

### IT ALL STARTS WITH A VISION

# S7100 SUSPENSION ELLIPTICAL SERVICE MANUAL

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## CHAPTER 1: SERIAL NUMBER LOCATION

**1.1 SERIAL NUMBER LOCATION** 



#### 2.1 BEFORE GETTING STARTED

To ensure your safety and protect the equipment, read all instructions before operating the Vision S7100 suspension elliptical.

### ASSEMBLY

It is recommended, when possible that an authorized Vision Fitness retailer assemble your suspension elliptical. If you have elected to assemble this product yourself, for your safety, please read and follow each of the steps in the enclosed assembly instructions. If you have any questions regarding any component or function of the suspension elliptical, contact your retailer or Vision Fitness directly.

### MOVING

Your Vision S7100 suspension elliptical has transport wheels included for ease of mobility. To move, firmly grasp the rear of the frame assembly. Carefully lift and roll on the transport wheels.

CAUTION: The Vision S7100 suspension elliptical is well built and heavy, weighing up to 300 pounds. Use care and additional help if necessary.



#### 2.2 READ AND SAVE THESE INSTRUCTIONS

To ensure your safety and protect the equipment, read all instructions before operating the Vision S7100 suspension elliptical

To ensure proper use and safety of the suspension elliptical, make sure that all users read the owner's manual. Remind the users that before undertaking any fitness program, they should obtain complete physical examinations from their physicians. If, at any time while exercising, the user experiences dizziness, pain, or shortness of breath, nausea or feels faint, he or she must stop immediately.

\* Use this exercise product for its intended use as described in the Owner's Manual. Only use attachments recommended by the manufacturer.

\* Never drop or insert any object into any opening.

\* Do not remove the suspension elliptical side covers. Service should be performed only by an authorized Vision Fitness retailer.

\* Never operate the suspension elliptical if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or immersed in water.

- \* Keep the cord away from heated surfaces.
- \* Do not use outdoors.

 $^{\ast}\,$  To disconnect, turn the switch to the OFF position and remove the plug from the outlet.

\* Only use the power cord provided with the suspension elliptical.

\* Never place the power cord under carpeting or place any object on top of the power cord that may pinch and damage it.

\* Unplug the suspension elliptical when not in use and before moving it.

\* Keep children off the suspension elliptical at all times.

\* When the suspension elliptical is in use, young children and pets should be kept at least 10 feet away.

\* Clean only with mild soap and a slightly damp cloth, never use solvents.

\* Do not wear loose clothing that might catch on any part of the suspension elliptical.

CAUTION! If you experience chest pains, nausea, dizziness, or shortness of breath, stop exercising immediately and consult your physician before continuing.

CAUTION! Any changes of modifications to this equipment could void the product warranty.

#### 2.3 ELECTRICAL REQUIREMENTS

### POWER REQUIREMENTS

This product is for use on a nominal 120 volt circuit, and has a grounding plug that looks like the plug illustrated below. An improper connection of the equipment grounding conductor can result in a risk of an electrical shock. Do not modify the plug that was provided with the product. If this plug does not fit into your outlet, have a qualified electrician install the proper outlet. Adaptors, extension cords, and surge protectors should not be used with this product.



### **CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS**

#### 2.3 ELECTRICAL REQUIREMENTS - CONTINUED

### TURNING THE UNIT OFF AND ON

Use the power switch on the front of the unit to turn the machine OFF and ON (Figure A). It is recommended to turn the machine off when not in use. NOTE: You can also turn the power off at the console (Figure B), but turning the console power off will not completely turn the power off to the lower section of the unit for service purposes. If power issues are present, both switches must be in the off position before removing side covers.



**FIGURE A** 



**FIGURE B** 

### **CHAPTER 3: PREVENTATIVE MAINTENANCE**

#### **3.1 RECOMMENDED CLEANING TIPS**

Preventative maintenance and daily cleaning will prolong the life and look of your Vision S7100 suspension elliptical

Please read and follow these tips.

- Position the equipment away from direct sunlight. The intense UV light can cause discoloration of plastics.
- Locate your equipment in an area with cool temperatures and low humidity.
- Clean with a soft 100% cotton cloth.
- Clean with soap and water or other non-ammonia based all purpose cleaners.
- Wipe the pedals, console, heart rate grips, and handlebars clean after each use.
- Do not pour liquids directly onto your equipment. This can cause damage to the equipment and in some cases electrocution.
- · Adjust the leveling feet when equipment wobbles or rocks.
- Maintain a clean area around the equipment, free from dust and dirt.

#### 3.2 CHECK FOR DAMAGED PARTS

**DO NOT** use any equipment that is damaged or has worn or broken parts. Use only replacement parts supplied by Vision Fitness.

**MAINTAIN LABELS AND NAMEPLATES.** Do not remove labels for any reason. They contain important information. If unreadable or missing, contact Vision Fitness for a replacement at 800-335-4348 or www.visionfitness.com.

**MAINTAIN ALL EQUIPMENT.** Preventative maintenance is the key to smoothly operating equipment. Equipment needs to be inspected at regular intervals. Defective components must be kept out of use until they are repaired. Ensure that any person(s) making adjustments or performing maintenance or repair of any kind is qualified to do so. Vision Fitness will provide service and maintenance training at our corporate facility upon request or in the field if proper arrangements are made.

### **CHAPTER 3: PREVENTATIVE MAINTENANCE**

#### **3.3 CARE AND MAINTENANCE INSTRUCTIONS**

In order to maximize life span, and minimize down time, all Vision Fitness equipment requires regular cleaning, and maintenance items performed on a scheduled basis. This section contains detailed instructions on how to perform these items and the frequency of which they should be done. Some basic tools and supplies will be necessary to perform these tasks which include (but may not be limited to):

- \* Metric Allen wrenches
- \* #2 Phillips head screwdriver
- \* Adjustable wrench
- \* Torque wrench (capability to read foot lbs and inch lbs)
- \* Lint free cleaning cloths

\* Teflon based spray lubricant such as "Super Lube" or other Vision Fitness approved products.

\* Mild water soluble detergent such as "Simple Green" or other Vision Fitness approved products

\* Vacuum cleaner with an extendable hose and crevasse tool attachment.

You may periodically see addendums to this document, as the Vision Fitness Technical Support Team identifies items that require specific attention, the latest version will always be available on the Vision web site at www.visionfitness.com.

### DAILY MAINTENANCE ITEMS

1) Look and listen for loose fasteners, unusual noises, and any other indications that the equipment may be in need of service.

2) Clean the suspension elliptical before and after each use, including:

a. Use a damp, soft cloth with water or mild liquid detergent to clean all exposed surfaces. DO NOT use ammonia, chlorine, or any acid based cleaners.

b. Keep the console display free of fingerprints and salt build up caused by sweat.

c. Frequently vacuum the floor beneath the unit to prevent the accumulation of dust and dirt which can affect the smooth operation of the unit.

### MONTHLY MAINTENANCE ITEMS

1) Inspect the console, handrails, suspension arms, pedal arms, and pedals for damage.

2) Check the suspension / pedal arms for loose joints, tighten hardware as needed.

- 3) Check pedal motion and stability.
- 4) Adjust the leveling feet if the equipment rocks or wobbles.
- 5) Inspect the power cord for damage.

### QUARTERLY MAINTENANCE ITEMS

1) Remove the front shrouds and check belts for damage, alignment, and proper tension.

### **CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION**

#### 4.1 CONSOLE DESCRIPTION - DELUXE CONSOLE



#### A. ENTER KEY:

Press the ENTER key to begin a workout or to confirm a workout parameter.

#### B. INCLINE ARROW KEYS:

During a workout, pressing the INCLINE UP or DOWN ARROW keys can adjust the incline level.

#### C. PROFILE DISPLAY

During a workout, this window displays shapes, made of square columns of light, which represent the levels of intensity in a workout in progress. The height of the column is proportional to the current level of the intensity. This window also displays incline level, watts, distance, resistance level, calories, workout time, HR, and METS.

#### D. RESISTANCE ARROW KEYS:

During a workout, pressing the RESISTANCE UP or DOWN ARROW keys can adjust the resistance level.

#### E. START / PAUSE / HOLD TO RESET:

Press the START key to begin your workout immediately. Pressing the START key during a workout will pause the console. Holding the START key during a workout will reset the console.

### **CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION**

#### 4.2 CONSOLE DESCRIPTION - PREMIER CONSOLE



#### A. PROGRAM KEYS:

Press one of the PROGRAM keys to select a program. To scroll through the program options, use the RESISTANCE ARROW or LEVEL ARROW keys.

#### B. ENTER KEY:

Press the ENTER key to begin a workout or to confirm a workout parameter.

#### C. INCLINE ARROW KEYS:

During a workout, pressing the INCLINE UP or DOWN ARROW keys can adjust the incline level.

#### D. MESSAGE / FEEDBACK WINDOWS

During a workout, this window shows 3 sets of numbers: strides per minute, time, and HR.

#### E. PROFILE DISPLAY

During a workout, this window displays shapes, made of square columns of light, which represent the levels of intensity in a workout in progress. The height of the column is proportional to the current level of the intensity. This window also displays incline level, watts, distance, resistance level, calories, and METS.

#### F. RESISTANCE ARROW KEYS:

During a workout, pressing the RESISTANCE UP or DOWN ARROW keys can adjust the resistance level.

#### G. START / PAUSE / HOLD TO RESET:

Press the START key to begin your workout immediately. Pressing the START key during a workout will pause the console. Holding the START key during a workout will reset the console.

#### 4.3 PROGRAM OVERVIEW

PROGRAM NAME	DESCRIPTION		
QUICK START	Quick Start is the fastest way to begin exercising and bypasses the setup prompts. After pressing the START key, a constant level workout begins. NOTE: Because you did not go through the setup mode, the computer will use default values to calculate your feedback information.		
MANUAL	Manual is a workout in which the resistance or incline levels do not change unless you change them.		
SPRINT 8	The Sprint 8 program is designed to increase the release of Human Growth Hormone (HGH) in your body. Producing HGH through exercise and a proper diet has been shown as an effective way to burn fat and build lean muscle mass. The program features intense sprint intervals followed by recovery intervals.		
INTERVALS	Intervals is an efficient workout that alternates work intervals and recovery intervals.		
FAT BURN	Fat Burn is a program designed to target your stored body fat. This program is generally used at a slightly lower resistance level but runs for longer durations than other programs.		
RANDOM	Random is a workout of constantly changing intensity levels that occur in no regular pattern or progression.		
WATTS	Watts is a program that lets the user exercise at a set work level. As you increase your RPM, your resistance level will decrease. As you decrease your RPM, your resistance level will increase.		
GLUTE BURN	The Glute Burn program contains eight 45 second sets of increased muscular effort. These sets focus effort on the hamstring and glutes by utilizing muscle targeting incline angles and increased resistance.		
CALF TONER	The Calf Toner program utilizes eight 45 seconds sets of increased resistance along with direction changes to place emphasis on the muscles in the lower leg. Standing on the balls of the feet during these sets is an effective way to further recruit these lower leg muscles.		
QUAD TONER	The Quad Toner program utilizes eight 45 second sets of increased resistance and incline changes while simultaneously burning calories and working the cardiovascular system. This combination of strength and aerobic exercise will lead to more eye catching and defined legs.		
TOTAL BODY	The Total Body program has eight 45 second sets that use changes in body position, resistance, and incline to target all the muscle groups in your body. This program is great for overall strength and conditioning.		
TARGET HRT	The Target HRT program is designed to maintain your heart rate at 70% of your predicted maximum heart rate. It is intended to improve efficiency and endurance of your cardiovascular system by working your heart, lungs, and circulatory systems. This is a great workout for anyone, but beginners may want to start lower and build their way up to 70% of their predicted maximum heart rate.		
HRT HILL	The HRT Hill program uses four different Target Heart Rates to build cardiovascular strength and endurance. The resistance will adjust until your heart rate reaches the target heart rate for four separate hills. The hills will be set at 65%, 70%, 75%, and 80% of your predicted maximum heart rate.		
HRT INTERVAL	HRT Interval alternates between effort intervals of 80% and 70% of your predicted maximum heart rate. This program is designed to increase your cardiovascular fitness capacity.		
SUMMIT HIKE	Summit Hike is a variable incline program that adds variety and targets your muscles from different angles.		
CUSTOM 1-5	Custom allows you to preset up to 5 workout programs by setting the resistance and profile of each segment in the program. You have the ability to save or change the workouts whenever you wish. Custom will save your resistance and incline changes throughout the program. Every 30 seconds your settings will be saved to provide an identical program for your next exercise session.		

### **CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION**

#### 4.4 USING THE PROGRAMS

### SELECTING QUICK START

The easiest way to begin exercising is to simply press the START key. You will begin exercising in a Manual program in which you can change the resistance and incline levels to meet your goals. Current default settings will be used to determine exercise feedback.



### **SELECTING A PROGRAM**

There are five program keys. SPRINT 8 is a stand alone key and the other program keys have multiple programs. To view the program option within each key, press the key multiple times, or use the arrow keys after your initial press. Press ENTER to select.



### **ENTERING AGE**

When prompted by the message center to enter your age, use the RESISTANCE UP and DOWN ARROW keys to adjust the displayed age to the correct value. This information is necessary for the HRT programs and will affect your Max Heart Rate % feedback.



### **CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION**

#### 4.4 USING THE PROGRAMS - CONTINUED

### **ENTERING TIME**

When prompted by the message center to enter a time, use the RESISTANCE UP and DOWN ARROW keys to adjust the displayed exercise time to a desired value.



### ENTERING RESISTANCE LEVEL

When prompted by the message center to enter resistance level, use the RESISTANCE UP and DOWN ARROW keys to adjust the displayed resistance level. There are 20 levels of resistance to choose from in each program. The resistance level varies by program.

The WATTS program will ask you to set the desired WATT level instead of resistance levels. The WATT level will range from 40 to 250 in increments of five.

The TARGET HRT, HRT HILL, and HRT INTERVAL programs will set your Target Heart Rate in the place of resistance level.

### **ENTERING WEIGHT**

When prompted by the message center to enter weight, use the RESISTANCE UP and DOWN ARROW keys to adjust the displayed weight to equal your current body weight. This information is necessary to give accurate exercise feedback for calorie and MET calculations.





#### STARTING

Press START to begin your workout.

### **CHAPTER 5: ENGINEERING MODE**

#### 5.1 USING ENGINEERING MODE

The Engineering Mode consists of optional settings and information used by service technicians to assure your product is working in proper order. There are also several default settings that allow you to customize the suspension elliptical to fit your needs.

1) To enter Engineering Mode, press and hold down the RESISTANCE ARROW keys. Continue to hold down these two keys until the display reads P1 Set Max Time.

2) To scroll through the list of options in Engineering Mode, use the INCLINE or RESISTANCE ARROW keys. Each of the custom settings will show on the display.

3) To select a custom setting, press the ENTER key when the appropriate setting is shown.

4) To change the value of the setting, use the INCLINE or RESISTANCE ARROW keys.

5) To confirm and save the value of the setting, press the ENTER key. SAVED will appear on the display. To exit the setting without saving or to exit once the value is saved, press and hold the START key.

6) Press and hold the START key to return to exit Engineering Mode and return to normal function.

### CHAPTER 5: ENGINEERING MODE

#### 5.2 ENGINEERING MODE OVERVIEW

	CUSTOM SETTINGS	MINIMUM	MAXIMUM	UNIT	DESCRIPTION
P1	SET MAX TIME	20	99	MINUTE	Maximum workout duration.
P2	SET USER TIME	10	99	MINUTE	Default start time in all programs.
P3	SET USER AGE	10	100	YEARS	Default age used in all programs.
P4	SET WEIGHT	80	300	POUNDS	Default weight used in all programs.
P5	DEFAULT RESISTANCE LEVEL	1	20	N/A	Default resistance level used in all programs.
P6	DEFAULT INCLINE LEVEL	1	20	N/A	Default incline level used in all programs.
P7	DEFAULT LANGUAGE	ENGLISH	ENGLISH	N/A	The native language prompts in the display.
P8	UNIT	MILE	KILOMETER	N/A	Determines what unit of measurement to use for distance.
P9	ACCUMULATED DATA	N/A	N/A	N/A	This option shows the total amount of accumulated distance and time, not editable
P10	DISPLAY TEST	N/A	N/A	N/A	This option allows you to test the display LEDs for function. Press the ENTER key to test the center column. Press the INCLINE ARROW keys to test the dot / dashes. Press the RESISTANCE ARROW keys to test the numbers.
P11	HARDWARE TEST	N/A	N/A	N/A	This option allows you to test the resistance, speed, and HR. Press the RESISTANCE ARROW keys to test the resistance. Pedal the unit to test the speed. Use the HR grips or a HR strap to test the HR function.
P12	INCLINE RESET	N/A	N/A	N/A	Determines if the incline setting resets between users.
P13	INCLINE CALIBRATION	N/A	544	N/A	This option calibrates the incline motor.
P14	ADJUST INCLINE	33	544	N/A	This option adjusts the incline values (maximum & minimum).
P15	BEEPER MODE	ON	OFF	N/A	This option allows you to turn the beep from button depression off or on.
P16	SAFETY MODE	ON	OFF	N/A	This option will default the ECB resistance level to maximum between users as a safety precaution.
P17	VERSION	N/A	N/A	N/A	This option will give you the software version, not editable.

6.1 ELECTRICAL DIAGRAMS



#### **6.1 ELECTRICAL DIAGRAMS**



#### 6.2 TROUBLESHOOTING - GENERAL NOTES

### **GENERAL NOTES**

#### 1) You must be moving (rotating the crank) to elevate the ramp.

- 2) To get to the ECB, you will need to take the left side crank and side cover off.
- 3) To get to the Lower Control Board, you will need to take the right side crank and side cover off.
- 4) Use a 22 mm crank puller to remove the bike cranks.
- 5) This product has 2 power switches. If there are power issues, first check to make sure both switches are in the on position.

CAUTION: When servicing this machine, be careful not to touch live power cables or connectors. This product uses 110 power, not the typical 12 volt power.

	General Torque specifications to use when no specification has been set for socket head cap screws.					
	Use this one for general cases and for button head screws.	Use this one only if you can prove the fastener will be grade 10.9 or higher.	Use this one only if you can prove the fastener will be grade 12.9.			
	Grade 8.8	Grade 10.9	Grade 12.9 Nominal Use	Grade 12.9 Critical Use		
M4	3 N-m	4 N-m	5 N-m	6 N-m		
M5	6 N-m	8 N-m	10 N-m	12 N-m		
M6	10 N-m	13 N-m	16 N-m	20 N-m		
M8	23 N-m	33 N-m	39 N-m	50 N-m		
M10	46 N-m	65 N-m	77 N-m	94 N-m		
M12	80 N-m	113 N-m	135 N-m	160 N-m		

#### **6.3 TROUBLESHOOTING - CONSOLE ISSUES**

### NO POWER TO CONSOLE

- 1) Check to make sure the unit has power to the outlet and that both power switches are turned on.
- 2) Check the breaker near the lower power switch.
- 3) Remove the console and make sure that the console cable is connected properly.
- 4) Remove the front e-port plate and check the wire connections at the front switch, breaker, and outlet, replace as needed.

5) Remove the right side crank and side cover and check for lights on the lower control board (LED DC1) to make sure power is going to the board.

- 6) Check the fuse on the lower control board.
- 7) If there is power to the lower control board, and the fuse is undamaged, replace the console cable.
- 8) If the issue is still present after a new console cable is installed, replace the console.

### **CONSOLE RESETS AFTER 5 MINUTES**

- 1) This is normal if the user does not pedal.
- 2) Check to see if the speed sensor is firmly plugged in and positioned properly relative to the magnet on the drive pulley.
- 3) Check the speed sensor wire for visible damage. If damage is noted, replace the speed sensor.

4) Check to make sure the magnets are present on the drive pulley (Figure A shows the pulley missing a magnet). NOTE: If missing, the magnet may be at the bottom of the suspension elliptical shroud.

a. Glue the magnet in place.

### NO ELEVATION

1) Check the display to make sure the elevation is displayed and that the keys are functioning properly, replace as needed.

2) Remove the cranks and side covers and check if LEDs UP and DOWN are lit when the up and down incline buttons are pressed. If not, replace the lower control board.

3) Check if the power from the lower control board is reaching the incline motor wire harness (Figure A).

a The lower control board should be outputting 110-120 VAC to the incline motor.

- b if there is no power present, replace the lower control board.
- 5) Replace the incline motor.

### NO RPM, SPEED, OR WATTS READOUT

- 1) Check to see if the speed sensor is firmly plugged in and positioned properly relative to the magnet on the drive pulley.
- 2) Check the speed sensor wire for visible damage, if damage noted replace the speed sensor.

3) Check to make sure the magnets are present on the drive pulley (Figure B shows the pulley missing a magnet). NOTE: If missing, the magnet may be at the bottom of the suspension elliptical shroud.

- a. Glue the magnet in place.
- 4) Check the connections at the back of the console.
- 5) Replace the console.



**FIGURE A** 



### **FIGURE B**

#### 6.4 TROUBLESHOOTING - RESISTANCE ISSUES

### NO CHANGE IN RESISTANCE EVEN THOUGH CONSOLE SHOWS CHANGES

- 1) Check the connections at the console and ECB.
- 2) Inspect the complete console cable for damage (3 separate cables), if damage noted replace the cable as needed.
- 3) Replace the ECB.
- 4) Replace the console.

### THE RESISTANCE WORKS IN REVERSE

- 1) Press and hold the START key to reset the console. This may resolve the issue.
- Inspect the console cable as it may be reversed internally.
   a. Replace the console cable if needed.
- 3) Inspect the ECB cable coming from the lower control board, it may be reversed.

### ECB MAKES CLICKING / CLUNKING NOISE WHEN CHANGING RESISTANCE

- 1) Check for any mechanical interference around the ECB.
- 2) Tighten the ECB axle to the frame.
- 3) Replace the ECB.

#### 6.5 TROUBLESHOOTING - NOISE ISSUES

### NOISE IN ONE PARTICULAR SPOT DURING THE ROTATION OF THE CRANK

- 1) Check the tightness of all external linkages.
  - a. If you find a loose or sloppy joint, tighten the hardware at this joint.
- 2) If all external linkages are tight, it is likely that the crank bearings are bad.
  - a. Replace the crank assemblies (the bearings are not replaceable as a separate part).

### NOISE WITH NO SPECIFIC POSITION DURING THE ROTATION OF THE CRANK

1) Remove the side covers and check the flywheel operation. Change the fly wheel bearings as needed.

#### 6.6 TROUBLESHOOTING - HEART RATE ISSUES

### NO HR SHOWN ON THE CONSOLE - USING A HR STRAP

- 1) Re-center the HR strap on the user's chest.
- 2) Replace the battery in the HR Strap.
- 3) Replace the HR strap.
- 4) Replace the console.

### NO HR SHOWN ON THE CONSOLE - USING THE HR GRIPS

- 1) Wet the user's hand, then reestablish contact with the HR grips.
- 2) Replace the HR grips.
   3) Replace the console.

#### 7.1 FRONT SHROUD REPLACEMENT

- Use a flat screwdriver to turn the crank cover counter clockwise and remove it (Figure A).
   Remove the 14 mm nut holding the crank to the drive assembly (Figure B).





FIGURE B

**FIGURE A** 





**FIGURE C** 

**FIGURE D** 

#### 7.1 FRONT SHROUD REPLACEMENT - CONTINUED

4) Remove the 9 screws holding the right shroud (Figure E) and 7 screws holding the left shroud (Figure F).



FIGURE E



**FIGURE F** 

5) Figure G shows the elliptical with both front shrouds removed.



**FIGURE G** 

6) Reverse Steps 1-5 to install a new front shroud. **NOTE:** When re-installing the 14mm nut removed in Step 2, be sure to tighten the nut to 70 N-m of torque.

#### 7.2 CONSOLE REPLACEMENT

1) Remove the 4 screws holding the console to the frame (Figure A).



**FIGURE A** 

2) Disconnect the console cable and HR wire connections from the defective console and remove the console (Figures B & C).



FIGURE B

**FIGURE C** 

3) Connect the console cable to the new console.

4) Carefully push the wires into the console and mast until they are clear of the console / mast connection and attach the console to the mast using the 4 screws you removed in Step 1.

5) Test the suspension elliptical for function as outlined in Section 7.21.

#### 7.3 CUP HOLDER ASSEMBLY REPLACEMENT

- 1) Remove the console as outlined in Section 7.2.
- 2) Remove the 5 screws holding the cup holder assembly to the console mast (Figures A & B).





**FIGURE A** 

**FIGURE B** 

3) Remove the cup holder assembly from the console mast being careful not to damage the console cable / HR wiring (Figures C & D).



**FIGURE C** 

**FIGURE D** 

4) Reverse Steps 1-3 to install a new cup holder assembly.5) Test the suspension elliptical for function as outlined in Section 7.21.

#### 7.4 FRONT CONSOLE MAST COVER REMOVAL

- 1) Remove the console as outlined in Section 7.2.
- 2) Remove the cup holder assembly as outlined in Section 7.3.
- 3) Remove the 2 screws holding the slotted console mast cover to the console mast (Figure A).
- 4) Remove the 8 screws (4 on each side) holding the slotted console mast cover to the front console mast cover (Figure B).





**FIGURE A** 



5) Move the slotted console mast cover out of the way (the cover cannot be removed without removing the incline motor bracket) (Figure C).6) Lift the console mast boot, and remove the 2 screws holding the front console mast cover to the frame and remove the front console cover (Figure D).



**FIGURE C** 





7) Reverse Steps 1-6 to install a new front console mast cover.

#### 7.5 CONSOLE CABLE REPLACEMENT

- 1) Remove the right side front shroud as outlined in Section 7.1.
- 2) Remove the console as outlined in Section 7.2.
- 3) Remove the cup holder assembly as outlined in Section 7.3.
- 4) Remove the console mast covers as outlined in Section 7.4.
- 5) Remove the tie straps holding the console cable to the console mast (Figure A).
- 6) Disconnect the upper console cable from the lower console cables (Figure B).





FIGURE A

**FIGURE B** 

7) Disconnect the lower console cables at the lower control board and ECB (Figures C & D).



**FIGURE C** 



FIGURE D

- 8) Reverse Steps 1-7 to install a new console cable.
- 9) Test the suspension elliptical for function as outlined in Section 7.21.

#### 7.6 CONSOLE MAST REPLACEMENT

1) *TIP:* Press START, then incline the unit to its top position. Hold the START key to reset the console, and then press any key to stop the incline from resetting. It will be much easier to remove the console mast with the incline in the top position.

- 2) Remove the right side front shroud as outlined in Section 7.1.
- 3) Remove the console as outlined in Section 7.2.
- 4) Remove the cup holder assembly as outlined in Section 7.3.
- 5) Remove the console mast covers as outlined in Section 7.4.
- 6) Cut the tie straps holding the console cable to the console mast, and remove the upper console cable from the console mast.
- 7) Remove the 2 screws holding the plastic cover that is mounted over the arm juncture (Figure A) and remove the cover.
- 8) Remove the 4 screws / nuts holding the arm juncture together. This will allow you to move the arms out of the way of the incline motor bracket (Figures B & C).
- 9) Remove the screw / nut holding the incline motor bracket to the incline motor (Figure D).





FIGURE A

FIGURE B



FIGURE C



FIGURE D

#### 7.6 CONSOLE MAST REPLACEMENT - CONTINUED

10) Remove the screws holding the dual action handlebars to the console mast and remove the dual action handlebars from the console mast (Figures E & F).





**FIGURE E** 

**FIGURE F** 

11) Remove the 6 screws holding the console mast to the frame (Figure G) and remove the console mast.



**FIGURE G** 

- 12) Reverse Steps 1-11 to install a new console mast.
- 13) Test the suspension elliptical as outlined in Section 7.21.

#### 7.7 HR GRIPS REPLACEMENT

1) Use a flat screwdriver to pry the lower metal HR sensor from the HR grip and unplug the wire (Figures A & B).





**FIGURE A** 



- 2) Remove the 2 screws holding the 2 halves of the HR grip together (Figure C).3) Remove the HR end cap and the 2 halves of the HR grip (Figure D).



**FIGURE C** 



**FIGURE D** 

- 4) Reverse Steps 1-3 to install new HR grips.
- 5) Test the suspension elliptical for function as outlined in Section 7.21.

#### 7.8 LOWER CONTROL BOARD REPLACEMENT

- 1) Remove the front shrouds as outlined in Section 7.1.
- 2) Disconnect the 4 wire connections to the lower control board (Figure A).



**FIGURE A** 

3) Remove the 2 screws holding the lower control board to the frame (Figure B), remove the lower control board.





- 4) Reverse Steps 1-3 to install a new lower control board.
- 5) Test the suspension elliptical for function as outlined in Section 7.21.

#### 7.9 INCLINE MOTOR REPLACEMENT

1) *TIP:* Press START, then incline the unit to its top position. Hold the START key to reset the console, and then press any key to stop the incline from resetting. It will be much easier to remove the incline motor with the incline in the top position.

- 2) Remove the front shrouds as outlined in Section 7.1.
- 3) Disconnect the incline motor wire harness (Figure A).
- 4) Remove the screw / nut holding the incline motor bracket to the incline motor (Figure B).



**FIGURE A** 

**FIGURE B** 

5) Remove the screw / nut holding the incline motor to the frame (Figure C) and remove the incline motor.





- 5) Reverse Steps 1-4 to install a new incline motor.
- 6) Test the suspension elliptical for function as outlined in Section 7.21

#### 7.10 DRIVE BELT REPLACEMENT

- 1) Remove the front shrouds as outlined in Section 7.1.
- 2) Disconnect the ECB wire harness at the lower control board (Figure A).
- 3) Remove the 2 eye bolts putting tension on the ECB (Figures B & C).
- 4) Remove the 3 screws holding the drive axle assembly to the frame on both sides (Figure D).



**FIGURE A** 



FIGURE B



FIGURE C



FIGURE B

#### 7.10 DRIVE BELT REPLACEMENT - CONTINUED

5) Once the ECB and drive axle assembly are loose, the drive belt can be removed from around the drive axle assembly allowing the ECB to drop down outside of its bracket (Figures E & F).





**FIGURE E** 

**FIGURE F** 

6) Once the ECB is dropped down outside of its bracket, the drive can be removed from around the ECB pulley (Figure G).

7) On the left side of the unit, move the mounting bearing from the drive axle assembly towards the middle of the frame. This will allow you to move the belt around the drive axle assembly and off the unit (Figure H).



**FIGURE G** 

FIGURE H

8) Reverse Steps 1-7 to install a new drive belt. **NOTE:** The S7100 has a 10 rib Gates Polyester drive belt. It should be tightened to a 188Hz (+/- 4Hz) vibration frequency.

9) Test the suspension elliptical for function as outlined in Section 7.21.

#### 7.11 DRIVE AXLE ASSEMBLY REPLACEMENT

- 1) Remove the front shrouds as outlined in Section 7.1.
- 2) Disconnect the ECB wire harness at the lower control board (Figure A).
- 3) Remove the 2 eye bolts putting tension on the ECB (Figures B & C).
  4) Remove the 3 screws holding the drive axle assembly to the frame on both sides (Figure D).



**FIGURE A** 



FIGURE B



**FIGURE C** 



**FIGURE D** 

#### 7.11 DRIVE AXLE SET REPLACEMENT - CONTINUED

5) Once the ECB and drive axle assembly are loose, the drive belt can be removed from around the drive axle assembly allowing the ECB to drop down outside of its bracket (Figures E & F).





**FIGURE E** 

**FIGURE F** 

6) Once the ECB is dropped down outside of its bracket, the drive can be removed from around the ECB pulley (Figure G).7) On the left side of the unit, move the mounting bearing from the drive axle assembly towards the middle of the frame. This will allow you to move the belt around the drive axle assembly and off the unit (Figure H).



FIGURE G

**FIGURE H** 

- 8) Disconnect the incline motor at the bottom connection.
- 9) Once the incline motor is disconnected at the bottom connection, it can be swiveled and the drive axle assembly can be removed from the frame.
- 10) Reverse Steps 1-9 to install a new drive axle set.
- 11) Test the suspension elliptical for function as outlined in Section 7.21.

#### 7.12 ECB (ELECTRONIC BRAKE) REPLACEMENT

- 1) Remove the front shrouds as outlined in Section 7.1.
- 2) Disconnect the ECB wire harness at the lower control board (Figure A).
- 3) Cut the tie straps holding the ECB wire harness to the frame (Figure B).



**FIGURE A** 

**FIGURE B** 

4) Disconnect the ECB wire harness and the cable housing at the ECB adjustment box (Figures C & D).



**FIGURE C** 



**FIGURE D** 

#### 7.12 ECB (ELECTRONIC BRAKE) REPLACEMENT - CONTINUED

- 5) Remove the 4 screws holding down the ECB adjustment box (Figure E) and remove it.
  6) Remove the 2 eye bolts putting tension on the ECB (Figures F & G).
  7) Remove the 3 screws on each side holding the drive axle assembly to the frame (Figure H).



**FIGURE E** 



**FIGURE F** 



**FIGURE G** 



**FIGURE H** 

#### 7.12 ECB (ELECTRONIC BRAKE) REPLACEMENT - CONTINUED

8) Once the ECB and drive axle assembly are loose, the drive belt can be removed from around the drive axle assembly pulley allowing the ECB to drop down outside of its bracket (Figures I & J).





**FIGURE I** 

FIGURE J

9) Once the ECB is dropped down outside of its bracket, the drive can be removed from around the ECB pulley (Figure K).

10) On the left side, move the mounting bearing from the drive axle assembly towards the middle of the frame. This will allow you to move the belt around the drive axle assembly and off the unit (Figure L).

11) Now that the belt is removed, the ECB can be removed from the frame through the rear. You will need to line up the ECB with the existing grooves in the frame for removal (Figure M).



**FIGURE K** 



FIGURE L



**FIGURE M** 

12) Reverse Steps 1-11 to install a new ECB.

13) Test the suspension elliptical for function as outlined in Section 7.21.

#### 7.13 DUAL ACTION HANDLEBAR REPLACEMENT

- 1) Remove the screw / nut holding the dual action handlebar to the link arm (Figure A).
- 2) Remove the screw holding the dual action handlebar to the console mast (Figure B).



**FIGURE A** 

FIGURE B

- 3) Remove the dual action handlebar from the console mast (Figure C).
- 4) Reverse Steps 1-3 to install a new dual action handlebar. **NOTE:** When reconnecting the link arm to the dual action handlebar, make sure that both bushings are present within the link arm (Figure D).



**FIGURE C** 



**FIGURE D** 

#### 7.14 PEDAL ASSEMBLY REPLACEMENT

1) Pull up the rubber foot pad from the pedal, it is held down by plastic snap clips (Figure A).



**FIGURE A** 

**FIGURE B** 

2) Remove the 8 screws holding down the pedal assembly to the link arm and remove the pedal assembly (Figures B & C).



FIGURE C

3) Reverse Steps 1-2 to install a new pedal assembly.

#### 7.15 LINK ARM REPLACEMENT

1) Remove the screw / nut holding the link arm to the dual action handlebar and lay that end of the link arm on the floor (Figures A & B).





**FIGURE A** 

**FIGURE B** 

- 2) Pull up the rubber foot pad from the pedal, it is held down by plastic snap clips (Figure C).3) Remove the 8 screws holding down the pedal assembly to the link arm (Figure D).



**FIGURE C** 

**FIGURE D** 

#### 7.15 LINK ARM REPLACEMENT - CONTINUED

- 4) Remove the pedal assembly (Figure E).
- 5) Remove the long screw holding the link arm to the pedal arm (Figure F).





FIGURE F

6) Remove the link arm (Figure G).

7) Reverse Steps 1-6 to install a new link arm. **NOTE:** When reconnecting the link arm to the dual action handlebar, make sure that both bushings are present within the link arm (Figure H).



FIGURE G

**FIGURE H** 

#### 7.16 PEDAL ARM REPLACEMENT

- 1) Using a flat screwdriver, turn the crank cover counter clockwise and remove it (Figure A).
- 2) Remove the 14 mm nut holding the crank to the drive assembly (Figure B).



**FIGURE A** 



3) Using a 22 mm crank puller, remove the crank from the drive assembly (Figures C & D).



FIGURE C



**FIGURE D** 

#### 7.16 PEDAL ARM REPLACEMENT - CONTINUED

- 4) Remove the link arm as outlined in Section 7.15.
- 5) Remove the screw holding the pedal arm to the swing arm (Figure E).
- 6) Remove the pedal arm from the swing arm making sure that the washers stay in position on the swing arm (Figure F).



**FIGURE E** 

**FIGURE F** 

7) Remove the plastic cover and then the screw holding the crank to the pedal arm and remove the crank (Figures G & H).



FIGURE G

FIGURE H

8) Reverse Steps 1-7 to install a new pedal arm. **NOTE:** When re-installing the 14mm nut removed in Step 2, be sure to tighten the nut to 70 N-m of torque.

#### 7.17 SWING ARM REPLACEMENT

- 1) Remove the screw holding the swing arm to the pedal arm (Figure A).
- 2) Remove the swing arm from the pedal arm making sure that the washers stay in position on the swing arm (Figure B).
- 3) Remove the 4 screws holding the plastic cover over the juncture of the swing arm and the incline arms (Figure C).







**FIGURE A** 

**FIGURE B** 

**FIGURE C** 

- 4) Remove the plastic cover (Figure D).
- 5) Remove the screw holding the swing arm to the incline arms (Figure E).
- 6) Remove the swing arm from the junction of the incline arms (Figure F).







FIGURE D

**FIGURE E** 

**FIGURE F** 

7) Reverse Steps 1-6 to install a new swing arm. **NOTE:** Be sure to transfer the washers shown in Figure B from the defective swing arm to the new one.

#### 7.18 HORIZONTAL INCLINE ARM REPLACEMENT

- 1) Remove the 4 screws holding the plastic cover over the juncture of the swing arm and the incline arms and remove the cover (Figures A &
- B).
- 2) Remove the 2 screws holding the horizontal incline arm to the vertical incline arm (Figure C).



**FIGURE A** 

**FIGURE B** 

**FIGURE C** 

- 3) Remove the 2 screws holding the plastic cover that is mounted over the arm juncture (Figure D) and remove the cover.
- 4) Remove the 4 screws / nuts holding the arm juncture together and remove the horizontal incline arm (Figures E & F).



**FIGURE D** 







FIGURE F

5) Reverse Steps 1-4 to install a new horizontal incline arm.

#### 7.19 VERTICAL INCLINE ARM REPLACEMENT

- 1) Remove the 4 screws holding the plastic cover over the juncture of the swing arm and the incline arms and remove the cover (Figures A &
- В).
- 2) Remove the 2 screws holding the horizontal incline arm to the vertical incline arm (Figure C).



**FIGURE A** 

**FIGURE B** 

**FIGURE C** 

- 3) Remove the screw holding the swing arm to the incline arms (Figure D).
- 4) Remove the swing arm from the junction of the incline arms (Figure E).
- 5) Remove the 2 screws holding the vertical incline arm to the rear stabilizer and remove the vertical incline arm (Figure F).



FIGURE D

FIGURE E

**FIGURE F** 

6) Reverse Steps 1-5 to install a new vertical incline arm.

#### 7.20 SPEED SENSOR REPLACEMENT

- 1) Remove the front shrouds as outlined in Section 7.1.
- 2) Remove the speed sensor wire from the ECB wire harness and disconnect it (Figure A).



**FIGURE A** 

3) Remove the 2 screws holding the speed sensor to the frame (Figure B).



- 4) Reverse Steps 1-3 to install a new speed sensor.5) Test the suspension elliptical for function as outlined in Section 7.21.

7.21 TESTING THE SUSPENSION ELLIPTICAL

### ONCE THE UNIT OR REPLACEMENT PART IS FULLY INSTALLED AND ASSEMBLED AND PROPERLY PLACED ON THE FLOOR, USE THE FOLLOWING INSTRUCTIONS TO TEST THE MACHINE:

1) Without hitting start or entering any program modes, stand on the machine and hold the handlebars while initiating movement to simulate exercising. While moving, listen for any odd noises or squeaks.

2) Press and hold both RESISTANCE UP and DOWN ARROW keys until Engineering Mode is shown on the display. Use the ARROW keys to scroll to P13. Press ENTER. Press ENTER again to begin the incline calibration (Do not stand on the unit during the calibration process). Once the incline calibration is complete the console will display END. Press and hold the START key to exit Engineering Mode.

3) After stopping movement, press the START button and begin using the machine.

4) Grasp the hand grips to check for proper heart rate response.

- 5) Press the RESISTANCE UP and DOWN ARROW keys on the console to make sure resistance is fully functional.
- 6) If everything functions properly, stop pedaling and the unit will reset to normal operation after 30 seconds.

#### 8.1 TOOLS INCLUDED

To avoid possible damage to the Vision S7100 Suspension elliptical, please follow these assembly steps in the correct order. Also, during the assembly steps, ensure that ALL bolts and screws are in place and partially threaded before completely tightening any ONE bolt or screw.

### **TOOLS INCLUDED**



NOTE: If these tools are missing from the package, please contact Vision Fitness immediately.

#### 8.2 HARDWARE INCLUDED



NOTE: If any hardware is missing from the package, please contact Vision Fitness immediately.

### 8.2 HARDWARE INCLUDED - CONTINUED



NOTE: If any hardware is missing from the package, please contact Vision Fitness immediately.

#### **8.3 ASSEMBLY INSTRUCTIONS**





#### **8.3 ASSEMBLY INSTRUCTIONS - CONTINUED**

# LIGHT BLUE BAG

\* Lift the left incline arm and place a top tube (they are interchangeable) over the left incline arm bracket and connect with the 2 socket head cap bolts and 2 washers. Turn the bolts finger tight.

\* Insert the pin on the elevation bracket into the hole on the front flange of the connection arm.

\* Repeat these steps on the right side.











8.3 ASSEMBLY INSTRUCTIONS - CONTINUED

### FINAL ASSEMBLY



#### **8.4 STABILIZING INSTRUCTIONS**

### STABILIZING THE SUSPENSION ELLIPTICAL

After positioning the suspension elliptical into its intended location, check the unit's stability. Wobbling or rocking indicates that your suspension elliptical needs to be leveled. Determine which leveler is not sitting on the floor. Loosen the nut on the base of the leveler to allow the leveler to rotate. Now rotate the leveler to the left or right until the suspension elliptical is stable. Lock the adjustment by tightening the nut against the support tube.



NOTES



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