DIAMONDBACK

Fitness

510Ef

FRONT DRIVE ELLIPTICAL TRAINER
OWNER'S MANUAL

PURCHASER'S REFERENCE INFORMATION

PLEASE RECORD DETAILS ASSOCIATED WITH THE PURCHASE OF YOUR 510Ef BELOW. THIS INFORMATION WILL BE REQUIRED IN THE EVENT THE UNIT REQUIRES FUTURE SERVICE.

*ATTACH THE PURCHASE RECEIPT HERE:

Product Name: Diamondback 510Ef Front Drive Elliptical Trainer

Serial Number: E ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

Date Purchased: _____

Dealer Name: _____

Dealer Address: _____

_____

Dealer Contact Name: _____

Dealer Telephone Number: (   ) _____

SERIAL NUMBER
IIII III IIII
000000000000
WARNING: REMOVAL
SAMPLE

Serial Number Location

To Activate Warranty: Register the unit at ***www.diamondbackfitness.com*** <u>OR</u> complete the attached warranty card (see last page) and return it to Diamondback Fitness within 15 days of purchase.
Failure to comply may limit or void the Manufacturer's warranty coverage.

Shipping Materials: Diamondback Fitness recommends that you retain the original packing materials (box and packing items) for future shipping needs.
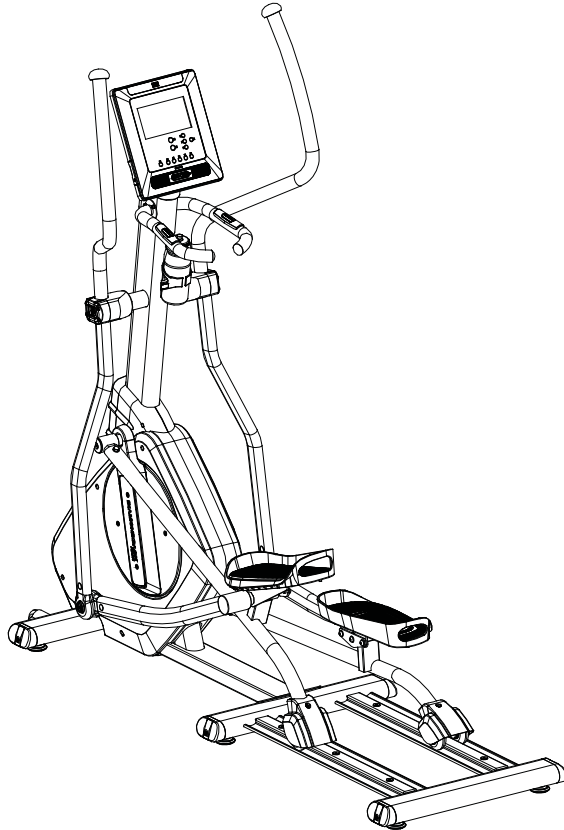
Warranty: ____ Mailed ____ Online   Date _____
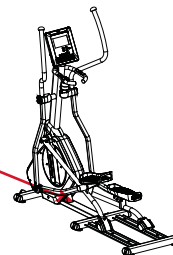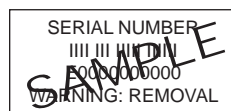
SAVE THIS OPERATING INSTRUCTIONS MANUAL FOR YOUR REFERENCE.

510Ef
Front Drive Elliptical Trainer
Diamondback Fitness

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INTRODUCTION

Congratulations on the purchase of your new 510Ef Front Drive Elliptical Trainer from Diamondback Fitness. You have made a smart choice and are about to enjoy one of the most effective and technically-advanced methods of cardio-vascular exercise available today.

Founded in 1991 as an off-shoot of the legendary bicycle division, Diamondback Fitness was in many ways a complimentary addition to the Diamondback brand. One might even say this extension grew as a natural evolution from classic outdoor bicycle usage toward indoor-based cycling and cross training. It turns out many fitness enthusiasts were searching for ways to maintain conditioning during times of inclement weather or were simply looking for new and different crosstraining options.

This trend still continues today, twenty years later, as the strong Diamondback brand resonates with both the boomers who grew up with the bicycles, as well as the younger generations riding them today.

Diamondback Fitness continues to build upon this legendary brand identity by offering the cardio enthusiast a full line of upright bikes, recumbents, indoor cycles, and elliptical trainers that offer great value, high quality and intuitive & visually-pleasing design. Let's just say, we are already planning our next twenty years.

Diamondback Fitness

6004 South 190th Street Suite 101 Kent WA 98032 Ph. 1.800.776.7642 Fax: 1.800.776.2073

For more information or questions regarding your equipment, please visit our website at www.diamondbackfitness.com

SAFETY INSTRUCTIONS & WARNINGS

Every piece of Diamondback Fitness equipment is built for maximum safety and meets or exceeds all applicable domestic and international standards. However, certain precautions must be taken when operating any exercise equipment.

NOTE: Please read the entire owner's manual before operating the 510Ef.

CAUTION - FOR SAFE OPERATION

• Keep your hands and feet away from all moving parts and pinch points.

• If you have a history of heart disease, high blood pressure, diabetes, chronic respiratory diseases, elevated cholesterol, or if you smoke cigarettes or experience any other chronic diseases or physical complaints, consult with a physician before beginning any exercise program.

• If overweight, or above the age of 35, consult with your physician before beginning any exercise program.

• Pregnant women should consult with their physician before beginning an exercise program.

• If you experience dizziness, nausea, chest pains or other abnormal symptoms during exercise, stop the exercise session immediately and consult your physician.

• Consume water before, during and after each exercise session.

WARNINGS - TO REDUCE RISK OF INJURY TO YOURSELF OR OTHERS

• To ensure proper functioning of your unit, do not install attachments or accessories not provided or recommended by Diamondback Fitness.

• Always wear proper clothing and shoes when exercising.

• User weight is not to exceed 300 pounds (147.4 Kg) for the 510Ef.

• Keep children away from the unit. Hands and feet may become entangled with the moving parts and could result in serious injury.

• Place the unit in an area that will meet minimum clearance requirements:
      - front & sides = 24 inches
      - rear = 12 inches.

• The unit is intended for indoor use only.

• Place the unit on a solid, level surface. Always adjust the leveling feet before using to ensure stability.

• Ensure all adjustment knobs and levers are fastened securely before using the unit and after making an adjustment.

• Use the handlebars when stepping on and off the unit.

• The unit is heavy. Do not attempt to move alone.

• Never operate the unit if it is damaged or broken. Contact your local authorized Diamondback Fitness Dealer for service.

• Always unplug the unit from the power source before moving or servicing.

• Do not remove the covers or other components. Only Authorized Diamondback Fitness Dealers or Authorized Technicians should perform service on the unit.

SAFETY INSTRUCTIONS & WARNINGS

Assembly of Technical Items

Assembly of all Diamondback Fitness products should be performed by a Diamondback Fitness Dealer or Authorized Technician. A significant amount of technical knowledge is required for the safe and complete assembly of the unit. Many retailers will offer delivery and assembly as part of the sales agreement. If this unit was sold unassembled (in the carton) and you do not feel you can perform the assembly successfully, please call the dealer for service. Service calls for improper assembly are not covered by the Warranty Policy and any associated charges will be the responsibility of the owner. Assembly may include adjustment and alignment of side cases and attachment brackets as needed for proper function.
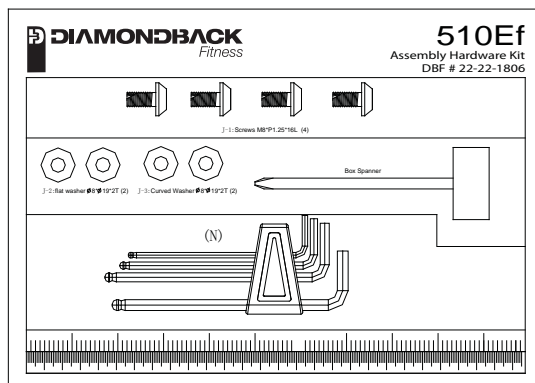
CARTON CONTENTS
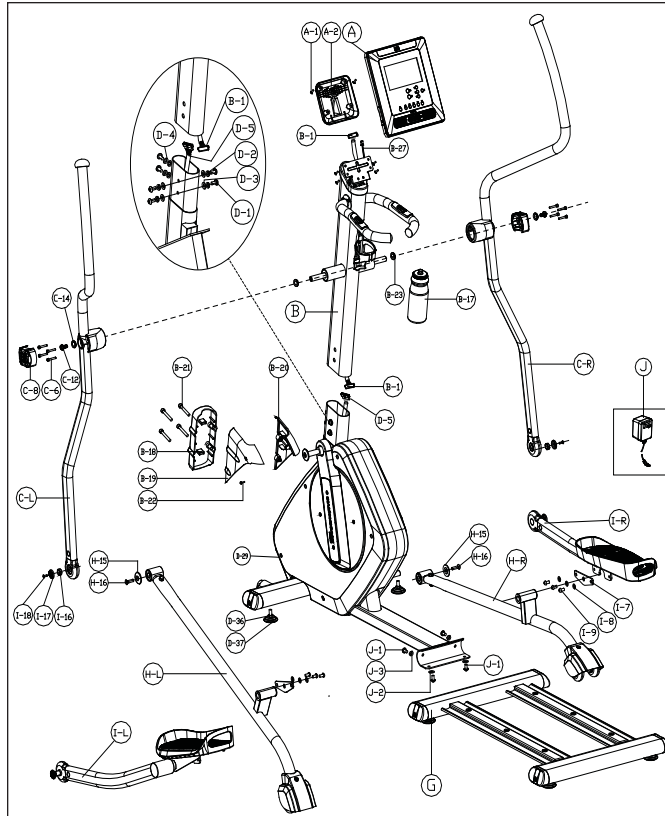
Parts List

Item	Description	Quantity
A	Console	1
A-1	Console Fixing Screw	4
A-2	Console Back Cover	1
B	Console Mast	1
B-1	Wire Harness Upper	1
B-27	Heart Rate Console Wire	1
B-17	Water Bottle	1
B-18, 19, 20, 21, & 22	Console Mast Cover & Hardware	6
C-L	Handlebar Left	1
C-R	Handlebar Right	1
C-14	Washer	2
C-12	Main Bolt	2
C-8 & C-6	Handlebar Cap & Screws	2&4
D-1, 2, 3, & 4	Mast Hardware	6
D-5	Wire Harness Lower	1
D-29	Power Input Jack (Lower Front)	1
D-36	Leveling Foot Lock Nut	6
D-37	Leveling Foot	6
G	Rail Frame	1
H (R&L)	Step Arms (1 Right / 1 Left)	2
H-15	Washer	2
H-16	Allen Bolt	2
I(R&L)	Pedal Arm (1 Right / 1 Left)	2
I-7, 8, & 9	Pedal Arm Hardware	14
J	Power Supply/Adaptor	1
J-1, 2, & 3	Assembly Hardware	8

ASSEMBLY INSTRUCTIONS
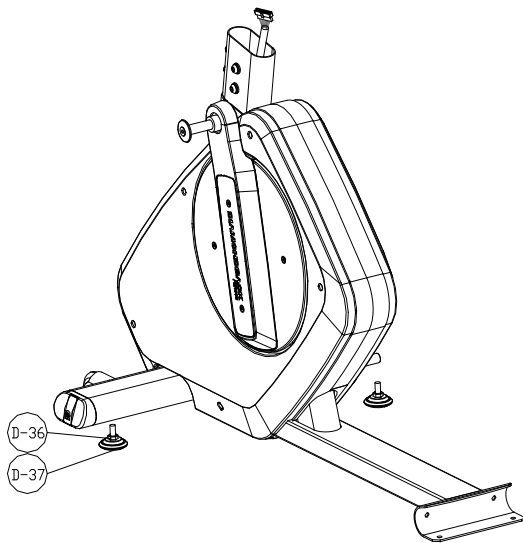
- Unpack the 510Ef from the carton. Please recycle.

- Assembly will require 2 people.

- Verify the carton contains all parts from the list.

- Install leveling foot (D-37) with lock washer (D-36) under the the front stabilizer.
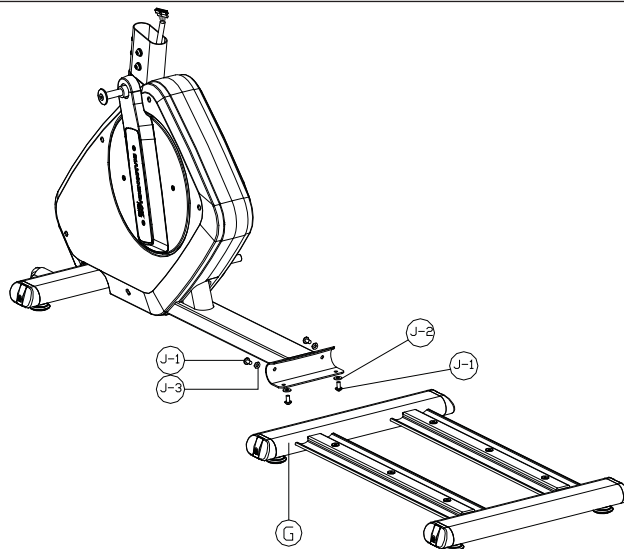
- Install and align the Rail Frame (G), using the side bolt and washer. Make sure all bolts and washers (J-1, & J-3) are aligned and tightend properly. *Note - A loose bolt could cause misalignment of the track and cause poor wheel alignment and or a rubbing sound.*

- Tighten the bottom bolts and washers (J-2 & J-1), have one person tilt machine forward, resting the weight on the stabilizer roller while the other person installs and tightens the bottom bolts. *Use CAUTION when preforming this step, use two(2) people!*

ASSEMBLY INSTRUCTIONS
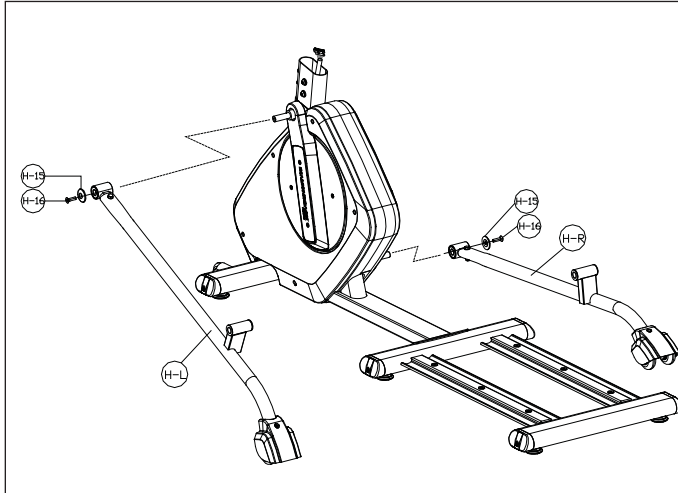
- Install the Step Arms (H-L & H-R) by using the washer (H-15) and Bolt (H-16). Repeat for opposite side, make sure to tighten firmly.
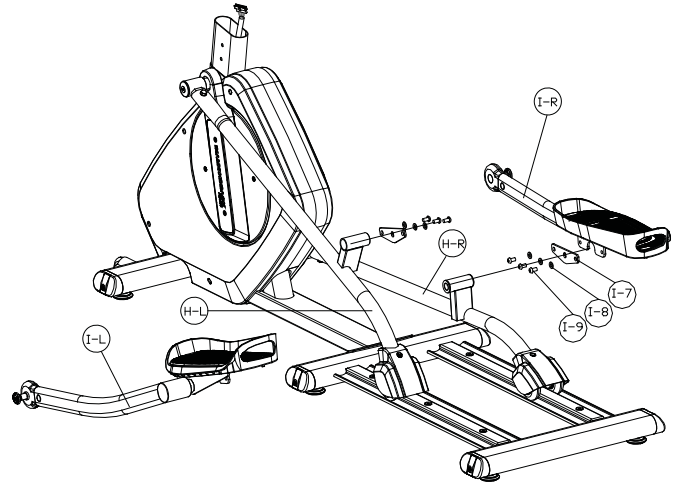
- Install the Pedal Arms (I-L & I-R) to the Step Arms (H-L & H-R) by using the bolts and washers (I-9 & I-8) and install into (I-7) Footbed bracket. Repeat for opposite side, make sure to tighten firmly.

DIAMONDBACK *Fitness*

ASSEMBLY INSTRUCTIONS

- Remove the Mast Bolts and Washers (D-1, D-2, D-3 & D-4).

- Connect the Wire Harness Upper (B-1) to Wire Harness Lower (D-5) taking care to ensure the connection is firm.

- Pull the wire harness from top of mast upward.

- Slide the upper mast(B) down onto the lower frame. *Use CAUTION and do not pinch wire harness cable or connector.*

- Re-install Mast Bolts and Washers (D-1, D-2, D-3 & D-4) and tighten.

- Assemble the bolt cover over the mast connection. Place (B-19) and (B-20) around mast and fix screws (B-22) into position.

- Place front cover into position and instal bolts (B-21) by hand *Note - these bolts do not require a large amount of force, use caution when tightening into place.*
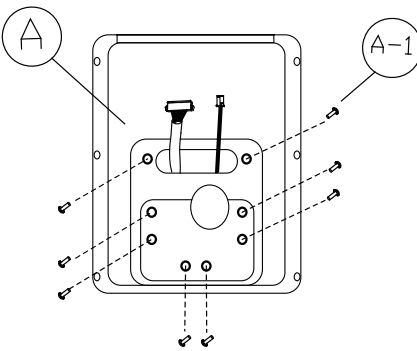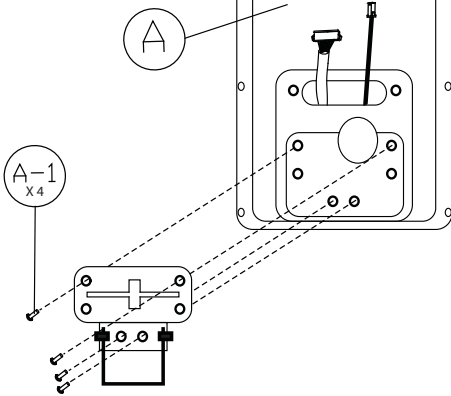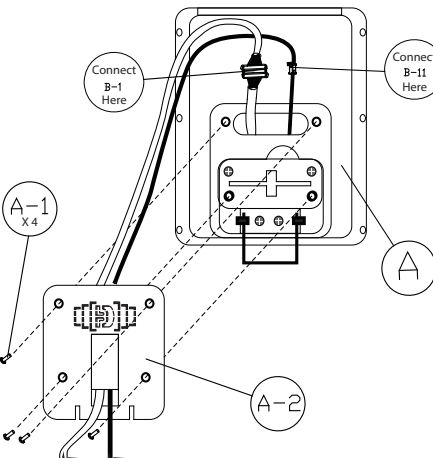
ASSEMBLY INSTRUCTIONS
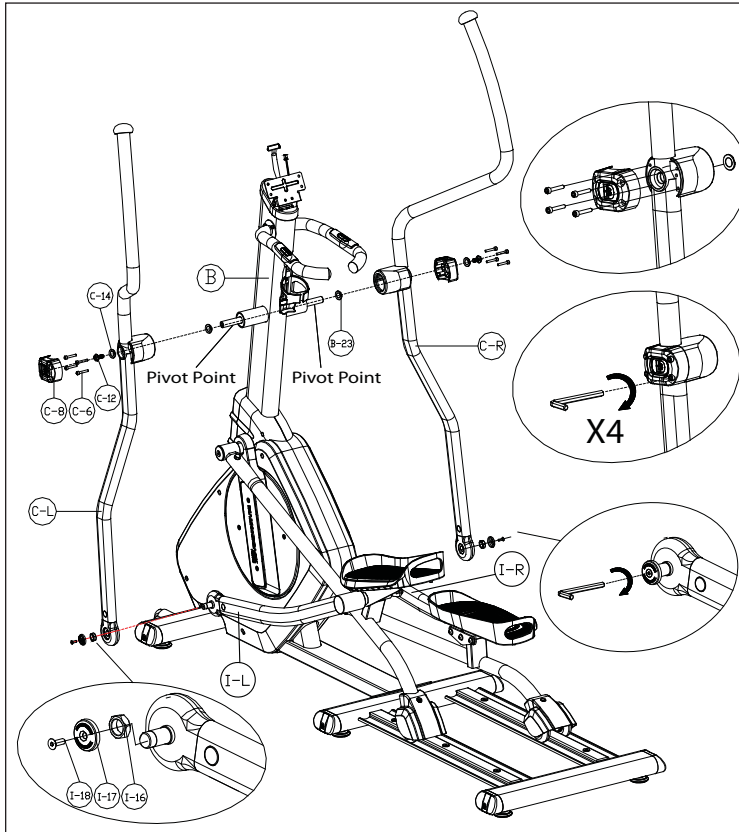
- Remove the Bolt (C-12) and Washer (C-14) from both sides of the Pivot Point on the Mast (B).

- Remove the Handlebar Pivot Cap (C-8) by removing the 4 screws (C-6) from both the Right (C-R) and Left (C-L) Handlebars.

- Install both Handlebars (C-R) and (C-L) onto the Mast Pivot points. Make sure the Washer (B-23) is in position on both sides of the Mast (B) Pivot Points prior to locating the handlebar onto the mast (B) Pivot Points.

- Place the washer (C-14) onto the Bolt (C-12) and hand screw into both the Right (C-R) and Left (C-L) Handlebars, then tighten firmly into place.

- Reinstall Handlebar Pivot Cap (C-8) by screwing in the 4 screws (C-6) into both the Right (C-R) and Left (C-L) Handlebars.

- Remove the Screw (I-18) from the Pivot Cover (I-17) and the Nut (I-16) from the Right (I-R) and Left (I-L) Pedals.

- Install the Pedal Arms (I-L & I-R) into (C-L & CR) Pivots and fix with (I-16) nut, tighten firmly. Then using the allen wrench install the cover cap (I-17) with the screw (I-18). Then tighten firmly.

ASSEMBLY INSTRUCTIONS

• Remove all 8 screws (A-1) from the back of the console (A).	• Install the top 2 screws (A-1) through the tilt mounting plate and screw into the back of the console (A). • Install the bottom 2 screws (A-1) through the tilt mounting plate and screw into the back of the console (A).	• Feed the Wire Harness (B-1) cable and Heart Rate Console Wire (B-11) through the hole in the back cover (A-2) and then connect both to the matching console connector. Take care to ensure the connection is firm. Feed loose excess cable back into mast. • Position Console Back Cover (A-2) into position and install the remaining 4 screws (A-1) into the console (A).

ASSEMBLY INSTRUCTIONS

FINAL INSTALLATION & SET UP

• Moving and positioning the unit. Move the 510Ef into the desired final position by carefully raising the rear end of the unit until the roller wheels located on the front stabilizer contact the floor. Leave room around the unit for safe operation and sufficient air flow.

• Leveling the unit. Level the unit by rotating the six leveling feet (D-37) located in the stabilizer bars. Lock the feet into position by tightening the lock nut (D-36) upward, against the frame.

• Plug one end of the power adaptor (J) into a 120V power source. Plug the opposite end into the power input jack found on the front end of the plastic housing near the stabilizer.
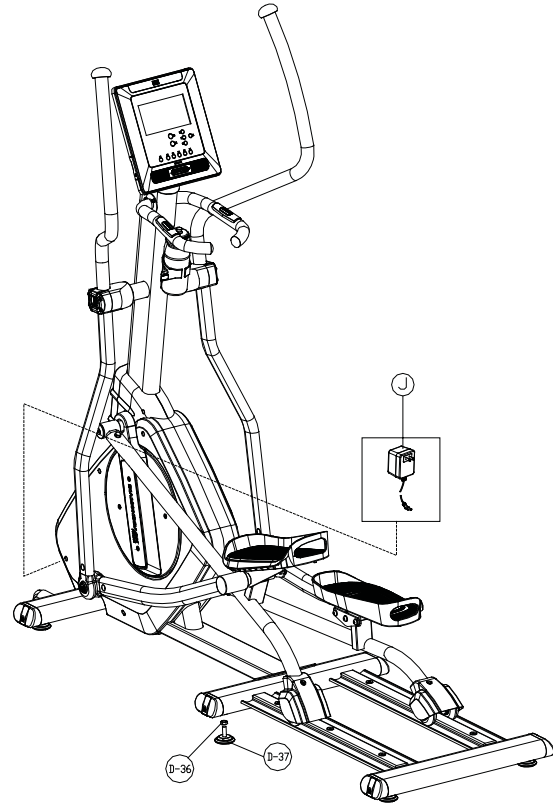
WORKOUT GUILDLINES

Good health is an exercise in common sense.

In the study titled, "*The Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity*", the Surgeon General indicates that 61% of American adults are either overweight or obese. The study indicates that being overweight increases the risk of health problems, such as heart disease, certain types of cancer, type 2 diabetes among other afflictions.

The Surgeon General's Healthy weight advice for consumers is:
- Aim for a healthy weight: Find your Body Mass Index (BMI) on the chart below.
- Be active: Keep physically active to balance the calories you consume.
- Eat well: Select sensible portion sizes.

Body Mass Index; BMI = (weight (lb) / height² (in)) x 703

Weight in Pounds

Height	120	130	140	150	160	170	180	190	200	210	220	230	240	250
4'6	29	31	34	36	39	41	43	46	48	51	53	56	58	60
4'8	27	29	31	34	36	38	40	43	45	47	49	52	54	56
4'10	25	27	29	31	34	36	38	40	42	44	46	48	50	52
5'0	23	25	27	29	31	33	35	37	39	41	43	45	47	49
5'2	22	24	26	27	29	31	33	35	37	38	40	42	44	46
5'4	21	22	24	26	28	29	31	33	34	36	38	40	41	43
5'6	19	21	23	24	26	27	29	31	32	34	36	37	39	40
5'8	18	20	21	23	24	26	27	29	30	32	34	35	37	38
5'10	17	19	20	22	23	24	26	27	29	30	32	33	35	36
6'0	16	18	19	20	22	23	24	26	27	28	30	31	33	34
6'2	15	17	18	19	21	22	23	24	26	27	28	30	31	32
6'4	15	16	17	18	20	21	22	23	24	26	27	28	29	30
6'6	14	15	16	17	19	20	21	22	23	24	25	27	28	29
6'8	13	14	15	17	18	19	20	21	22	23	24	25	26	28

Height in Feet and Inches

Healthy Weight
Overweight
Obese

Note: Chart applies to adults aged 20 years and older

Calculated Maximum Heart Rate & Target Training Zone

Your calculated target heart rate, or the ideal intensity needed to improve cardiovascular fitness, depends primarily upon your age rather than your current state of fitness. If the exercise intensity is too low or too high, only modest gains will be made in strength and cardio-vascular fitness. A workout at a very low intensity will not offer maximum benefits. Conversely, if the workout intensity is too high, injury or fatigue may slow the progression of your exercise goals as the body attempts to recover.

Note: It is most effective to train at a heart rate between 60% and 85% of your maximum heart rate. Maximum heart rate is calculated as a percentage of your maximum heart rate (estimated as 220 beats-per-minute minus your age).

To calculate your maximum heart rate and find the appropriate target training zone, use the following formulas. For example, the following estimation would be relevant for a 35 year-old user:

$$220 - Age = Maximum\ Heart\ Rate \quad (220 - 35 = 185)$$
$$60\%\ of\ Maximum\ Heart\ Rate \quad (60\% \times 185 = 111bpm)$$
$$85\%\ of\ Maximum\ Heart\ Rate \quad (85\% \times 185 = 157bpm)$$

Based on these calculations, the recommended heart rate training zone for this user would be between 111 Bpm – 157 Bpm. The graphs on the next page displays the recommended heart rate training zone for users twenty years of age to seventy-five years of age.

WORKOUT GUILDLINES

Typical Target Zone Exercise Patterns for 35 year-old

185 bpm	**Maximum Attainable Heart Rate**
157 bpm	**85% of Maximum**
111 bpm	**60% of Maximum**

Rest | Warm-up 5 Min. | 20-30 Minutes of Exercise | Cool-Down 5 Min. | Rest
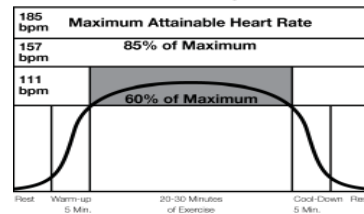
Heart Rate Guidelines
60% - 85% Maximum Targe

Heart Rate in BPM

170, 166, 162, 157, 153, 149, 145, 140, 136, 132, 128, 123
120, 117, 114, 111, 108, 105, 102, 99, 96, 93, 90, 87

Ages in Years: 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75

▲ = 85% ■ = 60%

16
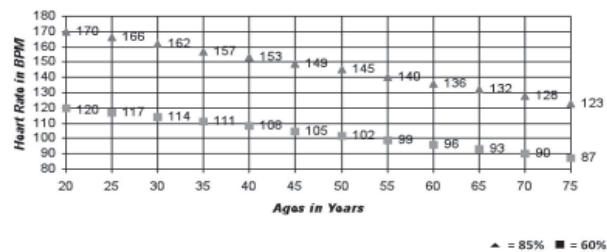
WORKOUT QUALITY AND QUANTITY

It is recommended that you accumulate at least 30 minutes of physical activity most days of the week. Physical activity should be initiated slowly and the intensity should be increased gradually. You should select activities that you enjoy and can fit into your daily life. Having Diamondback Fitness equipment at home certainly gives you the comfortable and convenient workout you want.

The American College of Sports Medicine makes the following recommendations for the quantity and quality of training for developing and maintaining cardio respiratory fitness in healthy adults:

- An activity that uses large muscle groups, maintained continuously, and is rhythmical and aerobic in nature.
- Duration: 20 to 60 minutes of continuous aerobic activity, including a warm-up and cool-down period, for each exercise session.
- Frequency: 3 to 5 times per week.
- Intensity: 60% to 85% of maximum heart rate.

In addition to aerobic exercise, strength training of moderate intensity twice per week is recommended. Women especially may benefit from weight-bearing exercises. Select activities you enjoy and can fit into daily life. Having Diamondback Fitness equipment at home offers you the opportunity to work out without going to the gym.

Get a smart start on exercising

Anyone over the age of 35, as well as, younger persons who are overweight, should check with his/her physician before beginning any type of exercise program. People who have diabetes or high blood pressure, a family history of heart disease, high cholesterol or have led a sedentary lifestyle should protect themselves with a medical check-up and a stress test, preferably administered during exercise by a health care professional.

- Always stretch before your workout to loosen muscles, and afterward to cool down.
- The first few minutes of your workout should be devoted to warming up muscles before a vigorous workout, and building your heart rate slowly.
- After your aerobic workout of about 24-32 minutes, spend 10 minutes gradually reducing your heart rate with a lower resistance level.

NOTE: Start slow, with intensity low until you build up endurance and strength. Always consult your physician before beginning any exercise program.

CONSOLE

Console Layout

Mp3 Input Jack

Media Bay Door

510 **DIAMONDBACK** *Fitness*

Level	Total Time	Segment Time	Watts
Resistance	Speed	Remaining	Power
12	14:17	56:43	354

Heart Rate Control Display

Upper Display: Level, Time & Watts

Heart Rate

Beats per minute

138

Target Heart Rate Achieved

Matrix Display

Miles			Kilometer
245	375	69	164
Distance	Calories	RPM	Speed

Input/Control Keys

Scrolling/Lower Display: Distance, Calories, RPM & Speed

GO

ENTER

STOP
Press & Hold to Reset

Fan Speed | **QuickSet Programs**

High • Low • Off

Heart Rate | Strength | Hill Climb | Interval | Fat Burn

Fan Control Key

QuickSet Program Keys

Adjustable Fan Louver

Integrated Book Rests

Stereo Speakers

CONSOLE

Level / Resistance

Level
Resistance
12

The resistance level currently being applied is displayed in the Level field. Alternatively, the load or resistance level is also displayed in the display matrix as a flashing column. There are sixteen (16) resistance levels to choose from.

Time Displays (Total Time & Segment Time)

Total Time
Elapsed
14:17

Segment Time
Remaining
56:43

Located in the center of the upper display are the Total Time and Segment Time clocks. The Total Time field will count up the total elapsed time for the current program, then switch to display the total time remaining. The display will switch between these two values every five seconds. The Segment Time display time will alternate the display between the elapsed and remaining time for the current segment of the program. The segment time is equal to 1/20th of the total program time and is graphically displayed in the Display Matrix field. The user can lock these displays in the current time function (Elapsed or Remaining) by pressing the right arrow key.

Watts

Watts
Power
354

Watts are a measurement of energy level and are frequently adopted within the fitness industry to track the amount of work generated at any given time during a workout. Watts are calculated with input from the user's current Speed and Level/Resistance.

Heart Rate / Beats-per-minute (BPM)

Heart Rate
Beats per minute
138

When the user's heart rate signal is detected via the heart rate sensors on the fixed handlebar the heart and DB symbols will flash and the user's current heart rate will be displayed. If the user's heart rate signal is not detected, No

No Signal | **Target Heart Rate Achieved** | 🔒

Signal will light and the heart rate display will post "- - -". When operating a heart rate control program, Target Heart Rate Achieved will be lit if the user's current heart rate is within the defined range. The "DB/Heart" logo will flash to indicate that a heart rate signal is being received.
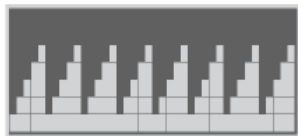
CONSOLE

Heart Rate Bar Graph

The Heart Rate Bar Graph provides the user with meaningful heart rate feedback in an easy-to-read format. When a heart rate signal is detected, the bars of the graph will light to indicate at which percentage of the user's maximum heart rate and training zone (Warm Up, Fat Burn, Cardio, or Peak) the user is operating within. The Heart Rate Bar Graph will not light if the user is operating in guest mode or no heart rates signal is detected. If the QuickStart program is running, the default age value will be used to calculate the estimated maximum heart rate.

Matrix Display

When the console operates in the program run mode, the matrix will graphically display the resistance level and profile for the selected program. A higher stack represents a higher resistance level, while a flashing column indicates the user's progress in the program at any given time. Each vertical column represents a time interval determined by the total length of the program. Each column will equal 1/20th of the total program length. For example, if the program length is 30 minutes, each column will equal 1-1/2 minutes. The Matrix Display will also provide messaging and feedback during the setup modes.

Distance

Distance will be displayed in either Miles or Kilometers, depending upon the selection made in the console setup mode *(see section titled English Unit Mode and Metric Unit Mode)*. The distance calculation is an estimation based upon the user's RPM.

Calories

The Calories field tracks the estimated number of calories burned from the beginning of the program and is a derivative of the Watts generated, the user's RPM and the resistance level.

CONSOLE

Speed

Speed is displayed as Miles-per-Hour or Kilometers-per-Hour (depending upon the current console setting) and is based upon the revolutions per minutes (RPM).

RPM

RPM or revolutions-per-minute. A revolution is defined as one complete foot rotation. RPMs are the number of complete rotations a single foot completes in sixty seconds.

Scrolling Messaging Display

The Distance, Calories, Speed & RPM fields also serve as a messaging center. During the user and console setup modes, information will post or scroll information and instructions to aid the user.

CONSOLE KEYS

GO / QuickStart Key

From the Idle, Banner or Demo modes press the GO/QuickStart key to immediately launch the QuickStart program and bypass data entry. Pressing the GO/QuickStart key in the Setup mode will launch the displayed program.

STOP Key

Pressing the STOP key during the Program Run mode will pause the unit for five (5) minutes. Pressing the STOP key twice will end the current program, post the Workout Summary and return the unit to the Idle mode. Pressing the STOP key consistently for two seconds will reset the unit, erase all user-entered data and return the console to the Idle mode.

CONSOLE

UP & DOWN Arrow Keys

The UP and DOWN arrow keys are the primary method for adjusting values in the setup modes. During the Program Setup mode, the UP/DOWN keys will adjust Age, Weight and Time entries. During the operation of a workout program, the UP and DOWN keys will adjust the resistance level or target heart rate setting.

RIGHT Arrow Key QuickSet Keypads.

The RIGHT arrow key allows the user to select the displayed data when in the setup modes. During program run mode, the RIGHT Arrow Key toggles the data switching feature for the Total Time and Segment Time on and off.

ENTER Key

The ENTER key will confirm the selection of the displayed data during the setup modes.

QuickSet Program & Resistance Keys

The QuickSet Program keys allow the user to quickly launch a program category with a single button press. The QuickSet Resistance keys provide one-touch adjustments to the resistance during the program run mods.

CONSOLE FEATURES

SmartFan® High Output Fan

This unit is equipped with a high-output fan to offer greater comfort during the workout. The adjustable louver allows the user to direct the airflow. Pressing the SMARTFAN button once will power the fan on in the low airflow setting. Pressing the button a second time will increase the fan speed to the high setting and maximum output. A third key press will turn on the SmartFan mode. As the user's work level increases, the fan output will increase. As the user's workload or effort decreases, so will the fan output.

Media Bay

At the top of the console is a flip-top door which conceals a small tray. The tray is designed to support the user's Mp3 player or cellular telephones. A USB charging port can be found inside the media bay.

USB Charging

To allow charging of small electronics, including cellular telephones and Mp3 players, the 510 console is equipped with a USB charging port which can be found inside the media bay. Some electronics may not charge. Power cords are not supplied.

MP3/iPod Input Jack and Speakers

The 510 console offers an on-board amplifier and pair of speakers which can be connected to an Mp3 player, iPod® or iPhone®. Connect one end of a male-to-male stereo cable (not included) to the headphone jack (or audio out) on the device. Plug the other end of the cable into the port located inside the media bay.
Sound levels are controlled by the device so be sure to check the internal device settings if the noise level is not satisfactory.

Tilt Viewing

The 510 is equipped with a tilting console to provide all users with a clear and direct view of the displays. The console pivots at the base. To tilt the console, firmly grasp the top of the console. Do not over-extend the tilt range as damage may occur.

GLOSSARY OF TERMS

Banner/Idle Mode The Banner Mode may also be described as the Idle Mode. Power is supplied to the console and all segments and keypad LED lamps will light in sequence to indicate that the unit is ready for operation. Programs and Setting modes may be launched from the Banner Mode. The Banner Mode will time out in four (4) minutes and enter Power Save Mode if no input is received in the form of console key presses or pedal rotation.

Demo/Idle Mode The Demo Mode operation is identical to the Banner Mode except the console will never power off and does not enter the Power Save Mode. Primarily used for in-store displays, the console ships with the factory default of "Demo Mode On". The user may choose between the Demo Mode and the Banner Mode in Console Setup mode (see the section titled Console Setup).

Power Save Mode The unit will be plugged in, but no power will be supplied to the console. Pressing any key on the console will launch the Banner Mode. The unit will enter Power Save mode after five (5) minutes of inactivity.

LCD An acronym for liquid crystal display. The 510 display screen is an LCD with integrated backlighting for excellent visibility.

Watts A unit of measurement which correlates to the rate energy is generated.

Resistance Level Also called intensity level. The load applied to the workout by the unit. The higher the intensity level, the higher the resistance. There are sixteen (16) resistance levels.

Heart Rate Control Also called Interactive or Heart Rate Control. To maintain a constant heart rate target, the computer console will automatically adjust the resistance or load up or down to increase and decrease the user's heart rate.

Heart Rate Sensors Located on the fixed handlebar, the user can monitor their heart rate during a workout by simply gripping the touch heart rate sensors.

Default Values

Age:	35 years
Weight:	150 pounds (68 kg if system is operating in metric mode)
Time:	30 minutes
Resistance Level:	Level 1

NOTE: The default values for Age, Weight and Time will update when changed in the User Settings Mode.

English Unit Mode and Metric Unit Mode

The default unit setting for the console is the English measurement system. To toggle between the English and Metric unit modes, press and hold the UP and DOWN keys, simultaneously for two (2) seconds while in the Banner or Demo modes. "Set units" will post in the lower display screen while the Matrix Display will flash either "English" or "Metric" to indicate the current unit setting. Press the UP or DOWN keys until the desired unit mode is displayed. Press ENTER to accept the selection.

Operating Notes

Power On and Off
When the AC adapter is plugged into the unit, all LCD segments on the console will light to confirm power has reached the unit.

Power Save Mode
In the power save mode, press any key or move the step arms to wake up the console and begin operation.

Reset
To reset the console and clear all user data, press and hold the STOP key for two (2) seconds. When the program resets, the console returns to the Idle mode.

Pause and Resume
The user may interrupt or pause a program for up to five (5) minutes during a workout. To pause the program, simply press the STOP button. To resume the program, press the GO key before the five (5) minute Pause mode times out.

PROGRAM CATEGORIES

Resistance Levels   During the workout program, the user may press the UP or DOWN keys to adjust the resistance level. Manual resistance adjustments are not available in the heart rate interactive programs.

Calculated Maximum Heart Rate   An estimated maximum heart rate which may be used to determine a threshold for safe exertion levels. The calculation is 220 – AGE = Calculated Maximum Heart Rate.

PROGRAMMING FEATURES

Elapsed Time and Remaining Time Switching
While running a program, the Total Time and Segment Time values will switch between elapsed and remaining. The user may stop the switching and display the current view by pressing the Right Arrow key. Pressing the key again will return the display to switching mode.

Workout Summary
For additional user feedback, the 510 console provides a brief Workout Summary immediately following the completion of the workout session. "END" will post in the Matrix Display and total Time, Distance and Calorie values for the workout will be displayed for thirty (30) seconds. The console will then return to the Idle screen.

Console Default Settings

This unit is shipped with the default values appropriate for the U.S. market.

Setting	Default/Factory Setting	Available Settings
Units	English or Standard	English, Metric
Model	Will match the current unit model	510Er, 510Er, 510Sr, 510Ub
Sound	On	On, Off
Backlight	High	High, Low
Demo Mode	On	On, Off

Console Setup Launch

If the user would like to update the default values, pressing the UP and DOWN arrows keys simultaneously for two (2) seconds will launch the Console Setup mode.

Units Setup   When the Console Setup mode is launched, "Set Units" will post in the lower display field. "English" or "Metric" will flash in the Matrix Display, depending upon current setting. Use the UP or DOWN arrow keys to scroll through the available settings and press the ENTER key to select the displayed option. Press ENTER to launch the Model Number Selections mode. Changing the units will erase all user data.

Model Number   "Set Model Number" will post in the lower display field. "510Sr", "510Ub", "510Er" or "510Ef" will flash in the Matrix Display, depending upon current setting. Confirm the model number of your unit. Use the UP and DOWN arrow keys to view the available settings. When the correct model is displayed, press ENTER to select and launch the Sound Settings mode.

CONSOLE SETUP

Sound Settings "Sound Setting" will post in the Lower Display. "Sound" will also post in the Matrix Display, followed by a flashing "On" or "Off" to indicate the current setting. Scroll between the two settings via the UP and DOWN arrow keys, pressing the ENTER key to confirm the selection and launch the Backlight Settings mode.

Backlight Settings "Backlight Setting" will post in the Lower Display. "Backlight" will scroll once in the Matrix display, followed by a flashing "High" or "Low" to indicate the current setting. Scroll between the two settings via the UP and DOWN arrow keys. Confirm the setting by pressing the ENTER key. Demo Mode Settings will launch

Demo Mode Settings "Demo Mode settings" will post in the lower display. "Demo Mode" will also scroll once in the Matrix Display, followed by a flashing "On" or "Off" to indicate the current setting.

> *Demo Mode On* = console never powers off.
> *Demo Mode Off* = console power off after a few minutes of inactivity.

QUICK START PROGRAM

The QuickStart program option is for users who wish to bypass the User Setup mode and immediately launch a workout session. Adjustments to the resistance can be made at any time via the UP and DOWN keys.

Selection   Press the GO/Quick Start key to launch the Manual program with the following defaults values:
- Time = 30 minutes
- Resistance Level = 1

Launch   Once the program begins:
- Program Run Time will count down from 30:00 minutes.
- The Pulse display will show a heart rate if a signal is detected via the touch heart rate sensors or the wireless pulse receiver.
- The Matrix Display will show the workout profile.
- The lower data display fields will track Distance, Calories, RPM & Speed.
- The UP and DOWN arrow key lamps will flash to indicate that user adjustments are allowed.
- The user may adjust the resistance level from 1 to 16 during the program via the UP and DOWN arrow keys.
- Press the STOP key once to enter the Pause mode. Pressing the STOP key again will return the console to Program Run mode.

End   When thirty (30) minutes have elapsed, the Workout Summary will be displayed

HEART RATE PROGRAMS

Diamondback's Heart Rate programs can also be described as a heart rate control programs. Heart rate control programs automatically increase and decrease the load or resistance levels during the workout to help keep the user's heart rate +/- four (4) BPM (Beats-per-minute) of the selected heart rate target.

For example, if the heart rate target is 132 BPM, and the user's pulse begins to fall, the 510 computer will slowly increase the resistance level. Eventually, the amount of work being performed by the user will increase and so will the heart rate.

Conversely, if the user's heart rate climbs above the target, the resistance will decrease, allowing the user's heart rate to fall. The advantages of heart rate control programs are the simplicity and accuracy by which the ideal cardio-vascular training zone is maintained thereby offering a very efficient workout.

For the Target Heart Rate programs to operate, the computer must receive a heart rate signal from the touch heart rate sensors. If no signal is detected, the Pulse field will display "- - -" and the No Signal icon will light. When a pulse signal is received, the rate will be displayed and the DB/Heart icon will be flash.

For the greatest cardio-vascular benefit, most persons should target a heart rate that is between 60% and 85% of their calculated maximum heart rate. An individual's calculated maximum heart rate is estimated as 220 BPM, minus their age. It is unsafe to exceed 90% of this calculated heart rate.

NOTE: The computer bases all heart rate targets and maximums on the data entered during the Program Setup & User Setup modes. For an effective and safe workout, please enter the correct data for the current user.

NOTE: The 510 is programmed to warn the user if the heart rate exceeds 95% of their maximum. If use is continued at an unsafe level, the console will end the program.

See the sections titled Heart Rate is an Important Key to Your Exercise and Your Estimated Maximum Heart Rate & Target Training on Zone for more information regarding target heart rate calculations. There are two types of heart rate control programs embedded in the 510 console: Target Heart Rate and Percentage Heart Rate (50%, 60%, 70% & 80%).

Heart Rate Program Overview

Overview The Target Heart Rate program allows the user to select a heart rate value (in beats-per-minute). The console will automatically vary the resistance to ensure the desired heart rate value is maintained throughout the workout.

Selecting From the Idle screen, press the HEART RATE key on the console one time. The Heart icon will post in the Matrix Display. "TARGET HEART RATE" will post in the lower display. Press the ENTER key to launch the Heart Rate Program Setup Mode for the Target Heart Rate program.

Setup User: "SELECT USER" will scroll in the lower display. "User 1" or the custom name for the User 1 profile will scroll in the Matrix Display. Select this profile or use the UP and DOWN arrow keys to scroll through the avail able profiles. Press the ENTER key to confirm.

Age: If the Guest profile is selected, the user is prompted to enter their age. This data is not stored and will be reset at the conclusion of the program. Adjust the flashing value via the UP and DOWN arrow keys, confirming the selection by pressing the ENTER key.

When the User 1 or User 2 profiles are selected, any previously-stored user data will be referenced to operate the program. If no data has been entered for these profiles, the User Setup mode will launch (see the section titled User Setup Mode), allowing the user to update the selected profile.

Target Heart Rate Value: The user will be prompted to enter a target heart rate value. Choose a heart rate that is between 50% and 85% of your calculated maximum heart rate via the UP and DOWN arrow keys.

Launch Press ENTER to confirm heart rate target and launch the Target Heart Rate program.

A heart rate signal must be received for the heart rate programs to operate. If a signal is not received, the No Signal symbol will light and the lower display will prompt the user.

All console fields will be begin tracking the workout data. The heart rate field will display the current heart rate, while the bar graph provides an estimate of the current user's calculated maximum heart rate percentage.

PROGRAMS

Resistance adjustments will be controlled by the program to ensure that the user's heart rate remains within +/- four (4) BPM of the selected target heart rate.

The Matrix Display will post a horizontal line of segments to represent the user's selected heart rate target. The flashing segment will indicate the user's progress within the program. A flashing segment that is below the horizontal line indicates that the user's heart rate is lower than the selected target.

Conversely, a flashing segment above the horizontal line signifies a heart rate that exceeds the user's target.

If the current heart rate is within the target range, the Target Heart Rate Achieved icon will light.

End   To end the program at any time, press the STOP key, twice. The workout summary will be displayed for thirty (30) seconds then the console will return to the Idle mode. Press STOP again to return to the Idle mode.

Percentage Heart Rate Programs - Overview, Selection, Setup, Launch & End

Overview   The Percentage Heart Rate programs can also be described as "percent-of-maximum heart rate" programs. The setup and operation of these programs is similar to the Target Heart Rate programming except the console will automatically determine the specific pulse rate target based on the data entered in the user profile and the selected percentage (50%, 60%, 70% & 80%) of their calculated maximum heart rate. See the section titled _Calculated Maximum Heart Rate._

Selecting   From the Idle screen, press the HEART RATE key on the console two times. The Heart icon will post in the Ma trix Display followed by "50%". "50% MAX" will post in the lower display. This program will automatically adjust the workout resistance level so that user's effort will generate a heart rate equal to 50% of their calculated maximum. Scroll through the available programming options (50%, 60%, 70% & 80%) and make a selection by pressing the ENTER key.

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Age: If the Guest profile is selected, the user is prompted to enter their age. This data is not stored and will be reset at the conclusion of the program. Adjust the flashing value via the UP and DOWN arrow keys, confirming the selection by pressing the ENTER key. When the User 1 or User 2 profiles are selected, any previously-stored user data will be referenced to operate the program.

If no data has been entered for these profiles, the User Setup mode will launch (see the section titled _User Setup Mode_), allowing the user to update the selected profile. The selected program will then launch.

Launch   Press ENTER to confirm heart rate target and launch the Target Heart Rate Program. A heart rate signal must be received for the heart rate programs to operate. If a signal is not received, the No Signal symbol will light and the lower display will prompt the user.

All console fields will begin tracking the workout data. The heart rate field will display the current heart rate, while the bar graph provides an estimate of the current user's calculated maximum.

Resistance adjustments will be controlled by the program to ensure the user's heart rate remains within +/- four (4) BPM of the selected target heart rate.

The Matrix Display will post a horizontal line of segments to represent the user's selected heart rate target. The flashing segment will indicate the user's progress within the program. A flashing segment that is below the horizontal line indicates that the user's heart rate is less than the selected target. Conversely, a flashing segment above the horizontal line signifies a heart rate that exceeds the, user's target.

If the current heart rate is within the target range, the Target Heart Rate Achieve icon will light.

End   To end the program at any time, press the STOP key. The workout summary will be displayed for thirty (30) seconds then the console will return to Idle mode. Press STOP again to immediately return to the Idle mode.

CLASSIC PROGRAMS

Classic Programs Overview & Selection
Strength, Hill Climb, Interval and Fat Burn programs are considered classic programs. Each offer identical setup and data entry. Once the desired program has been selected, jump to the section entitled Classic Programs Setup Mode.

Strength Programs

Overview   The Strength program category offers four (4) workout profiles. Each is designed to gradually increase the resistance to help build the users strength and endurance.

Selecting   From the Idle mode, press the STRENGTH key on the console. Use the UP or DOWN arrow keys to scroll through the Strength profile options and press the ENTER key to select the option displayed in the brickyard.

Hill Climb Programs

Overview   The Hill Climb programs simulate climbing exercises with five (5) preset hill profiles.

Selecting   From the Idle mode, press the HILL CLIMB key on the console. Use the UP and DOWN arrow keys to view the available course profiles, followed by the ENTER key to select the displayed profile.

Interval Programs

Overview   The five (5) Interval programs offer profiles with periods of high exertion alternating with periods of rest. Intervals are an excellent way to increase endurance.

Selecting   From the Idle mode, press the INTERVAL key on the console. Use the UP and DOWN arrow keys to view the available course profiles, followed by the ENTER key to select the displayed profile.

Fat Burn Programs

Overview   The two (2) Fat Burn programs are designed to maintain a relatively low level of exertion over the course of the workout. Keeping the heart rate at the lower range encourages weight loss.

Selecting   From the Idle mode, press the FAT BURN key on the console. Use the UP and DOWN arrow keys to view the available course profiles, followed by the ENTER key to select the displayed profile.

Classic Programs Setup Mode

Once a Classic Program has been selected, on-screen messaging will guide the user throughout the Setup Mode.

NOTE: The user may press the GO key at any time during the Setup mode to skip the setup and begin the workout immediately the with previously-saved default values. Note that the heart rate feedback will only be accurate if values for the selected profile are correct for the current use.

User Selection

"User 1" or the previously-entered User 1 name value will scroll in the Matrix Display. Use the UP and DOWN arrow keys to view the user selection options ("User 1", "User 2", "Guest"). When the desired user profile is displayed, press the ENTER key to select. Guest user will run with default data and will not operate all functions of the heart rate programming.

If the User Setup steps for the selected profile has not been completed, the console will launch the User Setup mode (see the section titled <u>User Setup Mode</u> for more information), otherwise, the program will launch immediately.

Classic Programs Launch Mode

Once the Classic program has launched:

- The Matrix Display will post the workout profile and the current progress in the program will be indicated by a flashing stack of segments. The height of the stacks represents the level of resistance; the higher the stack, the greater the resistance. The resistance may be adjusted manually via the UP and DOWN arrow keys.
- The Level display will indicate the current resistance level. The range is from 1 to 16.
- Total Time field will display the progress made in the total workout. Segment Time will display the progress made in the

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current segment. The displays will switch between elapsed and remaining time. Elapsed time will count up, while re maining time will count down. To freeze the switching and display only elapsed or remaining time, press the RIGHT arrow key while the desired display is visible. Press the RIGHT arrow key again to resume switching mode.

- The Watts field will display the current output or work being generated by the user.
- Total Distance for the current workout session will be displayed.
- The Calories field will record the number of calories burned during the workout session.
- RPM or revolutions per minute and Speed will be displayed.

Ending a Classic Program

At any time during the program, the user may press the STOP key to pause the programming. To end the program and view the Workout Summary, press the STOP key twice while the program is running. Pressing the STOP key three (3) times while the program is running will end the program, bypass the Workout Summary and return the console to Idle mode.

USER SETUP MODE

The User Setup mode may be launched in two ways:

- To manually enter the User Setup mode, press and hold the RIGHT arrow key for two (2) seconds.
- During the Program Selection mode, if a user profile is selected for the first time, User Setup mode will launch automatically, then return to the Program Setup mode.

When the User Setup mode is launched, "User 1" will display in the Matrix Display. Use the UP and DOWN arrow keys to view the user profile options ("User 1" or "User 2"). Press ENTER when the desired profile is displayed.

User Name Data Entry

"User 1 Name" or "User 2 Name" will post in the lower display and "U1" or "U2" will post in the Matrix Display field (depending upon which user profile was selected). If the user name has been previously adjusted, the entered name will then scroll once and post with the first character blinking. Adjust this character of the user name via the UP and DOWN arrow keys. Press the RIGHT arrow key to confirm the character selection and move to cursor the next character. The choice of available characters is

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A - Z, a - z, 0 - 9 and the "_" (space). The user may store up to ten (10) characters for each user name. If the desired name is less than ten (10) characters, press ENTER to save settings and launch Workout Time data entry.

User Workout Time Data Entry
"Workout Time" will post in the lower display and the default value of "30:00" (or the previously-adjusted value) will flash in the Total Time display. Use the UP and DOWN arrows to adjust the workout time for this user profile. The range for workout time is 01:00 to 1:59:00. Press ENTER to confirm the workout time and enter Age data entry.

User Age Data Entry
"User 1 Age" or "User 2 Age" will post in the lower display (depending upon which user profile was selected). The default or previously-adjusted user age value will flash in the Matrix Display. Use the UP and DOWN arrows to adjust the age for this user profile. The available user age value must be between ten (10) and ninety-nine (99) years, inclusive. Press the ENTER key to confirm the age setting and enter User Weight entry.

User Weight Data Entry
"User 1 Weight" or "User 2 Weight" will post in the lower display (depending upon which user profile was selected). The default or previously-adjusted user weight value will flash in the Display Matrix. Use the UP and DOWN arrows to adjust the weight for this user profile. The available user weight value must be between 23 and 350 pounds (10 and 150 Kilograms in the console is is set to metric unit), inclusive. Press the ENTER key to confirm the weight setting and enter User Gender entry.

User Gender Data Entry
"User 1 Gender" or "User 2 Gender" will post in the lower display (depending upon which user profile was selected). The default or previously-adjusted user gender value will scroll in the Display Matrix. Use the UP and DOWN arrow keys to view the user gender options ("Male", "Female"). To select the displayed gender setting, press the ENTER key. Press the ENTER key to return to the User Setup selection mode, or press GO or STOP to save all adjusted settings and return to banner mode or previous program.

MAINTENANCE

All Diamondback Fitness products are engineered for years of near-silent operation. Let noise be your first indication that a repair or adjustment is required. Please, discontinue use immediately and contact an Authorized Service Technician or Diamondback Fitness Dealer if an unusual noise, scraping, knocking, grinding or vibration is detected. Often, a minor issue will become a major repair if ignored and use is continued.

Prior to each workout, confirm that all adjustment levers and screws are tightened.

Your Diamondback Fitness product is manufactured of the most durable materials available. The plastics are molded of strong and chemical-resistant ABS and PVC. The frame is produced of high-tensile steel and protected with an industrial-grade, powder paint coating for the highest level of corrosion resistance. It is important to note however, that perspiration can be extremely corrosive if allowed to accumulate on the machine. After training, always wipe down the unit with a mild soap solution followed by a thorough drying with a clean towel. Positioning a small spray bottle and towel near the unit will help ensure that your Diamondback Fitness equipment looks new for many years.

NOTE: Perspiration is very corrosive and if allowed to remain on the machine, will cause discoloration, fading, rust and odors. Unfortunately, these conditions are not covered under the Warranty Policy.

WARRANTY INFORMATION

Diamondback Fitness warrants this unit to be free from defects in material and workmanship under normal use in the home environment. Diamondback Fitness's obligation under this warranty is limited to the repair or replacement of any defective part, provided free of charge through an Authorized Service Agent. This warranty is extended to the original purchaser. The following conditions apply:

Who is Covered
The warranty is extended to the individual whose name appears on the Warranty Registration filed with Diamondback Fitness and may not be transferred to any other individual or legal entity. In the absence of a valid Warranty Registration, the original sales receipt will serve as satisfactory documentation of the valid warranty status.

To Obtain Service
To obtain service, you must contact your Authorized Diamondback Fitness Dealer. Your dealer is also your Authorized Service Agent. An Authorized Service Agent must diagnose your unit to begin the warranty claim process.

Warranty Registration
Warranty commitments are valid only with a completed Warranty Registration. Registration is available online at www.diamondbackfitness.com. Alternatively, a warranty card may be mailed to Diamondback Fitness. (See page 43)

Proof of Purchase
Proof of purchase from a Diamondback Fitness Authorized Dealer will be required if the warranty card is not registered.

What is Covered – For Interior Residential Use Only.
- Frame   Limited lifetime warranty; covers defects in welds, materials, and workmanship (some exclusions apply).
- Brake   Limited lifetime warranty
- Parts & Electronics   3 years
- Labor   1 year
- Wear Items   90 days

Contact the Authorized Diamondback Fitness Dealer which originally sold the unit. If you have moved, or the retailer is unavailable, visit the Diamondback Fitness dealer locator site at www.diamondbackfitness.com to help locate an alternate Authorized Dealer.

Diamondback Fitness is not responsible for securing warranty service and/or honoring extended warranties provided by dealers.

NOTE: ***Authorized service technicians do not reside in all areas of the country. If you live beyond the reasonable service area of a metropolitan area, Diamondback Fitness may not be able to support the labor portion of the product warranty. Travel fees charged by technicians are not covered by the warranty.***

Although current at the time of this printing, specifications for this model may have changed in our continuing effort for improvement. Diamondback Fitness reserves the right to modify and improve the specifications of its products without prior notice

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Important! • Important! • Important! • Important! • Important! •

The warranty card must be completed and returned to Diamondback Fitness within _15 days_ of purchase. Failure to comply may void the manufacturer's warranty. You may also register your product via the web at: www.diamondbackfitness.com

Your Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime phone No.: _____ Evening phone No.: _____

Dealer Store Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Model: 510Ef _____ **Serial No.:** E ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

Purchase Date: _____

Mail completed warranty form to:
Diamondback Fitness - Warranty Card, 6004 South 190th Street, Suite 101, Kent WA 98032

DIAMONDBACK
Fitness

20 YEARS
1991-2011
DIAMONDBACK FITNESS