouts.

10C.1. Follow all of the directions on the previous page (STEP 10B) for the installation of the L-Bracket and high monitor mount.

10C.2. To move the monitor location to the Low Mount, simply disconnect one cable, loosen the hose clamp, remove the monitor, move the monitor under the monorail. From that point, follow the rest of the directions in STEP 10A.2 on. You will now be able to quickly alternate the monitor between the higher and lower locations based on your sport specific workout.



Monitor mounted on monorail
(high mount).
Best viewing for Kayak & Canoe workouts.

Monitor mounted above damper door
(low mount).
Best viewing for Swim & Surf workouts.

STEP 10-D: MIDDLE POSITION MONITOR MOUNT

Best viewing angle for exercises done from seated or kneeling on bench.
(Kayak, Canoe, Nordic Poling, Physical Therapy)

CAUTION: *Vasa, Inc. does not recommend this mounting location for commercial use. Inexperienced users are more likely to cause damage to the monitor by accidentally letting go of the handles/paddles during a workout which could easily hit the monitor. The monitor is not warranted against damage caused by impact of any kind.*

You will be attaching the monitor directly to the rear plastic cover of the Front Assembly (Figure A). Cable wires will need to be routed through the center hole located 2 inches below the monorail bracket.

10D.1. Locate the battery hatch on the back of the monitor. Take one piece of the provided Velcro strip and remove the tape liner exposing the adhesive. Apply the adhesive side of the Velcro to the battery hatch. (Figure B). Press Velcro firmly to battery hatch so adhesive makes solid contact.

IMPORTANT: *Do NOT allow the Velcro strip to extend beyond the door as the adhesive is very aggressive and could prevent the battery hatch from opening.*

10D.2. Next measure & mark the EXACT location on the rear cover of the Front End Assembly as shown in **Figure C** below. Remove the adhesive lining on the second Velcro strip and apply it to the marked location. Press Velcro firmly to cover so adhesive makes solid contact.

10D. 3. Allow adhesive to bond to cover for 30 minutes before next step.

10D. 4. Connect both cable connections to the monitor ports as described in STEP 9.

10D. 5. Join the two pieces of Velcro together by lining them up to one another and pushing them together firmly. They will snap into place (Figure D).



Figure A

Multi-purpose use. Monitor stays in a stationary, fixed position.



Figure B

Attach Velcro strip to monitor battery door region. Do NOT cover any moving region of the door.

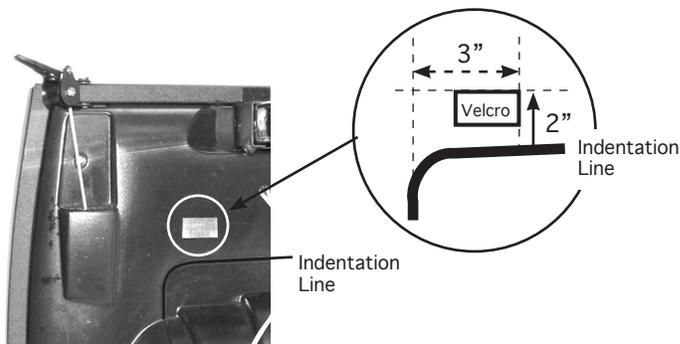


Figure C

Top right corner of Velcro is positioned 2" UP and 3" RIGHT from the indentation lines on the Front End Assembly.



Figure D

Multi-purpose use. Monitor stays in a stationary, fixed position.

1-3. POST ASSEMBLY SAFETY CHECKLIST

Please review the steps below to assure that your Vasa Ergometer is assembled correctly and ready for safe use (check if complete).

FRONT

1. ___ Button head screw and nut are assembled on front stanchion head and monorail.
2. ___ Socket set screw on front stanchion head is tightened against the monorail.

REAR (CHECK IF COMPLETE)

3. ___ Button head screw and nut are assembled on rear stanchion head and monorail.
4. ___ Socket set screw on rear stanchion head is tightened against the monorail.

BENCH / SEAT CARRIAGE (CHECK IF COMPLETE)

5. ___ U-bolt on the seat carriage is towards the front assembly.
6. ___ Narrower end of the bench is towards the front assembly.
7. ___ Tether cord is attached between rear stanchion and U-bolt on underside of seat carriage.

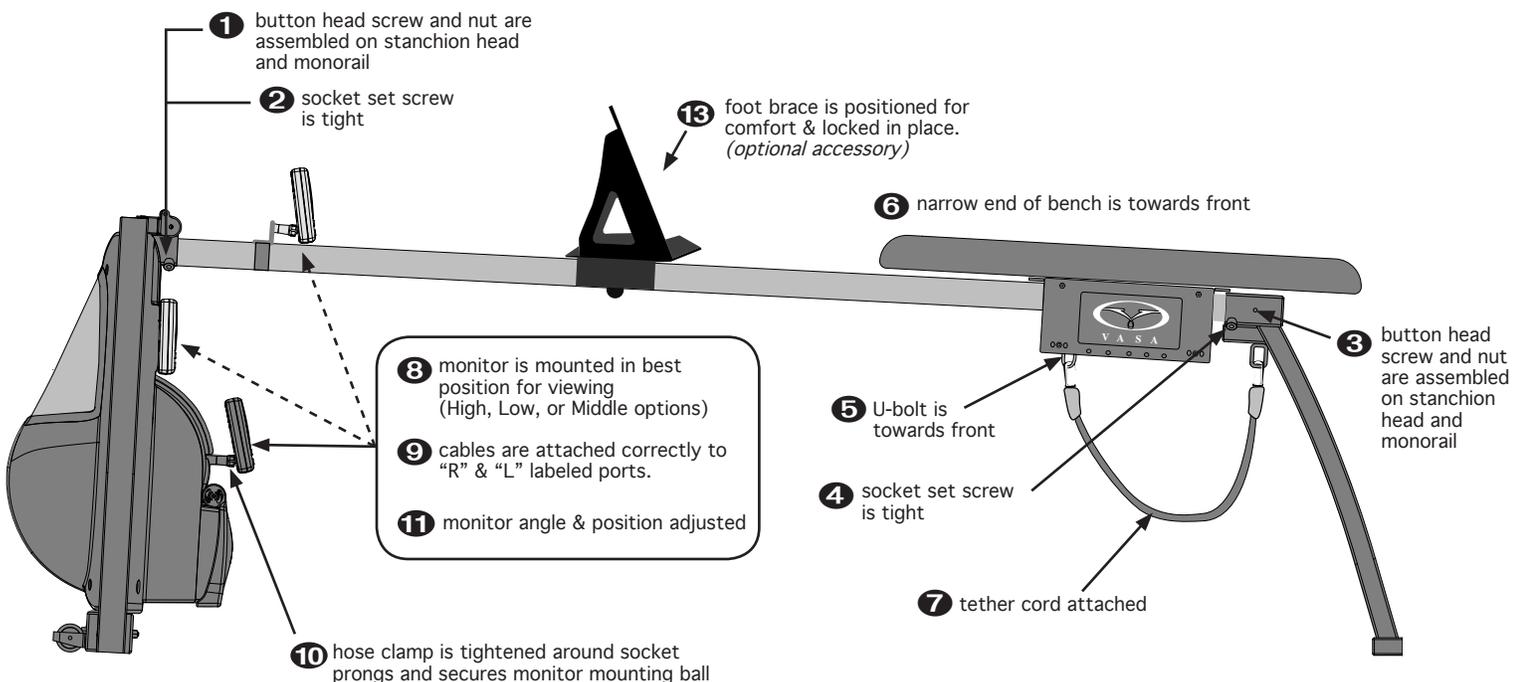
MONITOR (CHECK IF COMPLETE)

8. ___ Mounting location of the monitor provides optimal viewing for your workout needs.
9. ___ Connection cables are attached correctly to "R" and "L" labeled ports on the monitor.
10. ___ Hose Clamp is tightened around socket prongs (if applicable).
11. ___ Monitor is adjusted for best viewing (ANGLE and POSITION).



KAYAK KIT (OPTIONAL ACCESSORY)

13. ___ Foot Brace is locked securely in place and in the desired position on the monorail for comfort.



1.4 - RECORD ORDER INFORMATION

Now that you have completed the assembly, please take a minute to record some information found on your Vasa Invoice. This will allow us to service you better in the future. Please record:

INVOICE NUMBER: _____ **DATE OF INVOICE:** _____

If you have any questions at this point with the assembly, please contact us.

US customers, please call us toll-free at: 1 (800) 488-VASA
International customers, please call us at: 1 (802) 872-7101
E-Mail: info@vasatrainer.com

PART 2 – USING THE VASA ERGOMETER

The following sections contain guidelines and tips for using your Vasa Ergometer, the performance monitor, and adjusting the resistance.

2.1. SAFE OPERATION

GETTING SAFELY ON AND OFF

Getting safely on and off your Vasa Ergometer is an important part of your program. Please follow the guidelines below.



CAUTION: Do not suddenly release the paddles or handles while using the Ergometer. They could strike the monitor or front assembly and cause damage or injury. Always gently return the handles or paddles to the ready position on the front assembly.

SWIM POSITION - Lying prone on the bench using swim paddles or exercise handles

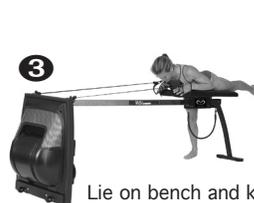
- 1) Place your hands in the handles or paddles, then pull handles/paddles to engage the drive cord.
- 2) Walk towards bench, placing your hands at the top of bench.
- 3) Lie on the bench so that your chest is even with the front of the bench, keep one foot on floor until you are positioned comfortably.
- 4) Bring your foot off the floor, then bring hands into start position.



1 Place hands in handles or paddles.



2 Pull handles/paddles to engage drive cord and place hands on front edge of bench.



3 Lie on bench and keep one foot on floor to your adjust position on bench.



4 Bring foot off floor and bring hands into start position.



KAYAK POSITION - Sitting on the bench facing forward, using the kayak shaft

NOTE: position the bench & seat carriage so it touches the rear stanchion. Be sure the foot brace has been installed. For Kayak Set-up Instructions (see page 10).

- 1) Take the kayak paddle shaft in both hands and walk back to the bench.
- 2) While holding the paddle shaft, place your hands on the front of the bench holding the bench steady. Swing one leg over the bench and sit down just behind the Vasa logo located on the front part of the bench (middle of bench).
- 3) Bring one foot up and place it in the locked foot brace. Adjust your leg position by sliding forward or backward on the bench so you are comfortable.
- 4) Bring your second foot up into position and bring the kayak shaft into position. Your hands should be shoulder width apart.



1 Holding kayak shaft, walk back to end of bench.



2 While holding the paddle shaft, place hands on front edge of bench as swing leg over. Sit just behind Vasa logo.



3 Place one foot in foot brace. Adjust seated position for comfort.



4 Bring other foot up to foot brace and bring kayak shaft into start position.

GETTING SAFELY ON AND OFF - CONTINUED

OTHER POSITIONS - using handles or ankle straps

SITTING FACING FORWARD



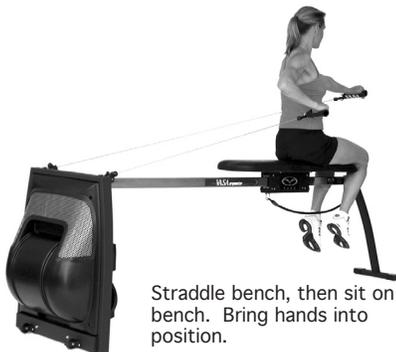
Straddle bench, then sit on bench. Bring hands into position.

KNEELING FACING FORWARD



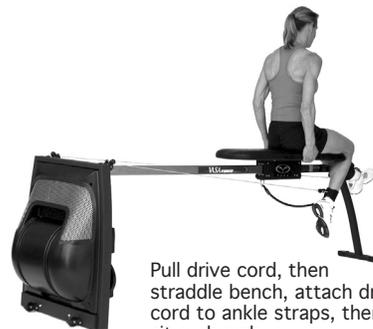
Straddle bench, steady bench with knuckles as you kneel. Bring hands into position.

SITTING FACING BACKWARD



Straddle bench, then sit on bench. Bring hands into position.

USING ANKLE STRAPS FACING BACKWARD



Pull drive cord, then straddle bench, attach drive cord to ankle straps, then sit on bench.



CAUTION: Do not pull the drive cord past the end of the ergometer. This could result in damage to the Ergometer.



CAUTION: Do not suddenly release the paddles or handles while using the Ergometer. They could strike the monitor or front assembly and cause damage or injury. Always gently return the handles or paddles to the ready position on the front assembly.

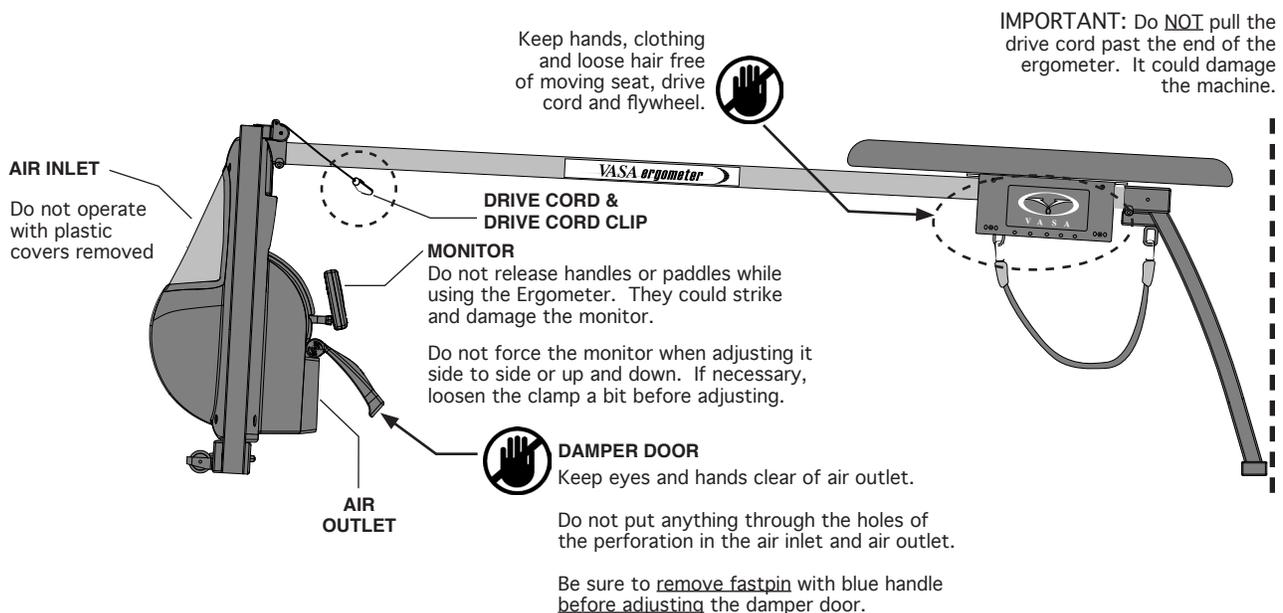


SAFETY REMINDERS

It's very important to use common sense and adhere to these safety guidelines in order to avoid injury to yourself or damage to your Vasa Ergometer. The next few pages review several areas of safety. The following is a "pre-flight" safety check you should do before using your Vasa Ergometer:

- DO NOT LET GO OF THE HANDLES, SWIM PADDLES OR PADDLE SHAFT while the drive cords are extended - they could hit and damage your monitor which is NOT covered under warranty. Always return the handles or paddles slowly to the ready position on the front assembly.
- Follow instructions on the previous page for safely getting on and off the Vasa Ergometer.
- Always instruct bystanders, especially children, to keep totally clear while Ergometer is in use, especially of the moving seat carriage, drive cords and flywheel. Avoid wearing loose or slippery clothing. Always tie up long hair so it's clear of moving parts on the machine.
- Keep eyes and hands clear of the air outlet below the damper door. To avoid blowing dust into the air, eyes or into the electronics, do not operate in a dusty area.
- Do not operate if the plastic covers on the front assembly are removed.
- Do not pull the drive cords past the end of the Vasa Ergometer. If the drive cords becomes difficult to pull (like the cord is stuck), do not continue to pull as this may damage your Ergometer.
- Perform proper maintenance on your Vasa Ergometer as recommended in "Part 5 - Maintenance & Troubleshooting".

IMPORTANT: Do not release the paddles or handles while using the Ergometer. They could strike the monitor or front assembly and cause damage or injury. Always return the handles or paddles slowly to the ready position on the front assembly.



SUPERVISING CHILDREN

We recommend supervising children at all times while using the Vasa Ergometer. Please review the **Safety Reminders** and **Getting On and Off Safely** in this section with all children who will use the Vasa Ergometer. In particular, we recommend the following:

1. Children should train with or be instructed by a parent or coach whenever possible. This will help reduce the chance of injury. It also can be more motivating and fun.
2. Instruct user's, especially children, to NEVER LET GO OF THE HANDLES SWIM PADDLES, OR KAYAK SHAFT while using the Vasa Ergometer to protect the monitor from being damaged. Keep hands on the handles, swim paddles or kayak shaft until the workout is complete. Return the handles/paddles/shaft slowly to the ready position on the front assembly (see page 22).
3. Instruct all bystanders to stay clear of the Ergometer while in use, especially of the moving seat carriage, drive cords and tether cords. Avoid wearing loose clothing and always tie up long hair.
4. Keep eyes and hands clear of the air outlet below the damper door. To avoid blowing dust into the air or into the electronics, do not operate in a dusty area.
5. Do not pull the drive cords past the end of the Vasa Ergometer. If the drive cords stops pulling, do not continue to pull as this will damage your Ergometer.

SECURING YOUR VASA ERGOMETER IN A PUBLIC SETTING

If your Vasa Ergometer is left in a public area, you may wish to "secure or vandal-proof" it to avoid unauthorized use. We recommend the following:

1. Remove any drive cord attachment (swim paddles, handles, or kayak shaft) and tether cords. Store these and any other accessories in a secure place.
2. To deter unwanted use and protect your investment, keep your Vasa Ergometer covered when not in use. **Vasa Ergometer Covers** are available at www.vasatrainer.com and in the back of this manual.
3. You may wish to unplug and remove the electronic monitor for safe keeping. See "Part 1 - Step 8" and follow instructions in reverse order to detach.
4. Use a cable and lock between the D-ring on the rear stanchion head and the U-bolt on the underside of the seat carriage. This will lock the bench in a fixed position.
5. Store the Vasa Ergometer in a dry, secure room or closet. Avoid storing the Vasa Ergometer in a humid, chlorine or salt-air environment.

MEDICAL CLEARANCE - See your Doctor before beginning any exercise program.



CAUTION: Before exercising with the Vasa Ergometer or any other form of exercise, please check with your physician first. This is especially important if you are overweight, if you have been inactive for awhile, if you have injuries, or if you have any history of heart disease in your family. If you are over 35, it's a good idea to perform an exercise stress test with a qualified physician before you begin training. Training with the Vasa Ergometer can be vigorous and demanding. We suggest that you be in good health to achieve the best results.

2.2. SETTING THE RESISTANCE ON THE VASA ERGOMETER

The flywheel and the damper door work in concert to affect the resistance you will feel using the Vasa Ergometer. Tether cords are used to restrict the distance the bench travels on the monorail, and are not intended as resistance cords.

FLYWHEEL

The airflow resistance of the flywheel simulates the resistance of water - the harder you pull, the more resistance you feel.

DAMPER DOOR

You can adjust the airflow resistance by changing the opening of the damper door on the front of your Vasa Ergometer. The lowest setting "1" (door fully closed) provides the least resistance and setting "7" (door fully open) provides the most resistance. Setting #1 is similar to going WITH the current and Setting #7 is similar to going AGAINST a strong current.

To adjust the damper door / change resistance level:

1. Unlock knob - turn counter-clockwise
2. Lift/Lower door (Settings: 1=easiest / 7=hardest)
3. Lock knob - turn clockwise

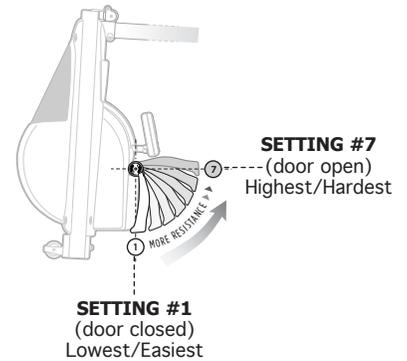
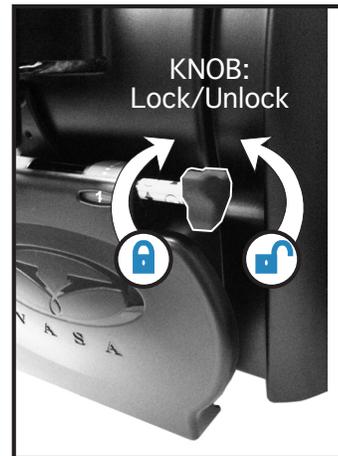


Figure A



Damper door setting number (level)

Figure B



Lock door = turn clockwise
Unlock door = turn counter-clockwise

DAMPER DOOR SETTINGS RELATING TO POWER AND FORCE OUTPUT

At high settings (5, 6, 7) it feels like swimming against a current. At low settings (1 & 2) it feels more like swimming with a current. So if you select a setting of 1, you will have to move your arms faster than your normal speed in still water to generate the same power (faster stroke rate). If you select a setting of 7, you will have to move your arms slower than your normal speed in still water to generate the same power (slower stroke rate).

Mathematically, this is expressed by the equation $\text{Power} = \text{Force} \times \text{Velocity}$. The fan resistance determines the force (a higher setting is a higher force) and the hand speed is the velocity. So the same power can be achieved with either a high resistance setting combined with a low hand speed or a low resistance setting combined with a high hand speed. As you would expect, there will be a setting where an individual can produce the maximum power due to physiological and biomechanical efficiency, and this setting will likely be different depending on the individual's body and training. The monitor calculates power by sampling the force and hand speed many times per second throughout the stroke. Therefore it calculates power produced & distance swam precisely regardless of the damper door setting. This allows users to choose a damper door setting according to personal preference.

It is important to remember that the damper door setting is subjective, depending on body type, conditioning level, and stroke technique. We think that most distance swimmers excel at the low to mid range damper settings (either 2, 3 or 4).

Suggestion: once per week for one month do a 500 meter or a 1000 meter time trial at race pace & race stroke rate. On week one, set the damper at 2, for week 2, set it at 3 and so on. You'll discover the damper door setting that allows you to perform your best for that distance. Measure your heart rate, watts, and time. Monitoring these will help you arrive at the most efficient stroke rate, technique and heart rate to sustain the power and pace you need to improve. NOTE: Use the "Audible Stroke Rate Tempo Beeper" to help swim at your desired stroke rate. For full details on the Audible Tempo Beeper, continue to the section on Monitor Operation.

TETHER CORDS



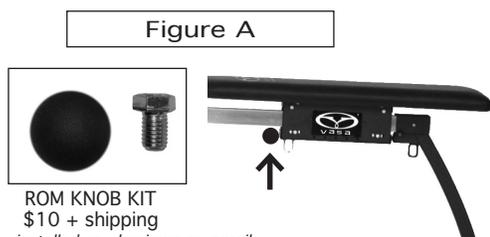
The tether cords that come with your Vasa Ergometer are designed to prevent the seat from rolling too far forward. The user will be able to complete a full range of motion without their hands hitting the front pulley brackets. Tether cords come in 2 types: medium and hard (thicker). Which tether cord you choose depends on the amount of power you will generate and the damper door setting you select. In general, as you increase the setting on the damper door, you would attach a thicker cord.

NOTE: allowing the bench to roll freely on the monorail can provide a useful "treadmill affect", where by the user will notice a drop in average power because the bench will roll backwards.

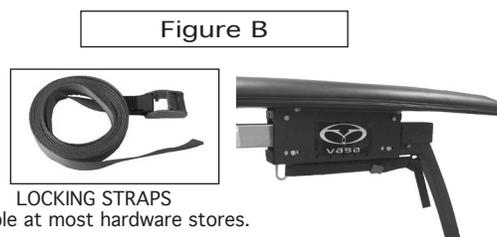
ANCHOR BENCH TO PREVENT MOVEMENT

If you prefer to keep the bench from rolling on the monorail, you can use a range of motion knob (Figure A) or by using a locking strap to anchor to rear stanchion (Figure B).

NOTE: The ROM KNOB KIT is an additional accessory (part# ROM KNOB KIT). Locking straps are available at most hardware stores.



ROM KNOB KIT
\$10 + shipping
May only be installed on aluminum monorails.



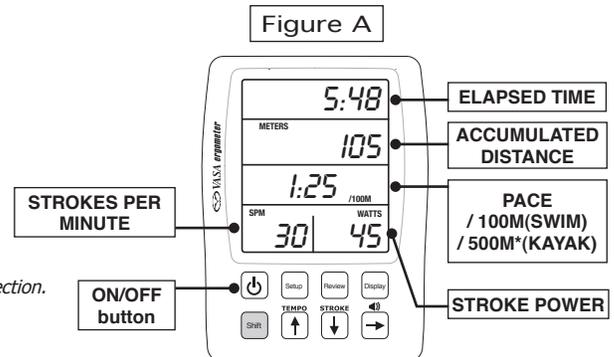
LOCKING STRAPS
Available at most hardware stores.

2.3. VASA ERGOMETER MONITOR OPERATION

The monitor gives you the opportunity to get instant feedback on your performance. You can measure time, distance, pace, stroke rate, stroke power (watts), and applied force for each arm (Figure A). Having this information allows you to:

- monitor your progress
- create repeatable performance testing & training
- set up workouts based on time & distance
- perform intervals or distance training
- simulate races
- analyze force for right and left arms

Specifics on how the monitor calculates this data can be found at the end of this section.



GETTING STARTED

The monitor will need to obtain a signal from the Load Cells (located on the inside of the machine) each time it is turned on. The monitor will then use that data to establish a "zero" force level for that workout. If you install the connection cables when the monitor is "ON", make sure to RESET the monitor so it can calibrate correctly. To RESET the monitor, power it OFF by pushing the ON/OFF button. When you turn it back on, again using the ON/OFF button, it will now be calibrated to the Load Cells.

As soon as you pull on the drive cords, the monitor will automatically turn on and begin monitoring your performance. You can reset the monitor using the ON/OFF button (Figure A).



VIEWING OPTIONS: SWIM VS. KAYAK

There are two main views you can choose from on the monitor each providing data relative to that sport. The two views are:

- SWIM VIEW
- KAYAK VIEW

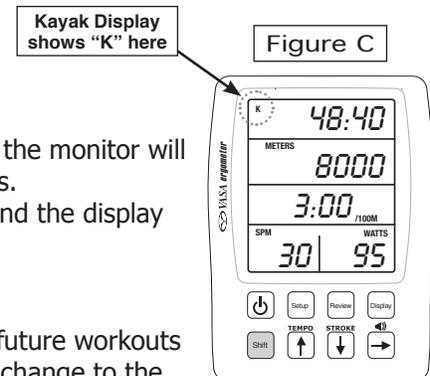
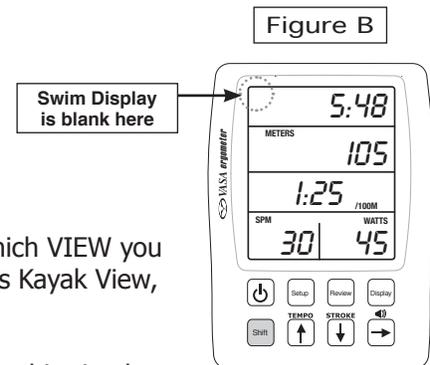
The upper left corner of the top screen (elapsed time) will denote which VIEW you are in. If it is in Swim View, that area will be blank (Figure B). If it is Kayak View, you will see a "K" displayed in the upper left corner (Figure C).

The monitor can be changed between these two different views using this simple sequence:

- Step 1: Begin with the monitor OFF.
- Step 2: Hold the SHIFT button and then press the ON/OFF button. Release buttons and wait for LCD test sequence to finish.
- Step 3: Hold the SHIFT and then press the ON/OFF button again so the monitor will display load cell parameters (for Vasa use). Release buttons.
- Step 4: Hold the SHIFT and press SETUP button. Release buttons and the display will turn off (you will hear a short beep).
- Step 5: Turn ON for the new view.

The monitor will remain in the selected view (Swim or Kayak) for all future workouts until you change it back. Repeat the sequence above if you want to change to the other view.

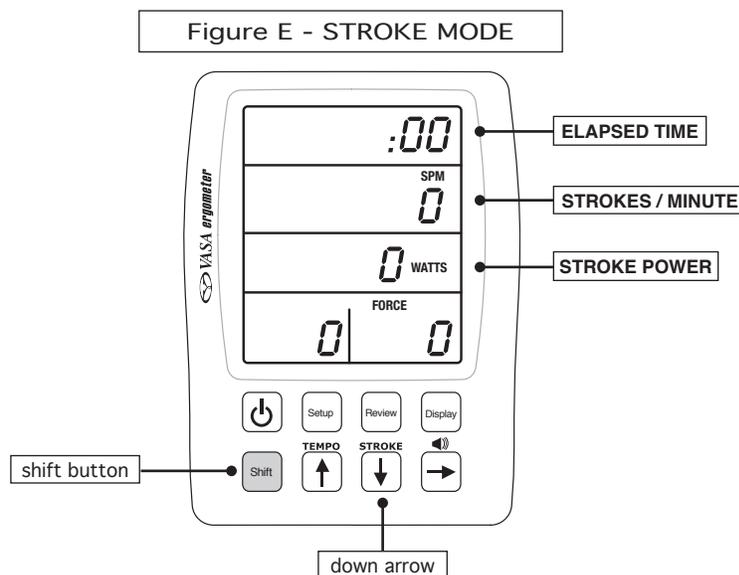
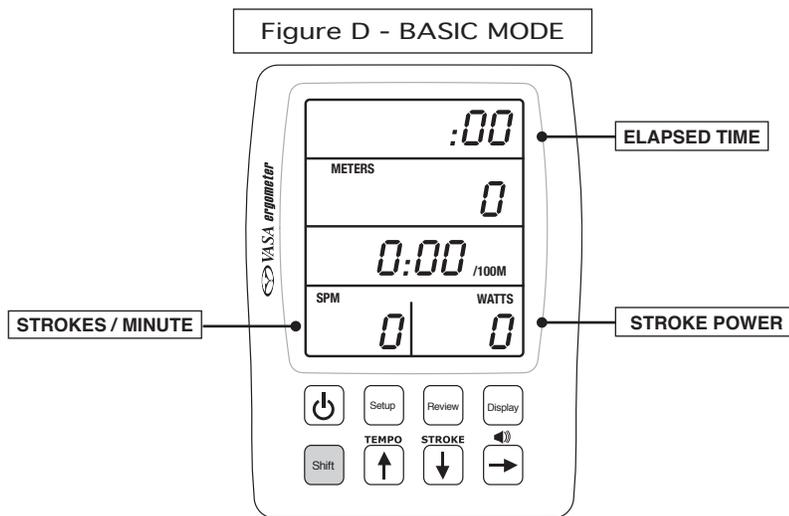
***PACING NOTE:** In the Kayak View, the monitor will calculate PACE/**500M**. Swim View is always displayed in PACE/100M.



MODES: BASIC VS. STROKE

There are two main display modes on the monitor: BASIC MODE and STROKE MODE (Figure D and E). When the monitor is first turned on, it will automatically enter Basic Mode. Both Basic Mode and Stroke Mode give you readings on ELAPSED TIME, STROKE RATE (strokes per minute), and STROKE POWER (watts). The remaining fields are "sub-displays" that change by pressing the "Display" button. For more information on Basic Mode, Stroke Mode and their sub-displays, see the next two pages.

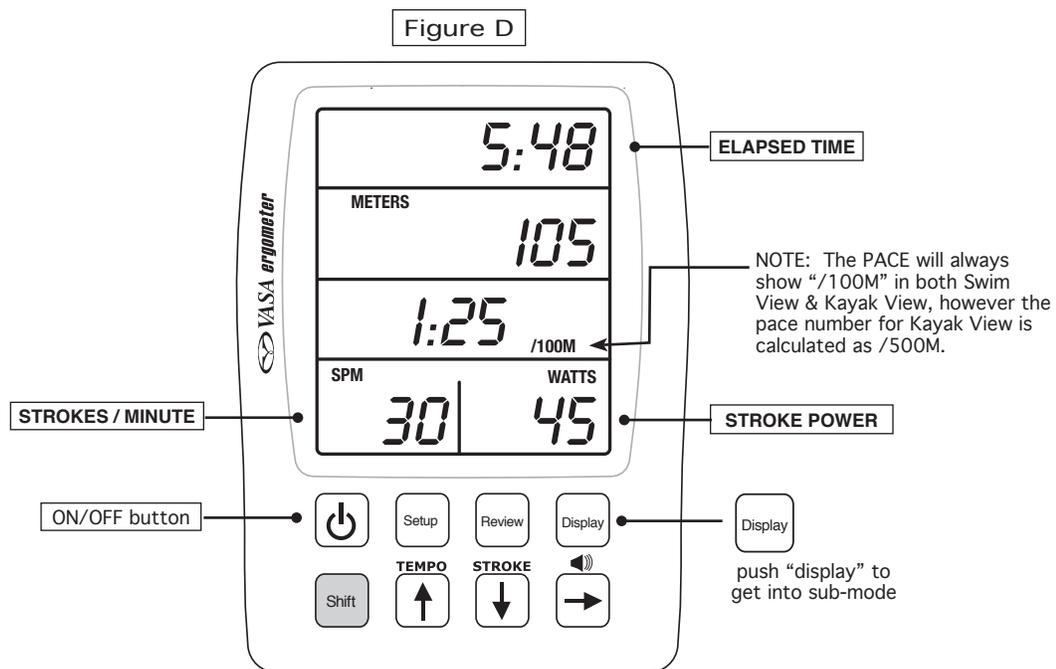
To get into STROKE MODE, press and hold the blue "Shift" button, then press and release the "Down Arrow" button (below "STROKE" - see Figure E). To return to BASIC MODE, press and hold the blue "Shift" button, then press and release the "Down Arrow" button.



BASIC MODE

Basic Mode has three sub-displays PACE, POWER, and CALORIES. These sub-displays give you more specific information about your pace, your average power and the calories burned. You can choose these sub-modes by pressing the "Display" button (Figure D) on the monitor keypad. Each time the Display button is pressed the display changes to the next mode. This can be done at any time without affecting the operation of the monitor.

The top and bottom fields will always display the same information in all of the three sub-displays. The two middle fields will change as you press the "Display" button. The top field is ELAPSED TIME, the bottom left field is STROKE RATE in strokes per minute, and the bottom right field is STROKE POWER (in watts) for the last stroke (Figure D).



NOTE: If the monitor senses the fan wheel is idol for 10 seconds, the monitor will "power down" and you will loose your workout data. If you choose to PRE-SET YOUR TIME or DISTANCE, the monitor will continue to retain data (see page 32 for full details).

BASIC MODE SUB-DISPLAYS (pace, power, calorie)

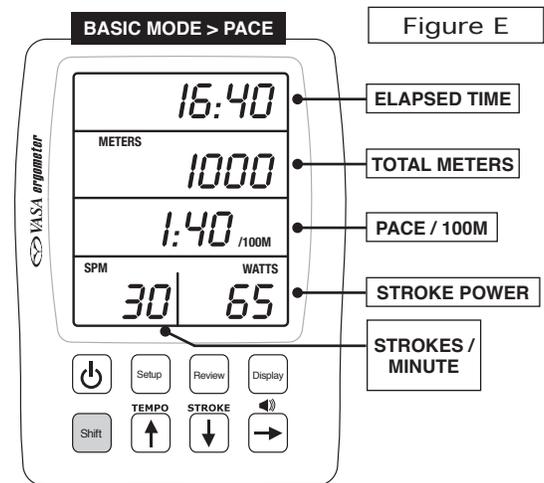
Note: In all of the sub-displays, the top, bottom left and bottom right fields always display the same information. Only the two middle fields will change as you press the "Display" button.

BASIC MODE > PACE (Figure E)

In the pace display, the fields are as follows:

- Top: ELAPSED TIME since start of workout
- Second: TOTAL METERS since start of workout
- Third: PACE per 100 METERS* for the last stroke (Swim)
- Bottom Right: STROKE POWER (watts) for the last stroke
- Bottom Left: STROKE RATE in strokes per minute

* IN KAYAK VIEW: the monitor will calculate PACE /500M even though it is denotes it as /100M on the screen.

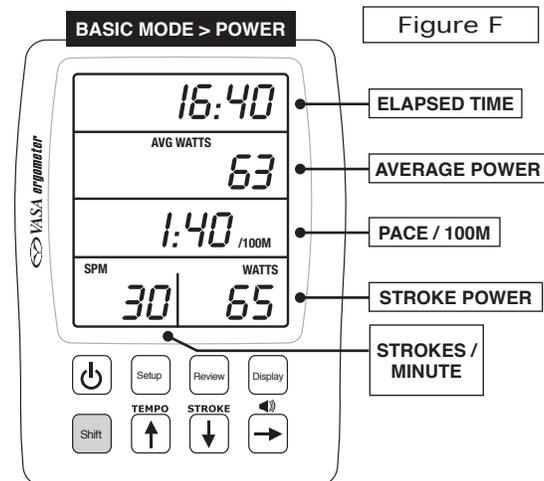


BASIC MODE > POWER (Figure F)

In the power display, the fields are as follows:

- Top: ELAPSED TIME since start of workout
- Second: AVERAGE POWER in watts since start
- Third: PACE per 100 METERS* for the last stroke
- Bottom Right: STROKE POWER (watts) for the last stroke
- Bottom Left: STROKE RATE in strokes per minute

* IN KAYAK VIEW: the monitor will calculate PACE /500M even though it is denotes it as /100M on the screen.

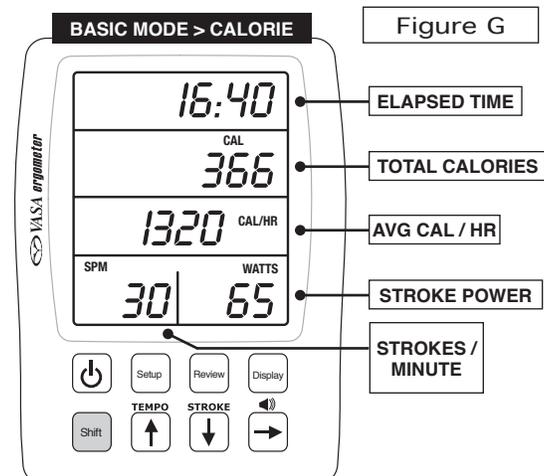


BASIC MODE > CALORIE (Figure G)

In the calorie display, the fields are as follows:

- Top: ELAPSED TIME since start of workout
- Second: TOTAL CALORIES since start of workout
- Third: AVG CAL / HOUR for the last stroke
- Bottom Right: STROKE POWER (watts) for the last stroke
- Bottom Left: STROKE RATE in strokes per minute

*For more information on meters and pace, see the end of this section.

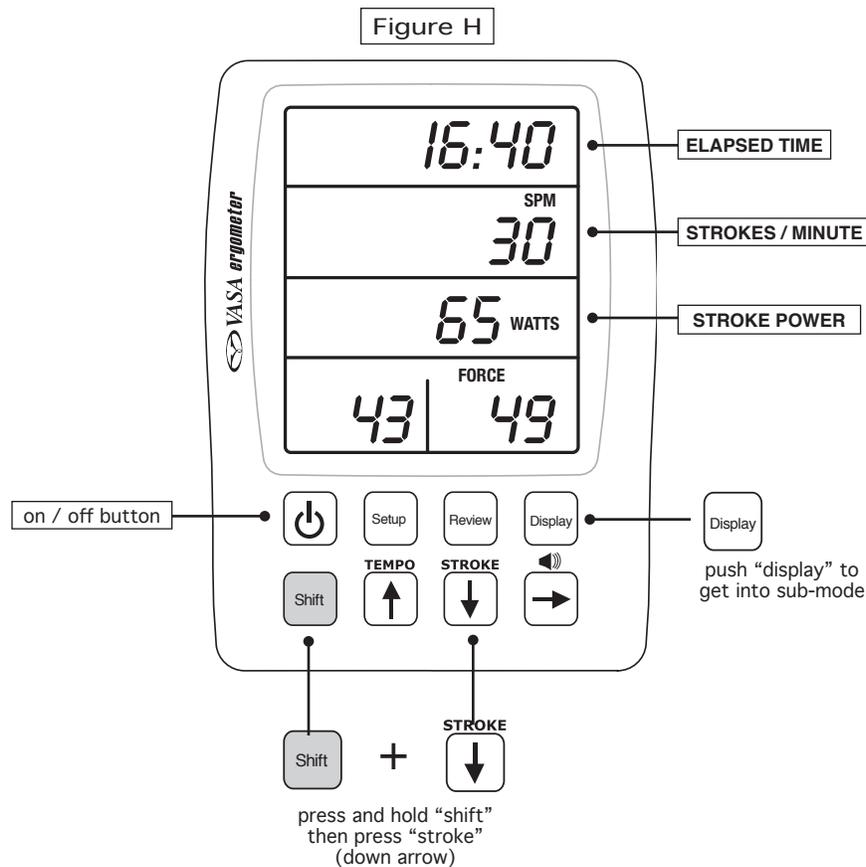


STROKE MODE

Stroke Mode gives you more specific information about each stroke, and shows information for the left and right strokes separately. To get into STROKE MODE, press and hold the blue "Shift" button, then press and release the "Stroke" (down arrow) button (Figure H).

Stroke Mode has three sub-displays: AVERAGE FORCE, MAXIMUM FORCE, and STROKE LENGTH. You can choose these sub-modes by pressing the "Display" button on the monitor keypad (make sure you are in stroke mode first - see above). Each time the Display button is pressed the display changes to the next mode. This can be done at any time without affecting the operation of the monitor.

When in Stroke Mode, the top three fields always display the same information (the bottom left and right fields will change as you press the "Display" button). The top field is the ELAPSED TIME since the start of exercise, the second field is the STROKE RATE in strokes per minute, and the third field is the STROKE POWER (in watts) for the last stroke (Figure H).



STROKE MODE SUB-DISPLAYS (average force, max force, stroke length)

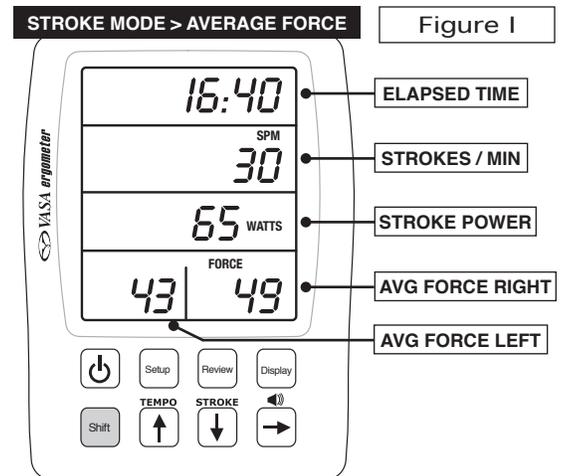
Note: In all of the stroke mode sub-displays, the top three fields always display the same information. Only the bottom left and right fields will change as you press the "Display" button.

STROKE MODE > AVERAGE FORCE (Figure I)

In the average force display, the fields are as follows:

- Top: ELAPSED TIME since start of workout
- Second: STROKE RATE in strokes per minute
- Third: STROKE POWER (watts) for the last stroke
- Bottom Right: AVERAGE FORCE¹ for right side
- Bottom Left: AVERAGE FORCE¹ for left side

¹AVERAGE FORCE: measures the force applied during the power portion of each stroke. The force is displayed in units of Newtons: (1 LB = 4.45 Newtons; 1 Newton = 0.225 LBs).

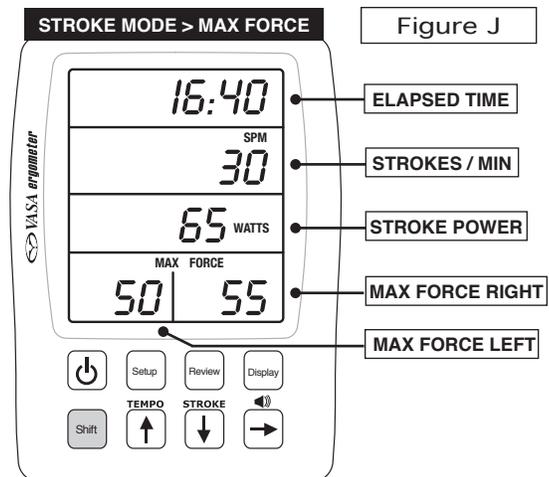


STROKE MODE > MAX FORCE (Figure J)

In the max force display, the fields are as follows:

- Top: ELAPSED TIME since start of workout
- Second: STROKE RATE in strokes per minute
- Third: STROKE POWER (watts) for the last stroke
- Bottom Right: MAX FORCE² for right side
- Bottom Left: MAX FORCE² for left side

²MAX FORCE: measures the maximum force applied at any instant during each stroke. The force is displayed in units of Newtons: (1 LB = 4.45 Newtons; 1 Newton = 0.225 LBs).

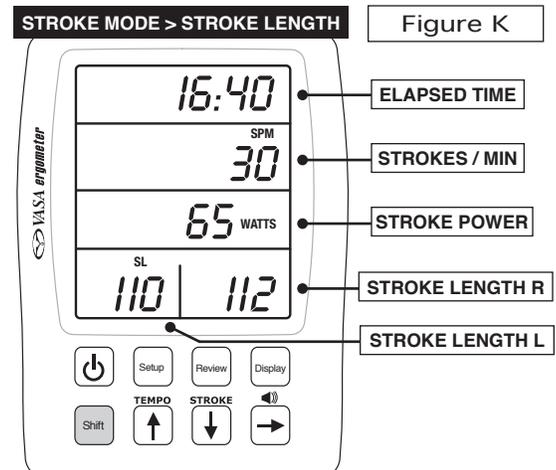


STROKE MODE > STROKE LENGTH (Figure K)

In the stroke length display, the fields are as follows:

- Top: ELAPSED TIME since start of workout
- Second: STROKE RATE in strokes per minute
- Third: STROKE POWER (watts) for the last stroke
- Bottom Right: STROKE LENGTH³ for right side
- Bottom Left: STROKE LENGTH³ for left side

³STROKE LENGTH is measured in centimeters.



VM MONITOR - SPECIAL FUNCTIONS

SETTING UP A PRE-SET WORKOUT DISTANCE

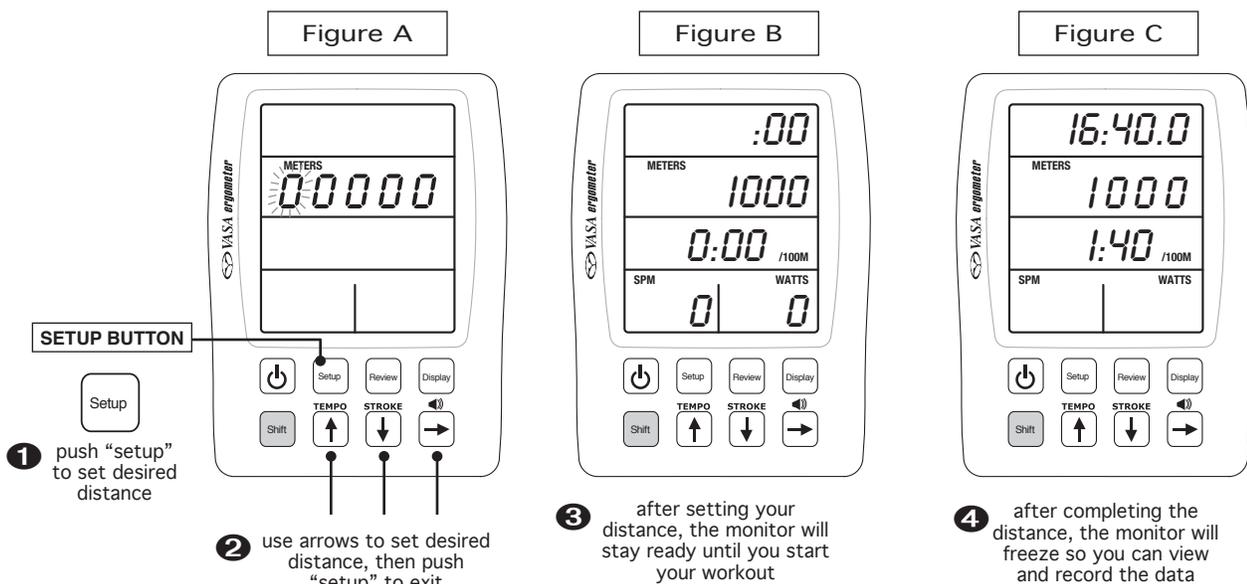
You can pre-set a distance (in meters) for your workout, and the VM monitor will countdown the distance and display the total time to achieve that distance.

To set the desired distance, push the "SETUP" button (you must be in BASIC MODE). The left most number will be flashing (Figure A). Use the up ↑ or down ↓ arrows to change the flashing number. To move to the next number, use the right → arrow.

Once you have set the desired distance, press "SETUP" to exit. The monitor will then wait until you begin your workout to start counting (Figure B).

When the pre-set distance is completed, the monitor will freeze so you can record the data (Figure C). (After 5 minutes of inactivity, the monitor will auto shut off.) To begin again or to reset the distance, press "SETUP" twice.

NOTE: The monitor will default to BASIC > Pace Mode. To change to BASIC > Calorie, or BASIC > Power, press the "Display" button.



USING THE MONITOR CLOCK FOR INTERVAL TRAINING, RACE SIMULATIONS AND TIMED PIECES

You can use the VM monitor to do interval training, race simulation and set distance workouts. Set your desired interval distance as described above. Immediately after you have completed the first set, press the setup button twice (the flywheel must still be spinning). You can then watch the clock for your desired recovery or rest period. When you are ready for the next set, press the setup button twice to begin timing your next interval. (Of course, you can always use your own watch or pace clock to time rest periods between intervals.)

SETTING UP WORKOUT INTERVALS: *preset distance or time with rest interval for interval training, race simulations and distance workouts*

You can use the VM monitor to do interval training, race simulation and pre-set distance workouts. You can pre-set a DISTANCE (in meters) or a TIME (in minutes/seconds) for your workout. For interval training you can pre-set a REST INTERVAL between your exercise intervals. The VM monitor will countdown the distance or time and rest intervals. When the workout is complete, the VM monitor will display the total time and distance covered. If you want to pre-set SPLITS and REVIEW each interval, see "Setting Split Times" and "Workout Review" on page 33.

INTERVAL TRAINING: *pre-set distance with rest interval*

❶ To set the desired distance, press the "SETUP" button. The first display will be DISTANCE (Figure A). With DISTANCE in the display (Figure A), use the up ↑ down ↓ and right → arrows to change the flashing number to the desired distance.

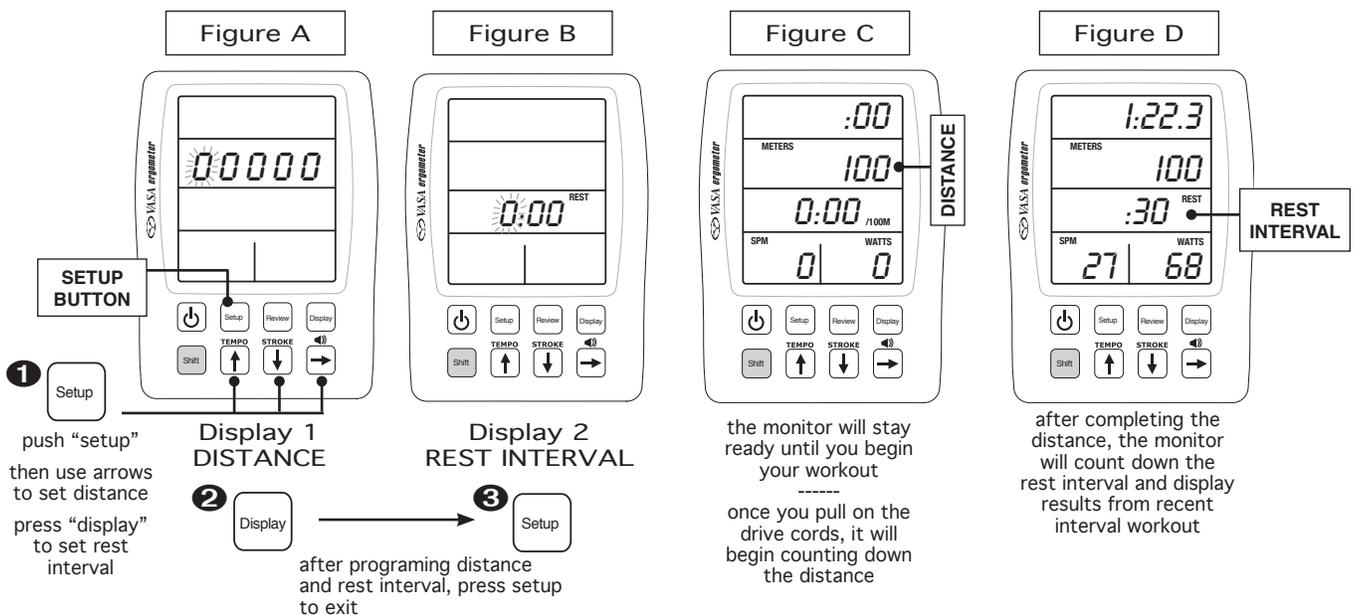
Note: you must be in BASIC MODE to program intervals. After pressing "SETUP", press "DISPLAY" to toggle between DISTANCE, REST TIME for distance intervals, TIME, and REST TIME for time intervals.

After setting the desired distance, ❷ press "DISPLAY" to set the REST interval. With REST in the display (Figure B), use the arrows to set the desired rest time. Once you have set the desired workout, ❸ press "SETUP" to exit.

As soon as you pull on the drive cords the monitor will start counting down the distance (Figure C). When the first distance interval is completed, the monitor will countdown the rest interval (Figure D). When the rest interval is complete, the monitor will stay ready for the next distance interval (Figure C).

When you have completed your workout, you can review all intervals by pressing "REVIEW" (see "Workout Review" on p. 35). Press the up/down arrows to see the next interval.

NOTE: To pre-set splits for your interval workout, see "Setting Split Times / Distances" on p. 35.



INTERVAL TRAINING: *pre-set time with rest interval*

❶ To set the desired time, press the "SETUP" button, then press "DISPLAY" (twice) until time is displayed in the top field (Figure A). Use the arrows to change the flashing number to the desired time.

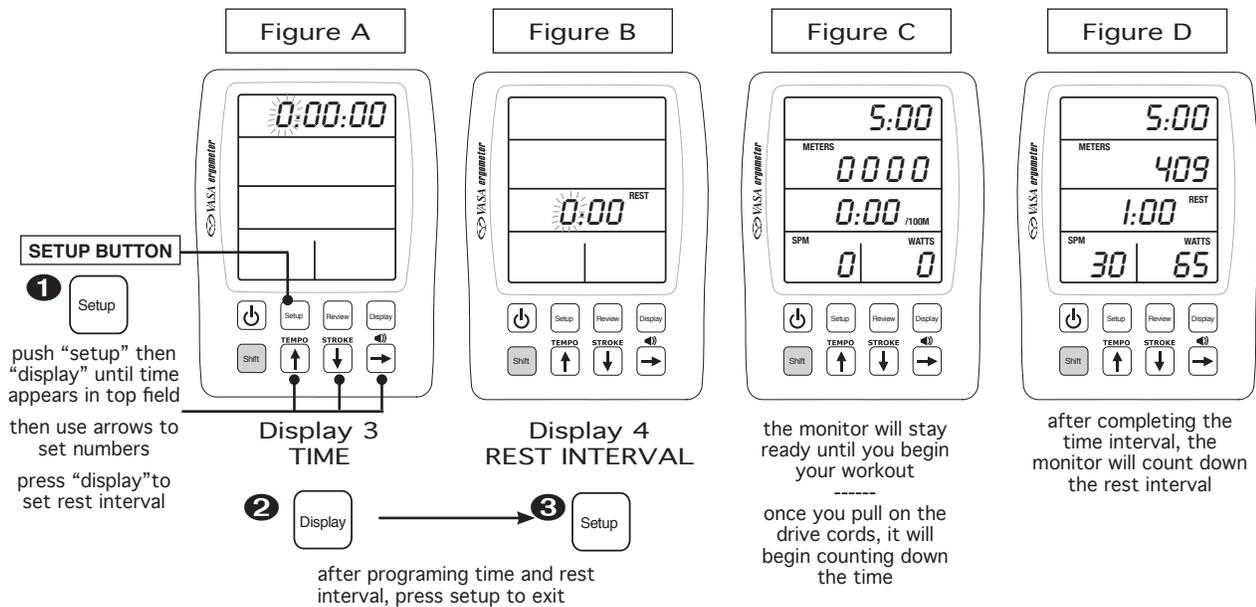
Note: you must be in BASIC MODE to program intervals. After pressing "SETUP", press "DISPLAY" to toggle between DISTANCE, REST TIME for distance intervals, TIME, and REST TIME for time intervals.

After setting the desired time, ❷ press "DISPLAY" (once) to set the REST interval. With REST in the display (Figure B), use the arrows to set the desired rest interval. Once you have set the desired workout, ❸ press "SETUP" to exit.

As soon as you pull on the drive cords the monitor will start counting down the time (Figure C). When the first interval is completed, the monitor will countdown the rest interval (Figure D). When the rest interval is complete, the monitor will stay ready for the next time interval (Figure C).

When you have completed your workout, you can review all intervals by pressing "REVIEW" (see "Workout Review" on p. 35). Press the up/down arrows to see the next interval.

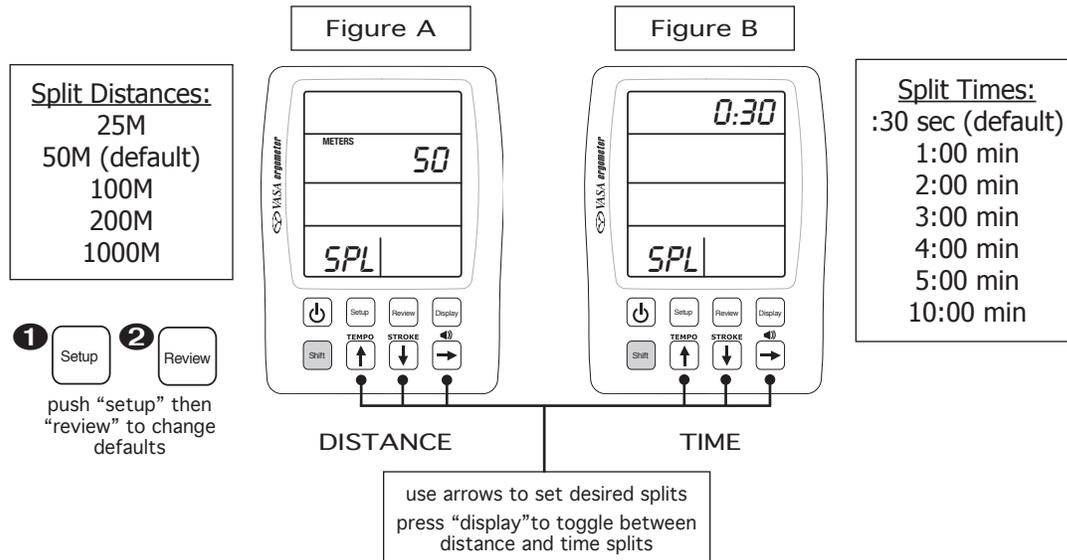
NOTE: To pre-set splits for your interval workout, see "Setting Split Times / Distances" on p. 35.



SETTING SPLIT TIMES / DISTANCES

Default split times are pre-set at 50 meters and 30 seconds. If want to change the defaults, press "SETUP" then "REVIEW". The distance split interval is shown first (Figure A). Press "DISPLAY" to show the time split interval (Figure B). Use the arrow buttons to select a different split interval.

NOTE: The split times will reset back to the defaults when the monitor is turned off.



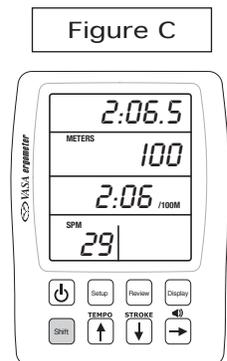
WORKOUT REVIEW

The VM Monitor contains a workout review feature that will store up to 20 splits +/- or intervals. After you complete your workout, the monitor will display (Figure C) your TIME, DISTANCE, AVERAGE PACE* and STROKES / MINUTE for the most recent interval.

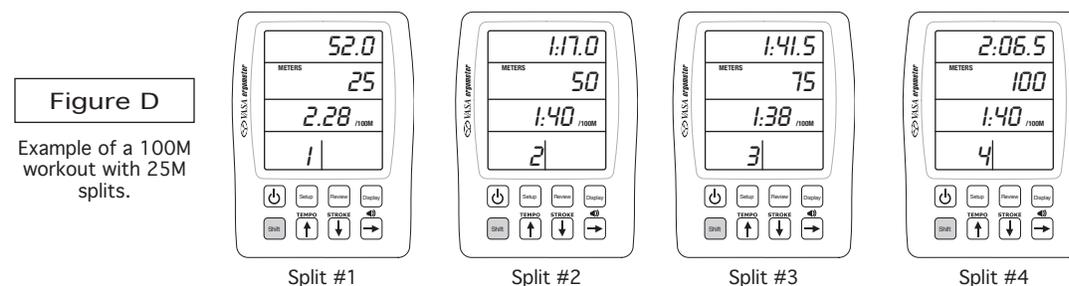
* Pace is dependent on which view (Swim vs. Kayak) you are in. Swim view will display pace /100M while Kayak view will display pace /500M

To review the information for each split, press the "REVIEW" button. To review next split, press the UP and DOWN arrows. The split information shown is (Figure D):

Top: TIME of the interval
Second: DISTANCE of the interval
Third: AVERAGE PACE / 100M (or /500M) for the interval
Bottom Left: INTERVAL number



Note: After 5 minutes of inactivity, the monitor will auto shut off and clear your workout data.



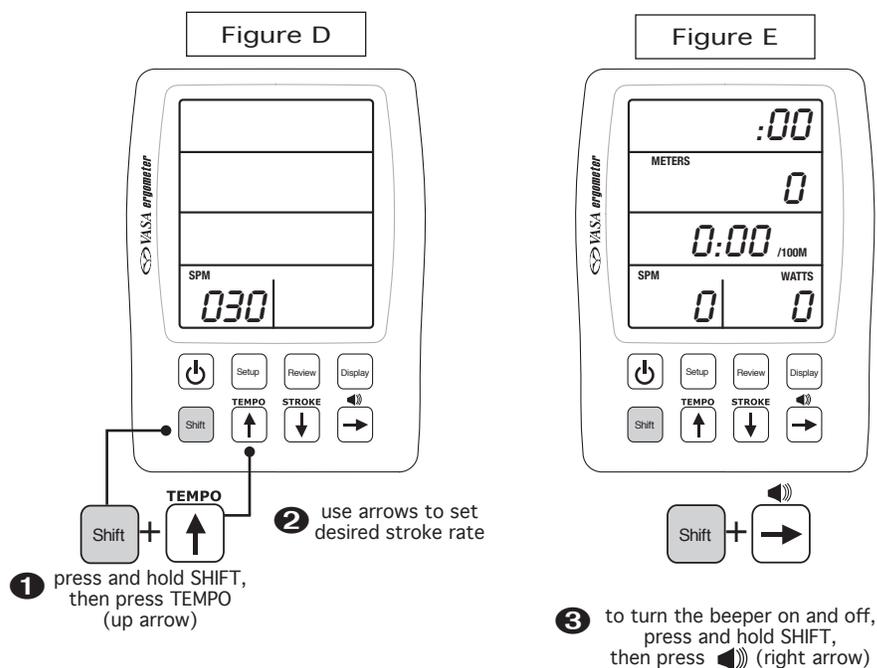
AUDIBLE STROKE RATE TEMPO BEEPER

The VM monitor contains an audible stroke rate tempo beeper, which allows you to set a desired stroke rate (strokes per minute) and keep pace by listening to the beeper tone tempo.

To set the tempo beeper, press and hold "SHIFT", then press "TEMPO" (up arrow ↑) (Figure D). Set the desired stroke rate per minute using the up ↑, down ↓ and right → arrow keys. To exit, press and hold "SHIFT", then press "TEMPO" (up arrow ↑).

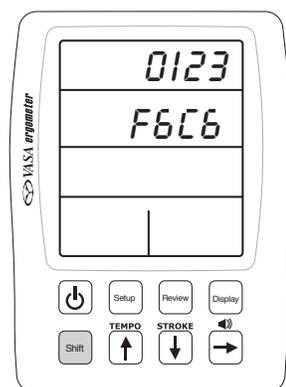
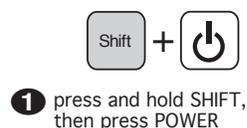
The VM monitor will beep every cycle, according to the STROKE RATE (SPM) you set. To turn the beeper sound off, press and hold "SHIFT", then press the horn button 📣 (right arrow →) (Figure E).

The beeper will automatically turn off when the VM is turned off.



SOFTWARE VERSION

You can display the software version of your monitor to check if you have the most current version of the software. While the power is OFF, press and hold "SHIFT", then press "POWER". All LCD segments will display for a moment, then the version number will be displayed in the top field.



BATTERY REPLACEMENT

The batteries in your Vasa Ergometer Monitor should last about 600 hours. When you see "LOW CELLS" in the top two fields of your monitor, the batteries should be changed.

To change the batteries, open the battery compartment on the back of the monitor (Figure A). The monitor takes two "AA" batteries (alkaline are fine).

IMPORTANT: PLEASE REMOVE THE BATTERIES from the monitor if it will not be used for 3+ months.

BATTERY SAVE FEATURE

There is a 5 minute timeout feature on your monitor. If there is no "activity" the monitor will power down after 5 minutes ("activity" includes inputs from pulling on the drive cord, pushing buttons, or serial communications with a computer). Any workout information will be cleared from the memory as soon as the monitor shuts off.

RE-ZERO MONITOR ONCE CONNECTED TO CABLES

You should RE-ZERO the monitor every time the monitor is reconnected to the connection cables (i.e. batteries replaced, removed from machine, etc.). To RE-ZERO (calibrate) the monitor, please follow these simple steps:

1. Plug in the cables to the monitor and make sure they are seated correctly into the jacks;
2. Next, turn the monitor OFF until you hear a short "beep";
3. Next, turn the monitor ON by pressing the ON/OFF button. DO NOT PULL on the cords.
4. Next, turn the monitor OFF again (wait for short "beep").
5. The monitor is ready to use. You may start by pressing ON/OFF or just exercising.

REMOVING THE MONITOR

It is NOT recommended that you remove the monitor from the Vasa Ergometer on a regular basis. If you need to remove the monitor, it is suggested that you remove the batteries. When you reconnect the monitor make sure to follow the RE-ZERO procedures stated above.

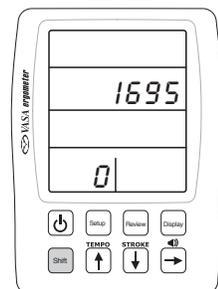
NOTE: Prior to disconnecting the connection cables, power the monitor OFF and wait for the delayed "beep" to ensure the computer has properly shut down. Disconnecting prior to this can cause the monitor to display irregular data.

ODOMETER

The odometer function allows you to track total swim distance, total kayak distance, time in seconds and left and right arm strokes on your Vasa Ergometer.

To display the odometer, press and hold "SHIFT", then press "DISPLAY". Use the "DISPLAY" button to cycle through the various totals:

- Display #0 Total SWIM METERS
- Display #1 Total KAYAK METERS
- Display #2 Total SECONDS IN OPERATION
- Display #3 Total STROKES / LEFT SIDE
- Display #4 Total STROKES / RIGHT SIDE
- Display #5 Total TACKS # LEFT (*Vasa use only*)
- Display #6 Total TACKS # RIGHT (*Vasa use only*)



Press and hold SHIFT and DISPLAY to activate the odometer. Then cycle through all totals by pressing DISPLAY.



METERS AND PACE CALCULATIONS IN THE MONITOR

The Vasa Ergometer Monitor simulates the performance of the athlete by measuring the force (many times per second) during a stroke and powering a model through the water using that information. During each increment the monitor calculates the distance covered (swimmer/kayaker depending on which mode you are in) in that increment and adds that to the total distance. The METERS display field shows that total distance. The monitor also keeps track of the distance and time at the start of each stroke and uses this information to calculate the average pace during that stroke. Pace is displayed in the /100M field within Swim View and /500M within Kayak View.

NOTE: Pace and distance accumulated are calculated to approximate the pace and distance. For swimmers it is calculated without a start or turns, while "pulling" with a pullbuoy (similar to open water swimming).

DEFINITION OF STROKE

The Vasa Ergometer Monitor defines a "stroke" as the completion of one arm/paddle cycle.

ALTERNATING ARM STROKES (freestyle, nordic single poling, surf paddling, kayak/canoe paddling). One stroke would be the complete of one cycle of both the left and right arms. The monitor will start collecting data on whichever side you start the first pull (left or right).



SIMULTANEOUS ARM STROKES (butterfly, breaststroke, nordic double poling)
One stroke would be the completion of one cycle, from entry through recovery with both arms



NOTE: If you change the type of stroke during a workout (from double arm to alternating arms, or vice versa), the monitor will auto detect the change and adjust the stroke data within 2 or 3 stroke cycles.

MONITOR - SUMMARY OF FUNCTIONS

AUTO START: As soon as you pull on the drive cords, the monitor will automatically turn on and begin monitoring your performance. It will automatically enter Basic Mode > Pace (see chart below). You can reset the monitor using the ON/OFF button.

IMPORTANT: PLEASE REMOVE THE BATTERIES from the monitor if it will not be used for 3+ months.

VIEWING OPTIONS: SWIM vs. KAYAK (p. 26): SWIM VIEW is the default viewing mode. If you are in KAYAK VIEW there will be a "K" in the upper left corner of the top screen. No notation is displayed while in SWIM VIEW. If you wish to change to the KAYAK VIEW follow the steps listed on page 26.

**PLEASE NOTE: Pace is relevant to the view: SWIM VIEW= pace/100M while KAYAK VIEW= pace/500M.*

BASIC MODE (p. 28): Basic Mode has three sub-displays: PACE*, POWER, and CALORIES. Choose sub-modes by pressing the "Display" button.

BASIC MODE			
VM Field:	BASIC > PACE	BASIC > POWER	BASIC > CALORIE
TOP	ELAPSED TIME since start	ELAPSED TIME since start	ELAPSED TIME since start
SECOND	TOTAL METERS since start	AVERAGE POWER since start	TOTAL CALORIES since start
THIRD	PACE /100M* for last stroke	PACE / 100M* for last stroke	AVG CAL / HOUR for last stroke
BOTTOM Right	POWER (watts) for last stroke	POWER (watts) for last stroke	POWER (watts) for last stroke
BOTTOM Left	STROKE RATE in strokes / min	STROKE RATE in strokes / min	STROKE RATE in strokes / min

STROKE MODE (p. 30): To get into STROKE MODE, press and hold the blue "Shift" button, then press and release the "Down Arrow" button. Stroke Mode has three sub-displays: AVERAGE FORCE, MAXIMUM FORCE, and STROKE LENGTH. Choose sub-modes by pressing the "Display" button.

STROKE MODE			
VM Field:	STROKE > AVG FORCE	STROKE > MAX FORCE	STROKE > STROKE LENGTH
TOP	ELAPSED TIME since start	ELAPSED TIME since start	ELAPSED TIME since start
SECOND	STROKE RATE in strokes / min	STROKE RATE in strokes / min	STROKE RATE in strokes / min
THIRD	POWER (watts) for last stroke	POWER (watts) for last stroke	POWER (watts) for last stroke
BOTTOM Right	AVG FORCE for right side	MAX FORCE for right side	STROKE LENGTH for right side
BOTTOM Left	AVG FORCE for left side	MAX FORCE for left side	STROKE LENGTH for left side

INTERVAL TRAINING (p. 32): To pre-set a desired distance, time, and rest interval push the "SETUP" button (you must be in BASIC MODE). Pressing "DISPLAY" will toggle between DISTANCE, REST TIME for distance intervals, TIME, and REST TIME for time intervals. Use the arrows to change the flashing number. Once you have set the desired workout press "SETUP" to exit.

SETTING SPLIT TIMES / DISTANCE (p. 35): Default split times are pre-set at 50m and 30 sec. If want to change the defaults, press "SETUP" then "REVIEW" (Figure C). Use the arrow buttons to change the defaults. Press "DISPLAY" to toggle between DISTANCE splits and TIME splits.

WORKOUT REVIEW (p. 35): The VM Monitor contains a workout review feature that will store up to 20 splits. After you complete your workout, the monitor will freeze. To review the information for each split, press the "REVIEW" button. Then, to review each split, press the UP and DOWN arrows.

AUDIBLE STROKE RATE TEMPO COUNTER (p. 36): To set the tempo beeper, press and hold "SHIFT", then press "TEMPO" (up arrow ↑). Set the desired STROKE RATE (SPM) using the arrow keys. To exit, press and hold "SHIFT", then press "TEMPO".

RE-ZERO MONITOR (p. 36): RE-ZERO the monitor if the connection cables have been disconnected for any reason. Connect cables, turn POWER OFF and wait for delayed beep. Turn POWER ON (do not pull on cords). Power back OFF and wait for delayed beep. Complete and ready for use.