



FreeClimber" Systems Owner's Manual



StairMaster



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10 REASONS WHY MORE HEALTH AND FITNESS FACILITIES CHOOSE STAIRMASTER® EQUIPMENT

OUTSTANDING QUALITY

Equipment you can depend upon, week after week, for heavy commercial use - instead of a sign that says "out of order."

EXCEPTIONAL PERFORMANCE

Generates exceptional customer satisfaction - allowing you to retain existing club members and attract new ones.

IMMEDIATE CUSTOMER RECOGNITION

An excellent first impression is critical to attracting new club members to your facility. The StairMaster name on your equipment reinforces your club's reputation for quality and effectiveness.

NATIONAL SALES SUPPORT

StairMaster is one of the few organizations that maintains its own fully staffed national sales organization. These individuals will bend over backwards to make sure you are satisfied.

FACTORY-TRAINED SERVICE NETWORK

The StairMaster service staff is on call to quickly address any product concerns. Service is just a toll-free call away.

FACTORY DIRECT PRICES

No warehousing fee. No retail markup. StairMaster sells directly to you for the best prices available.

AFFORDABLE LEASING PROGRAM

We help you make the most of your money, with several types of leasing programs available.

FACILITY PLANNING

Cordless units. Space-efficient designs. Exciting facility layout plans. Our staff works closely with you to maximize the equipment layout of your club or fitness area.

PRE-ASSEMBLED DELIVERY

No set-up, no hassle.

MARKETING SUPPORT

Lots of sizzle - with StairMaster product catalogs, posters, promotional kits, and seasonal promotions.

A FULL LINE OF EXCEPTIONAL PRODUCTS

STAIRCLIMBERS

The Best in the Industry

Our popular FreeClimber® stairclimber line now offers you 5 different models to choose from. These models include the new fully featured FreeClimber 4600 PT and the cordless FreeClimber 4600 CL, along with the FreeClimber 4400 PT and the cordless FreeClimber 4400 CL with Polar® Heart Rate Monitor, and the cost-efficient FreeClimber 4200 PT - all designed especially for health clubs.

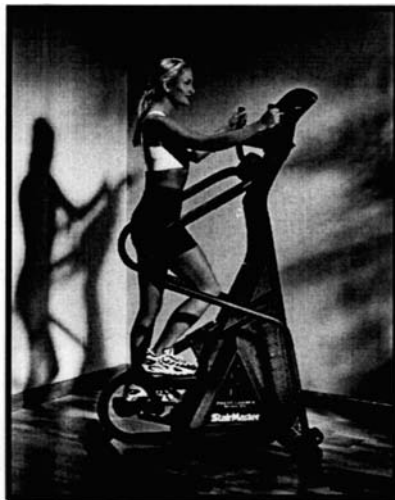
Other StairMaster® stairclimbers include the Stepmill® 7000 PT - for the most challenging stairclimbing workout - as well as the legendary StairMaster 4000 PT®.

ELLIPTICAL STRIDING SYSTEMS

The New StairMaster FreeRunner

Introducing the StairMaster FreeRunner™ 5400 ESS - a revolutionary new design that allows you to vary your stride length from 10" to 40." Not only does this unique VSL feature accommodate all users, it also provides enhanced lower-body conditioning - with greater involvement of the glutes, quadriceps, and hamstrings.

For total-body conditioning, club members will love the fact they can use the handles on the StairMaster FreeRunner 5400 for an effective upper-body workout. These handles can also be easily disengaged to rest on the side of the machine.



A FULL LINE OF EXCEPTIONAL PRODUCTS

TREADMILLS

The Highest Quality

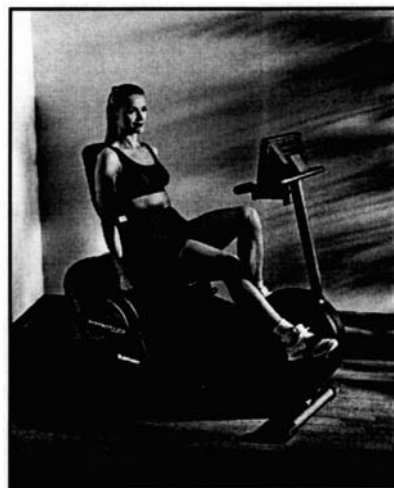
In response to many requests we received from our customers for a high quality treadmill, StairMaster® has selected the Quinton® treadmill as a new addition to our product line - with four different models to choose from - the ClubTrack® 510, the ClubTrack® 510 Plus, the ClubTrack® 612 and the ClubTrack® 612 Plus. Only Quinton could match the StairMaster reputation for maximum performance, durability, and product safety.

STRATUS EXERCISE BIKES

New Models & Prices

At last - a cordless line of variable resistance exercise bikes that not only provide the exciting workout programs that StairMaster is famous for, but are designed with such uncompromising attention to every biomechanical detail, they offer you extraordinary safety and comfort.

Introducing Stratus exercise bikes - a new cordless variable resistance line from StairMaster - that are available with either an upright or recumbent seat. Just like StairMaster's legendary stairclimbers, Stratus exercise bikes are very different from other models - simply because they feel so good to use.



A FULL LINE OF EXCEPTIONAL PRODUCTS

CROSSROBICS®

The Ultimate Exercise Machines

The StairMaster® Crossrobics products are innovative machines that combine aerobic exercise with a weight stack for strength conditioning. Available only from StairMaster, the Crossrobics machines provide the ultimate workout.

StairMaster offers you two Crossrobics machines - the Crossrobics 1650 LE and the Crossrobics 2650 UE Kayak. Both products feature an easy-to-operate, first-time user option as well as a quick-start feature.

STAIRMASTER STRENGTH SYSTEMS

Feel the Difference

Club members will feel the difference the first time they use StairMaster® strength equipment - designed to work the way your body works.

Consisting of the Gravitron® 2000 AT and the new Arcuate® and Linear™ lines, StairMaster offers you 17 different strength training products to choose from. To ensure the highest quality, all StairMaster strength equipment is now manufactured at our own factory in Tulsa, Oklahoma.





WARRANTY

This is to certify that the StairMaster® FreeClimber® exercise system is warranted by StairMaster Sports/Medical Products, Inc. to be free of all defects in materials and workmanship. This warranty does not apply to any defect caused by negligence, misuse, accident, alteration, improper maintenance, or an "act of God". This warranty is non-transferable from the original owner.

If, within three years from the date of purchase, any part of the StairMaster FreeClimber exercise system should fail to operate properly (except any accessories or the battery on the 4600 CI and the 4400 CI), contact our Customer Service Department to report the problem. When calling, please be prepared to provide the customer service representative with the following information:

- Your name, customer number, shipping address, and telephone number
- The model and serial number of the inoperable machine
- The date(s) of purchase for the inoperable machine(s)
- Your billing address

This information will ensure that you are the only one ordering parts under your warranty protection. If warranty replacement parts are shipped to you, you may be required to return the inoperable part. To facilitate this process, the following policy has been established:

Please call our Customer Service Department to receive a return goods authorization prior to shipment.

StairMaster Sports/Medical Products, Inc. will incur all freight charges for warranty parts ordered for a machine that is less than 45 days old. The parts will be shipped to you via an overnight courier.* You are responsible for freight charges on warranty parts for machines that are more than 45 days old. You will not be responsible for the return shipment of the inoperable parts. Some inoperable warranty parts must be promptly returned to our Customer Service Department. We will pay the shipping cost for the inoperable warranty parts. Detailed instructions are included with each warranty replacement part.

StairMaster Sports/Medical Products, Inc. neither makes, assumes nor authorizes any representative or other person to make or assume for us, any other warranty whatsoever, whether expressed or implied, in connection with the sale, service, or shipment of our products. We reserve the right to make changes and improvements in our products without incurring any obligation to similarly alter products previously purchased. In order to maintain your product warranty and to ensure the safe and efficient operation of your machine, only authorized replacement parts can be used. This warranty is void if parts other than those provided by StairMaster Sports/Medical Products, Inc. are used.

* Note: Aerosol products cannot be transported via air.



PREFACE

Regular use of the Stairmaster® FreeClimber® exercise system is a safe and effective way to develop aerobic fitness while conditioning the major muscles of the lower body. In order to get the best results, and to keep your machine in peak operating condition, you should carefully read and follow the guidelines presented in this manual.

WHAT IS IN THIS MANUAL?

The first part of this manual includes sections on safety, installation, operating instructions, and preventive maintenance. The second part contains detailed information on problem troubleshooting and repair procedures. An Appendix at the end of the manual provides additional information for the owner.

Throughout this manual, console keypad keystrokes are enclosed in []. The names of the keys and special console operational modes are shown in capital letters. For example, your machine is ready to use when the console is in the ATTRACT mode. Press [MANUAL] to start the MANUAL exercise program.

WHAT IS THE STAIRMASTER FREECLIMBER EXERCISE SYSTEM?

The StairMaster FreeClimber exercise systems are vertical climbing machines with an independent step action. The independent step action, combined with the patented pedal geometry featured on all StairMaster steppers, provides an aerobic workout equivalent to uphill running or climbing stairs, but without the high-impact pounding to the joints and muscles.

There are five FreeClimber models: the 4600 PT (Personal Trainer), the 4600 CL (Cord Less), the 4400 PT, the 4400 CL, and the 4200 PT. All FreeClimbers feature the Quiet Drive transmission. The 4600 PT and the 4600 CL have an adjustable tilting, full-featured console with a Light Emitting Diode (LED) display. The 4400 PT and the 4400 CL have an upright, rail-less design. The 4600 PT and the 4400 PT use an external power supply that is plugged into an AC wall outlet. The 4600 CL and the 4400 CL use power generated during a workout to run the electronics. The 4600 PT and 4600 CL have contact heart rate and Polar® heart rate monitoring. The 4400 PT and the 4400 CL feature Polar® heart rate monitoring. The 4200 PT uses an external power supply to run a Liquid Crystal Display (LCD) console. This LCD console has less feedback and fewer workout programs than the LED console on the 4600 PT/CL and the 4400 PT/CL.



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SAFETY GUIDELINES

WHEN USING ELECTRICAL EQUIPMENT, ALWAYS FOLLOW THESE BASIC PRECAUTIONS:

IMPORTANT SAFETY INSTRUCTIONS



This symbol appearing throughout this manual means Attention! Be Alert! Your safety is involved.

The following definitions apply to the words "Danger" and "Warning" found throughout this manual:

DANGER -Used to call attention to IMMEDIATE hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.

WARNING - Used to call attention to POTENTIAL hazards that could result in personal injury or loss of life.

READ ALL INSTRUCTIONS BEFORE USING THE MACHINE.



DANGER

To reduce the risk of electrical shock, always unplug the external power supply from the AC wall outlet before cleaning, maintaining, or repairing.



WARNING

To reduce the risk of burns, electric shock, or injury to persons:

1. The external power supply should always be unplugged from the AC wall outlet before removing or installing parts. Never make adjustments or repairs while an exercise program is in progress.
2. Close supervision is necessary whenever the machine is used by or near children, invalids, or disabled persons.
3. Keep your hands away from all moving parts and keep your feet on the pedals while exercising. Do not operate the machine with the side covers removed.



SAFETY GUIDELINES

4. Use this machine only for its intended use as described in this Manual. Do not use parts, attachments, or accessories other than those provided by StairMaster® Sports/Medical Products, Inc.
5. Do not use the external power supply if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Contact our Customer Service Department to arrange for the return of damaged parts. Refer to the Appendix for the appropriate phone number.
6. Connect the external power supply to a properly grounded AC wall outlet; refer to the "Grounding Instructions" section. Keep all cords away from heated surfaces.
7. To disconnect the external power supply, remove the plug from the AC wall outlet.
8. Never drop or insert any object into any opening on the machine.
9. Do not operate where aerosol (spray) products are being used.
10. Always wear insulated gloves when handling batteries.
11. Do not crush, incinerate, or dismantle the battery. The electrolyte contains sulfuric acid which can cause serious damage to eyes and skin. Should this occur, flush profusely with water and seek medical attention.
12. Do not use the machine outdoors.

The safety level given by the design of this equipment can only be maintained when the equipment is regularly examined for damage and wear. Inoperable components shall be replaced immediately or the equipment shall be put out of use until it is repaired. Failure to follow all guidelines may compromise the effectiveness of the exercise experience, expose yourself (and possibly others) to injury, and reduce the longevity of the machine. Follow all training instructions listed in the manual and/or on the machine. Physical injury may result from incorrect or excessive training.

SAVE THESE INSTRUCTIONS

INTRODUCTION

Before leaving the manufacturing facility in Tulsa, Oklahoma, your StairMaster® FreeClimber® exercise system was thoroughly inspected and tested to ensure proper operation. The major parts of the machine are shown in Figures 1 and 2.

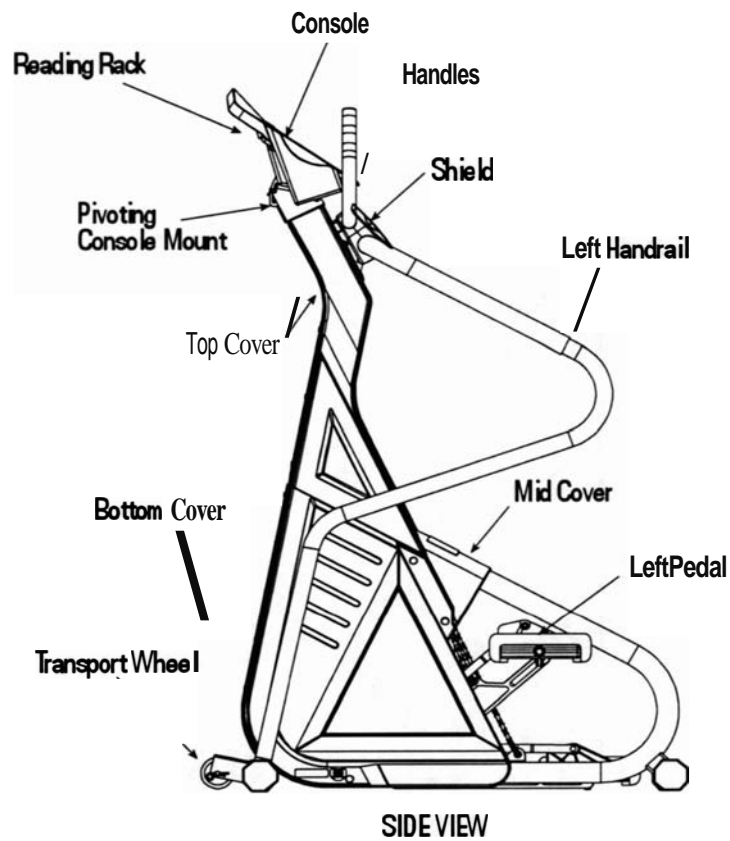


Figure 1: Major Parts - 4600 PI/CI

INTRODUCTION

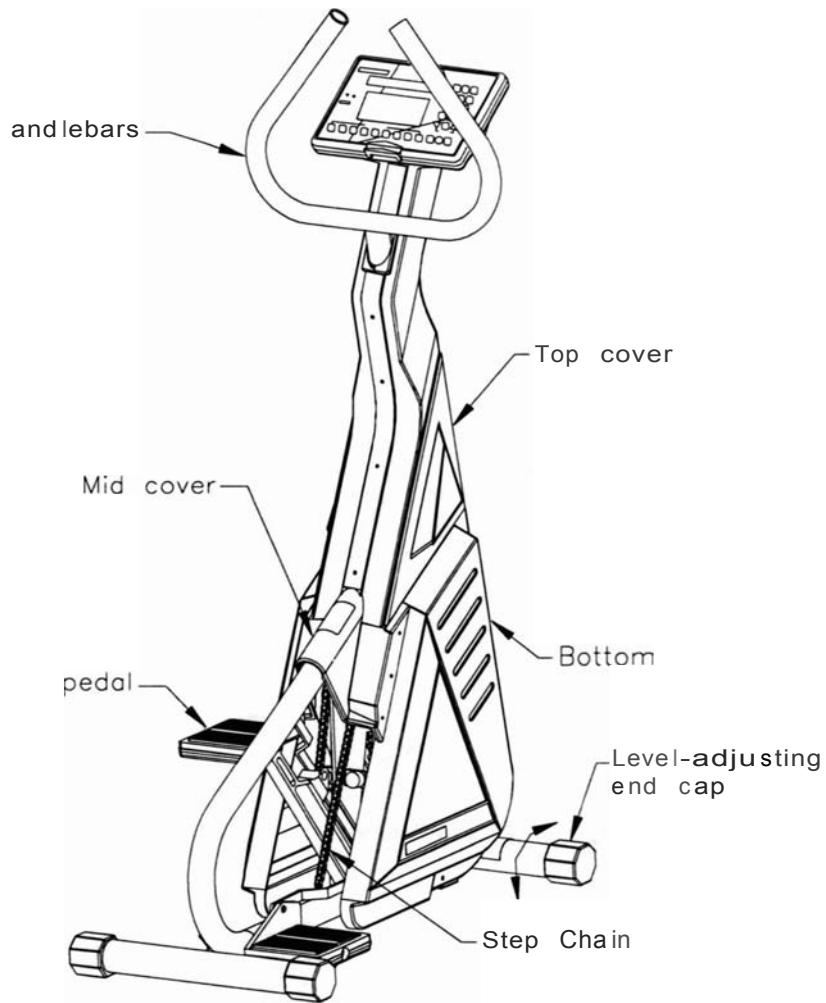


Figure 2: Major Parts- 4400 PT/eL

INTRODUCTION

Throughout this Manual, all references to the left or right side and to the front or back are made as if you were on the machine, ready to exercise. For example, the console is located on the front of the machine. The dimensions and general specifications of the machines are listed in Table 1.

Table 1. Dimensions and Specifications for the StairMaster® FreeClimber® Exercise Systems

<u>Physical Dimensions:</u>	
Length	41 inches (104 cm)
Width at Front Leg (4400 PT/CL, 4200 PT)	22 inches (56 cm)
Width at Front Leg (4600 PT/CL)	32 inches (82 cm)
Height	69 inches (176 cm)
Weight	
4400 PT/CL, 4200 PT	126 pounds (55 kg)
4600 PT/CL	155 pounds (70 kg)
<u>Power Supply Specifications:</u>	
4600/4400/4200 PT (U.s., Canada, Japan)	120 VAC, 50/60 Hz, 2.5 Amp
4600/4400/4200 PT (International)	230 VAC, 50/60 Hz, 2.5 Amp
<u>Battery Charger Specifications:</u>	
4600/4400 CL (U.s., Canada, Japan)	120 VAC, 50/60 Hz, 1 Amp
4600/4400 CL (International)	230 VAC, 50/60 Hz, 1 Amp
<u>Internal Battery</u>	
6 volt, 1 Ah Lead-Acid battery	

INSTALLATION INSTRUCTIONS

Assemble your machine before use. Machines shipped outside the United States need to be uncrated before they can be assembled; refer to the "Uncrating Instructions" included with your machine for the details.

1. Remove all shipping material from your machine once it is in place.
2. Make sure the machine is level before you use it for the first time. The four rubber end caps (see Figure 3) are designed to compensate for uneven floors. Each face of the caps is a different thickness. Twist the caps to stabilize the machine.

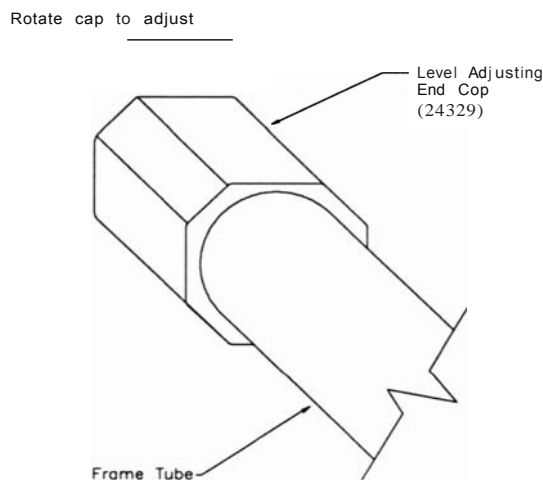


Figure 3: Level Adjusting End Caps

3. Open the box you removed from the pedals. The box contains either an external power supply (4600/4400/4200 PT only) or a wall-pack battery charger (4600/4400 CL only). ***The battery charger is only used to recharge a low battery.***

INSTALLATION INSTRUCTIONS

4. If you have a 4600/4400 CL, skip to step 9. If you have a 4600/44001 4200 PT, connect the DC cable of the power supply to the connector near the bottom of the left side cover (see Figure 4).

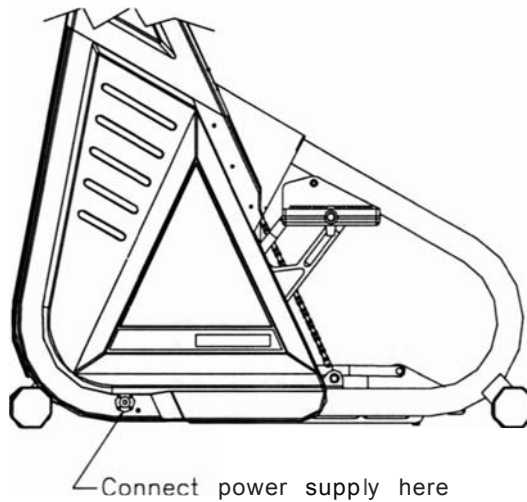


Figure 4: DC Power Connector

5. Place the power supply on the floor near an AC wall outlet. To reduce the hazard of electrical shock, place the power supply in a location away from the machine and away from exposure to perspiration. You should not place your power supply on a carpet because it may over heat.

INSTALLATION INSTRUCTIONS

6. Check to be sure that the input AC power rating marked on the power supply matches the available power. If it does not, obtain the matching power supply from StairMaster® Sports/Medical Products, Inc. before proceeding any further.



WARNING

TO REDUCE THE RISK OF ELECTRICAL SHOCK AND FIRE AND TO PREVENT SEVERE DAMAGE TO THE MACHINE, USE ONLY THE POWER SUPPLY APPROVED FOR USE WITH THIS EQUIPMENT. IN ADDITION, YOUR MACHINE MUST BE PROPERLY GROUNDED.

7. Connect the AC power cord to the AC wall outlet. Refer to the "Grounding Instructions" section if the AC wall outlet does not accept a three-prong plug.
8. Watch the console. The 4600/4400 PT should scroll a copyright message and then display a simulated EKG signal. The 4200 PT console should run through a self test and then display a moving line in the upper LCD window. If the console does not, unplug the power supply and then plug it back in. If the console still does not power up correctly, contact our Customer Service Department. Refer to the Appendix for the appropriate phone number.
9. If you have a 4600/4400 CL, step on the pedals to check for proper operation. Once you step on the pedals, the console should produce an audible sound and display a simulated EKG in the display area. If it does not, connect the battery charger to the connector on the lower right side. If the console still does not power up contact our Customer Service Department. Refer to the Appendix for the appropriate phone number.
10. The ATTRACT mode tells you the machine is ready to use. The 4600/4400 PT/CL console displays a simulated EKG signal and the 4200 PT displays a moving line in the upper LCD window when the console is in the ATTRACT mode.

BASIC OPERATING INSTRUCTIONS

GENERAL GUIDELINES FOR SAFE OPERATION



WARNING

THESE GUIDELINES ARE DIRECTED TO YOU, AS THE OWNER OF THE MACHINE. YOU SHOULD INSIST THAT ALL USERS FOLLOW THE SAME GUIDELINES. YOU SHOULD MAKE THIS MANUAL AVAILABLE TO ALL USERS.

1. Obtain a complete physical examination from your medical doctor and enlist a health/fitness professional's aid in developing an exercise program suitable for your current health status.
2. When working out for the first time, use the MANUAL exercise program at the lower speeds until you feel comfortable and capable of faster speeds.
3. The speed and duration of your exercise program should always be subject to how you feel. Never permit peer pressure to exceed your personal judgment while exercising.
4. Overweight or severely deconditioned individuals should be particularly cautious when using the machine for the first time. Even though such individuals may not have histories of serious physical problems, they may perceive the exercise to be far less intense than it really is, resulting in the possibility of overexertion or injury.
5. Although all equipment manufactured by StairMaster® Sports/Medical Products, Inc. has been thoroughly inspected by the manufacturing facility prior to shipment, proper installation and regular maintenance are required to ensure safety. Maintenance is the sole responsibility of the owner.

BASIC OPERATING INSTRUCTIONS

YOUR FIRST WORKOUT ON THE STAIRMASTER® FREECLIMBER® EXERCISE SYSTEM

The ATTRACT Mode

All workouts on the StairMaster FreeClimber exercise system start from the ATTRACT mode. The 4600/4400 PT/CL console displays an EKG signal or scrolls a message in the text bar when it is in the ATTRACT mode. You must step on the 4600/4400 CL pedals before the console goes into the ATTRACT mode. The 4200 PT console displays a moving line in the upper LCD window when it is in the ATTRACT mode.

You can customize the ATTRACT mode on the 4600/4400 PT/CL by programming your own scrolling message. Refer to the "Customizing the Text Bar Scrolling Message" section for instructions.

BASIC INSTRUCTIONS FOR FIRST-TIME USERS

1. Warm up with light calisthenics and easy stretching exercises for at least five minutes before beginning your exercise program.



WARNING

IF AT ANY TIME DURING YOUR WORKOUT YOU FEEL CHEST PAIN, EXPERIENCE SEVERE MUSCULAR DISCOMFORT, FEEL FAINT, OR ARE SHORT OF BREATH, STOP EXERCISING IMMEDIATELY. IF THE CONDITION PERSISTS, YOU SHOULD CONSULT YOUR MEDICAL DOCTOR IMMEDIATELY.

2. Hold onto the handlebars and step up onto the pedals. Stand up straight. The pedals will sink slowly toward the floor.
3. Select the MANUAL exercise program so you can control the pace of your first workout and get used to the exercise motion.

4600/4400 PT/CL Console Set-Up

1. Press [MANUAL] and then press [ENTER]. The console will return to the ATTRACT mode if you do not press [ENTER] within ten seconds.

BASIC OPERATING INSTRUCTIONS

2. The console will prompt you to enter your body weight. Enter your weight in pounds (or kilograms if the console is set up for metric units). Correct entry errors by pressing [CLEAR] before you press [ENTER].
3. The console will prompt you to enter the workout time in one minute increments between five and 60 minutes. Press [1], [0], [ENTER] to exercise for ten minutes. If you do not start exercising within 30 seconds, the console will return to the ATTRACT mode.

4200 PT Console Set-Up

1. Look at the upper LCD window. The arrow pointing to the word "Program" should be flashing and "PI" should be displayed. PI corresponds to the MANUAL program. Press [SELECT].
2. The arrow pointing to the word "Weight" will flash and "150" is displayed. Use the [+ or - ARROW] to adjust your body weight. Press [ENTER/SELECT] when it is correct.
3. The arrow pointing to "Speed Level" will flash and "3" is displayed. Press [SELECT].
4. The arrow pointing to the word "Time" will flash and the number "15" is displayed. Press [- ARROW] to change the workout time to 10 minutes. Press [SELECT].

Begin Exercising

1. Take deep, comfortable steps. Do not let the pedals touch the floor or contact the upper stop. When you begin to exercise, the MANUAL program starts at level three.
2. As you become comfortable with exercise motion, press [+ INCREASE] and [- DECREASE] to adjust your climbing speed.
3. Relax and stand up straight while exercising. Use the handlebars for balance (see Figure 5).

BASIC OPERATING INSTRUCTIONS

4. Select an intensity level that allows you to stay in the middle of the pedal range of motion. Faster is not always better. Exercise at a level that is consistent with your fitness level.
5. **4600/4400 PT**: You can stop and rest as many times as necessary for up to two minutes at each rest period during all programs except the Constant Heart Rate program, which has unlimited fifteen second rest periods. The console returns to the ATIRACT mode if you rest longer than the allotted rest period. To return to your workout after a rest period, simply raise either foot and start stepping again.

4600/4400 CL and 4200 PT: You can stop and rest as many times as necessary for up to thirty seconds at each rest period. The console returns to the ATIRACT mode if you rest more than thirty seconds. To return to your workout after a rest period, simply raise either foot and start stepping again.

6. When you are finished with your workout, the machine will slow down to the slowest speed. Lift one foot slowly until the pedal arm contacts the upper stop. Place that foot on the floor. Repeat for the other foot. Do not let the pedals slam into the upper stops, since this may cause unnecessary wear and tear.
7. Cool down after you get off the machine by walking or stretching for at least five minutes.

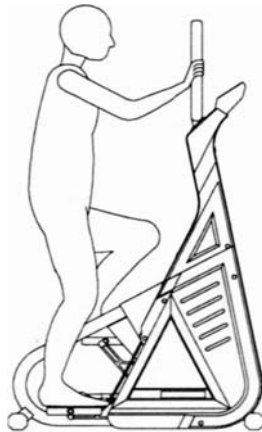


Figure 5: Correct Exercise Posture




CONTACT HEART RATE (4600 PT/CL)

The StairMaster® FreeClimber® features a digitized contact heart rate monitoring system. Through the use of stainless steel sensors built into the upper handles and sophisticated software, heart rate can be checked at any time during a workout.

The heart generates a rhythmic, electronic signal each time it beats (the electrocardiogram or EKG signal). The sensors detect this electrical signal through the hands when the sensors are gripped during a workout. The signal is converted into a heart rate, which is displayed on the console.

The contact heart rate system is very accurate (within 3% of the medical standard), but its ability to detect a heart rate signal is influenced by several factors. Movement of the muscles of the upper body produces an electrical signal that will interfere with the detection of the heart rate signal by the sensors. Movement of the hands while they are in contact with the sensors also produces interference. Calluses and hand lotion act as an insulating layer to reduce the signal strength. Also, the EKG signal generated by some individuals is not strong enough to be detected by the sensors. Typically, these individuals account for 5 - 7% of the population. Most people (between 93 - 95%) will not have a problem with the system provided interference from movement is minimal.

Lightly grip the sensors with each hand. The heart rate display is shown automatically in the upper window the first time the sensors are touched. A valid signal is shown by a pulsating heart icon and the number of beats per minute next to the word "Pulse". The heart icon will stop beating and two dashes replace the numbers when the sensors are released or an invalid signal is received.



POLAR® HEART RATE (4600/4400 PT/CL ONLY)

The StairMaster® FreeClimber® 4600/4400 PT/CL features Polar® heart rate monitoring. The system consists of the receiver, located on the stepper, and a transmitter belt (purchased separately), worn across your chest. The transmitter belt senses the heart beat and sends a signal to the receiver. Your heart rate, in beats per minute, is shown on the console text bar.

The transmitter belt attaches an identification number to your heart rate signal. Once the receiver locks on to your signal, it will ignore all other signals without your identification number. Now, two people can exercise side-by-side without interfering with each other's heart rate signal.

Before you put the transmitter belt on, wet the two contact patches (the grooved rectangles on the reverse side of the belt). Secure the transmitter belt as high under the pectoral muscles (chest) as is comfortable. The transmitter belt should fit snugly and comfortably and allow normal breathing.

When the console detects a heart rate signal, heart rate is shown in the display automatically. The word "PULSE", your heart rate in beats per minute, and a pulsing heart icon are displayed in the text bar.

If you display a statistic other than heart rate during your workout, you can return to heart rate by pressing the white [0] key. Heart rate is part of the workout stats scrolling display. Average heart rate is shown at the end of your workout. If you wear a transmitter strap during the Fit Test, the average heart rate at the end of each stage is automatically used when estimating maximum aerobic capacity.

FREECLIMBER 4600/4400 PI/CL CONSOLE

The StairMaster® FreeClimber® 4600/4400 PT/CL console is divided into four sections: the text bar, display, the function keypad, and the exercise program keypad (see Figures 6 & 7).

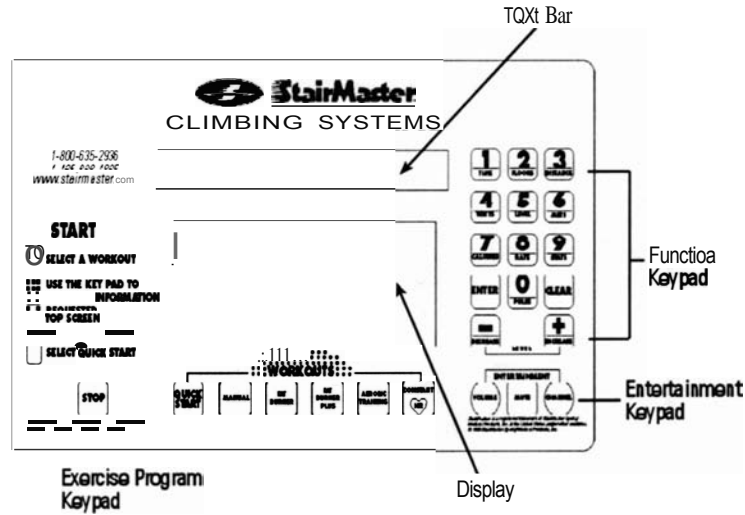


Figure 6: 4600 PI/CL Console Diagram

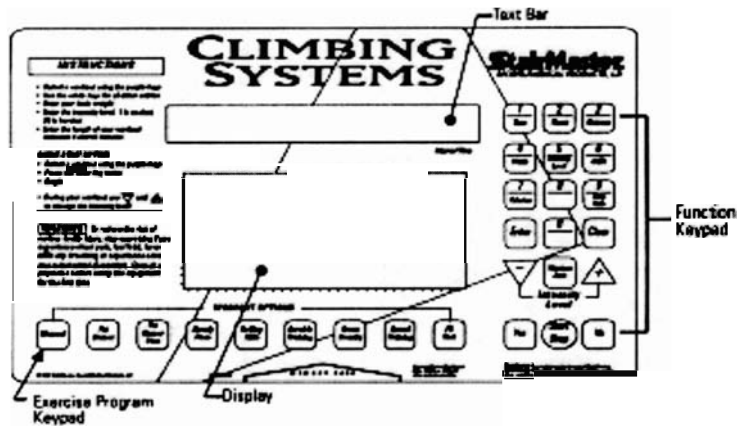


Figure 7: 4400 PI/CL Console Diagram

FREECLIMBER 4600/4400 PI/CL CONSOLE

TEXT BAR

Information regarding workout statistics and data entry is displayed or scrolled across the text bar. A countdown timer is located directly above the words "Interval Time". The timer shows the number of seconds remaining in the current interval.

DISPLAY

A profile of all exercise programs (except MANUAL and FIT TEST) appears in the display when you press its key. The taller the column, the faster the climbing speed for that interval. The flashing column shows your current interval. The flashing column moves from left to right across the display as you complete each interval.

FUNCTION KEYPAD

The white function keypad is located on the right side of the console. Some of the keys have two functions—data entry and workout statistics. Before you start your workout, use the numbers on the keys to enter your personal data. During and after your workout, use the workout statistics on the keys to display the feedback.

Time. Displays the elapsed time of your workout, in minutes and seconds.

Floors. Shows the total number of floors you have climbed. There are 16 eight-inch steps per floor.

Distance. Provides the equivalent horizontal distance you would have traveled if you used the same amount of energy. There are 48 floors per horizontal mile.

Watts. Displays the power output in watts (746 watts = 1 horsepower). Since power is a rate, watts will not accumulate over time. During a workout, this key displays the power output at that moment. Average power is shown for the workout summary.



FREECLIMBER 4600/4400 PI/CL CONSOLE

Intensity Level. Shows the current level between 1 (the easiest) and 20 (the hardest). Shows the number of lights in the Manual program between 1 and 14.

MEIs. Gives you the relative energy cost of exercise. MET stands for multiples of the resting metabolic rate. While you are sitting quietly, your body consumes oxygen at the rate of about 3.5 milliliters per kilogram of body mass per minute. When you exercise, your body needs more oxygen in order to function. For example, exercising at 10 METs requires ten times the resting rate of oxygen consumption, or about 35 milliliters per kilogram per minute. During a workout, this key shows the current MET level. During the workout summary, the average MET level is displayed.

Calories. Provides a running total of the number of Calories burned during a workout.

Step Rate. Indicates the climbing speed in steps per minute. It is based on an average eight-inch step.

Enter. Confirms workout selections and stores the information used by the console to calculate workout statistics.

Zero. On 4600/4400 PT/CL models, press this key to see your heart rate during your workout. Press it during the workout summary to see your average heart rate.

Clear. Erases information from the console memory if pressed before [ENTER].

[+ INCREASE] / [- DECREASE]. Increases or decreases the intensity level.

Yes/No (4400 PI/CL). Respond to console prompts.

Start (4400 PI/CL). If pressed while the console is in the ATTRACT mode, the console will display the "Select A Program" prompt.



FREECLIMBER 4600/4400 PI/CL CONSOLE

Stop. If pressed at any time, the console will return to the ATTRACT mode.

Workout Stats. If pressed during your workout, all workout statistics continuously scroll across the text bar. Press any key to stop scrolling at that statistic.

If pressed immediately after your workout, the workout summary statistics will scroll once across the text bar. Press any key to stop scrolling at that statistic.

If pressed while the console is in the ATTRACT mode, the final totals from the last workout (if the workout was > 10 seconds) will scroll across the text bar. This summary is stored in the console memory until the next work out is started.

ENTERTAINMENT KEYPAD (4600 PT/CL)

The 4600 PT/CL comes equipped to facilitate the use of commercial entertainment systems.

Volume [+1-]. Increases (+) or decreases (-) the volume level.

Mute. Removes the audio sound from the headphones.

Channel [+1-]. Changes commercial entertainment system channels.

EXERCISE PROGRAM KEYPAD

The purple exercise keypad is located below the display and to the left of the function keypad. While the console is in the ATTRACT mode, press one of the exercise program keys to preview the desired workout.

The sequence of prompts for the preset exercise programs is slightly different than the sequence described earlier for the MANUAL program. After you press one of the exercise program keys, the exercise program profile is scrolled across the display.

FREECLIMBER 4600/4400 PT/CL CONSOLE

After the profile is scrolled, the prompts are:

- **"PRESS ENTER KEY TO ACCEPT"**
- **"ENTER BODY WEIGHT"** – type in your body weight in pounds (or kilograms if your console is set to metric units).
- **"ENTER LEVEL 1-20"** – select your intensity level with level 1 being the easiest and level 20 the hardest.
- **"ENTER TIME 5-60"** – select the workout duration in one minute increments from five to 60.

The Quick Start Option

You can quickly start any workout on the 4600/4400 PT/CL by first pressing one of the purple exercise program keys* and then pressing [ENTER] twice. On the 4600 PT/CL you can also just press the [QUICKSTART] program key to begin exercising. You do not have to enter any other information. The length of the workout is set automatically and varies with the program. Quick starting MANUAL gives you a 15 minute workout. The preprogrammed workouts last five minutes for every thirty intervals. For example, a 60 interval program will last 10 minutes. All workout stats displayed at the end of a workout are based on a 175 lb. body weight.

*The [CONSTANT HEART RATE] program key on the 4600 PT/CL, and the [FIT TEST] program key on the 4400 PT/CL do not have a quick start option.

The Fit Test

The Fit Test is a program that estimates your maximal aerobic capacity based on your heart rate response to submaximal exercise. Start the 4600 PT/CL Fit Test by pressing [+ INCREASE], [3], [4], [8], [ENTER] while the console is in the ATTRACT mode. Start the 4400 PT/CL Fit Test by pressing [FIT TEST], [ENTER] while the console is in the ATTRACT mode. You will be prompted to enter your age and gender after a short message is scrolled across the display.

Once you have entered the required information, you will step at the rate of 43 steps per minute for three minutes. At the end of three minutes, you will need to enter your heart rate (if you are wearing a heart rate transmitter and using a 4600 PT/CL, or 4400 CL, your heart rate is entered automatically).

FREECLIMBER 4600/4400 PI/CL CONSOLE

**Note: Keep stepping until the end of the Fit Test.
The Fit Test will end if you stop stepping.**

The console will prompt you to find your pulse; use the artery below your thumb in your wrist or the artery in the side of your neck. Start counting the beats when the console prompts you—the first beat you feel is zero and then one and so on. Enter the number of beats you counted in the ten seconds.

You will continue to exercise for three minute bouts of increasing intensity until you reach a point where you have entered two heart rate responses between 19 and 25 counts (115-150 beats per minute). The test typically lasts from nine to 15 minutes.

At the end of the Fit Test, your results scroll across the text bar. Prior to a three minute cool down, your estimated aerobic capacity, expressed in METs, is shown. Next, your results will be compared to normative values for others of your age and gender. These normative values are based on values developed by the world renowned exercise physiologist, Dr. Per Olaf Astrand, and are shown in Table 2. Your results are stored in the console until the next person starts an exercise program. Press [WORKOUT STATS] to review your results.

Table 2. Fitness Rating Norms (METs)

Rating	Low	Fair	Average	Above Average	Superior
Gender/Age					
Men					
20-29	<10.8	11-12.3	12.6-16.0	16.3-19.7	20.0+
30-39	<9.7	10.0-11.1	11.4-14.6	14.8-18.3	18.6+
40-49	<8.6	8.8-10.0	10.3-13.4	13.7-17.1	17.4+
50-59	<7.1	7.4-8.8	9.1-12.3	12.6-15.7	16.0+
60-69	<6.0	6.3-7.4	7.7-11.1	11.4-14.0	14.3+
Women					
20-29	<8.0	8.3-9.3	10.0-13.3	14.0-16.8	17.1+
30-39	<7.7	8.0-9.4	9.7-13.4	13.7-16.6	16.8+
40-49	<7.1	7.4-8.8	9.1-12.8	13.1-16.0	16.3+
50-59	<6.0	6.3-7.7	8.0-11.7	12.0-14.0	14.3+
60-69	<4.8	5.1-6.3	6.6-10.3	10.6-12.6	12.8+



FREECLIMBER 4600/4400 PI/CL CONSOLE

Preset Exercise Programs

4600 PT/CL:

There are four preset exercise programs. The exercise speed during the programs varies automatically over 14 increments within each of the 20 different intensity levels. Varying the intensity of an exercise program does not change the profile shown on the display. Change the intensity level of your workout by pressing [+ INCREASE] or [- DECREASE]. For each level, the average energy cost of all programs is about the same.

The **FAT BURNER** program is a 60 interval workout designed for people just starting a weight control program.


The **FAT BURNER PLUS** program is similar but has 90 intervals. It is meant for the longer workouts you will need as your fitness level increases.

The **AEROBIC TRAINING** program is a 60 interval workout with slightly more varied speed changes. It is ideal for those long, slow workouts to increase your aerobic capacity.

The **CONSTANT HEART RATE** program maintains a chosen target heart rate by automatically varying the climbing speed during each workout. The default target heart rate selected by the console is equal to 70% of your maximum heart rate which is calculated by the following equation: $220 - (\text{Age}) \times .70$. You may choose a different target heart rate that is between 100 and 170 beats per minute.

4400 PT/CL:

There are seven preset exercise programs. The exercise speed during the programs varies automatically over 14 increments within each of the 20 different intensity levels. Varying the intensity of an exercise program does not change the profile shown on the display. Change the intensity level of your workout by pressing [+ INCREASE] or [- DECREASE]. For each level, the average energy cost of all programs is about the same.



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The **FAT BURNER** program is a 60 interval workout designed for people just starting a weight control program.

The **FAT BURNER PLUS** program is similar but has 90 intervals. It is meant for the longer workouts you will need as your fitness level increases.

The **STEADY PACE** and **ROLLING HILLS** programs are 30 interval workouts with gradual speed changes. They are geared for those who are just starting to exercise or for those who need an easy day of recovery exercise.

The **AEROBIC TRAINING** program is a 60 interval workout with slightly more varied speed changes. It is ideal for those long, slow workouts to increase your aerobic capacity.

The **CROSS COUNTRY** and **SPEED TRAINING** programs are 90 interval workouts with lots of speed changes to get your legs moving. Think of the terrain you would find on a hike cross country.

THE JACKPOT OPTION

When you finish your workout, a "GOAL ATTAINED" message is normally displayed in the text bar. This message may be replaced by a Native American casino style slot machine. When the wheels of the slots stop turning, the console display will spell out either "YOU WIN" or "THE END". The odds of winning may be programmed anywhere from 1-in-1 to 1-in-999. The computer will then randomly select a winner and display "YOU WIN", otherwise it will display "THE END." Workout statistics are shown, as usual, after the jackpot message.

Commercial owners often use the jackpot option to further stimulate consumer interest in their establishment and to add variety to their overall workout program. Many such owners offer a prize or some tangible incentive for individuals who win while using the jackpot option. If there is only one prize, you should remember to disable the option after there is a winner. The jackpot option remains in effect until disabled by entering zero odds. StairMaster® assumes no liability stemming from the use of the jackpot option. Laws or ordinances in your area may govern the use of this option.

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Turning the Jackpot Option On and Off

1. The computer must be in the ATTRACT mode. Press [INCREASE], [7707], [ENTER].
2. The prompt "ENTER ODDS" will appear in the console display. Enter the numeric odds you have selected, between 1 and 999.
3. The jackpot results are saved in the console memory until the next workout is started. Press [WORKOUT STATS] to review the results.
4. Program the odds to zero to turn the jackpot option off and to return to having the "GOAL ATTAINED" message appear after you finish your workout.

CUSTOM EXERCISE PROGRAMS

The 4600 PT/CL console has enough memory space for six custom exercise programs. The 4400 PT/CL console has enough memory space for nine custom exercise programs. Only the exercise profile is saved. You must enter your body weight, the intensity level, and the workout time when you use the custom program. Custom programs have a quick start option, but the time is limited to five minutes.

Programming Your Workout

1. The console must be in the ATTRACT mode. Press [+ INCREASE], [1], [6], [5], [0], [ENTER]. Press the exercise program keypad button that you want to assign to your custom program.
2. If you select an exercise program keypad button that is already programmed, the profile will appear; it can be modified or completely rewritten. If the exercise program keypad button was not previously programmed, you will see a single row of dots along the bottom of the display.
3. The flashing dot or column indicates which interval can be modified. Press the [+ INCREASE] or [- DECREASE] to make the column

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taller or shorter. Press [ENTER] to move one column to the right and [CLEAR] to move one column to the left.

4. When all of the intervals are correctly programmed, press [0- 4600 PTfCI] or [YES - 4400 PTfCI] to save the profile. Press [STOP - 4600 PTfCI] or [STARTfSTOP - 4400 PTfCI] to abort the programming process without saving the profile.

Using a Custom Program

1. Press [- DECREASE] and the exercise program keypad button you assigned to the custom program.
2. Enter your body weight, the intensity level and the workout time in response to the prompts.

CUSTOM SCROLLING MESSAGE

The message that scrolls across the text bar during the ATTRACT mode can be replaced with a message of your choice. The console accepts messages up to 128 characters in length, including spaces. To program your message:

1. Encode your message using the character codes listed in Table 3.
2. While the console is in the ATTRACT mode, press [+ INCREASE], [7], [6], [0], [7], [ENTER].
3. Enter the two-digit code for each letter of your message. The letter will appear in the text bar as you press the second digit of each code. Do not press [ENTER] between the code numbers.
4. For example, to program the message "EXERCISE IS FUN", press [+ ARROW], [7], [6], [0], [7], [ENTER]. Then press [1], [5], [3], [4], [1], [5], [2], [8], [1], [3], [1], [9], [2], [9], [1], [5], [1], [0], [1], [9], [2], [9], [1], [0], [1], [6], [3], [1], [2], [4], [ENTER]. At that point, your message will begin scrolling. The console is again in the ATTRACT mode.
5. If you make a mistake while entering the codes, press [CLEAR] to erase the last character entered.

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Table 3: Character Codes for the Scrolling Message

Character	Code	Character	Code	Character	Code
0	00	M	23	r	46
1	01	N	24	A	47
2	02	O	25	Ī	48
3	03	P	26	Ē	49
4	04	Q	27	A	50
5	05	R	28	Ç	51
6	06	S	29	Ē	52
7	07	T	30	¿	53
8	08	U	31	+	54
9	09	V	32	\$	55
SPACE	10	W	33		56
A	11	X	34	,	57
B	12	Y	35	%	58
C	13	Z	36	?	59
D	14	A	37		60
E	15	O	38	!	61
F	16	O	39	-	62
G	17	B	40	#	63
H	18	A	41		64
I	19	A	42	,	65
J	20	O	43)	66
K	21	É	44	(67
L	22	Ñ	45	/	68

EDITING THE SCROLLING MESSAGE

1. While the console is in the ATTRACT mode, press [+ INCREASE], [7], [6], [0], [7], [ENTER] to display the first character of the message onto the text bar.
2. Press [+ INCREASE] or [- DECREASE] to scroll through the message character-by-character.
3. Press [CLEAR] to delete the last character displayed on the text bar. Press [0] to end the editing process.

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4. To edit multiple characters at one time, press [9], [9], [ENTER] to erase all of the characters to the right of the last character displayed on the text bar.
5. To erase the entire message, press [+ INCREASE], [1], [0], [5], [ENTER] while in the ATTRACT mode.
6. The edited message will scroll across the text bar. If you have erased the entire message, the text bar area will be blank during the ATTRACT mode.
7. Press [+ INCREASE], [2], [1], [2], [3], [ENTER] to display the default scrolling message on the text bar.
8. Press [+ INCREASE], [2], [1], [2], [1], [ENTER] to display your custom scrolling message on the text bar.

CHANGING THE CONSOLE UNITS AND PROMPT LANGUAGE

The console is set at the manufacturing facility to English language prompts and English units. While the console is in the ATTRACT mode, you can set the console for foreign language prompts or metric units.

1. To change the prompt language, press [+ INCREASE], [7], [4], [2], [4], [ENTER]. Press the code number for the desired language (see Table 4) and then press [ENTER].
2. To change the console to metric units, press [+ INCREASE], [9], [7], [6], [0], [ENTER] and then [1]. Press [+ ARROW], [9], [7], [6], [0], [ENTER] and the [0] to change back to English units.

CONSOLE CODES

The console codes and the corresponding functions are listed in Table 4. Without standing on the pedals, press [+ INCREASE] before pressing the code's number keys, and then press [ENTER]. Some codes, like the one to change the language of the console prompts, have options that require you to press a second code number and then [ENTER] to select that option.

FREECLIMBER 4600/4400 PI/CL CONSOLE

Table 4. Console Codes

Code	Function
105	Clears the custom programmed scrolling message
107	Activates the Diagnostic mode
0	Display test
1	Speaker test
2	Keypad test
3	Speed test
4	Software revision test
108	Heart rate software test
1650	Programs a custom workout
2121	Turns on the custom scrolling message
2123	Turns off the custom scrolling message
7424	Changes the language of the console prompts
7607	Turns on the custom message option
99	Text bar scrolling message editing function
7703	Displays machine usage information
7704	Allows you to turn the console speaker on or off
0	Turns the speaker on
1	Turns the speaker off
7705	Allows you to turn the Heart Rate feature on or off
0	Turns the Heart Rate feature on
1	Turns the Heart Rate feature off
9760	Allows you to change the units displayed by the console
0	Changes the console to English units
1	Changes the console to metric units
9766	Allows you to change the software version
0	Changes to 4400 PT software
1	Changes to 7000 PT software
97405	Changes the maximum workout time
52475	Reset time limit to 60 minutes

FREECLIMBER 4200 PT CONSOLE

The StairMaster® FreeClimber® 4200 PT console is divided into two LCD display windows. There is a four-function keypad located below the bottom window (see Figure 8). While you are exercising, the bottom window scrolls through a display of four workout statistics. An arrow on the side of each LCD window points to the name of what is being displayed.

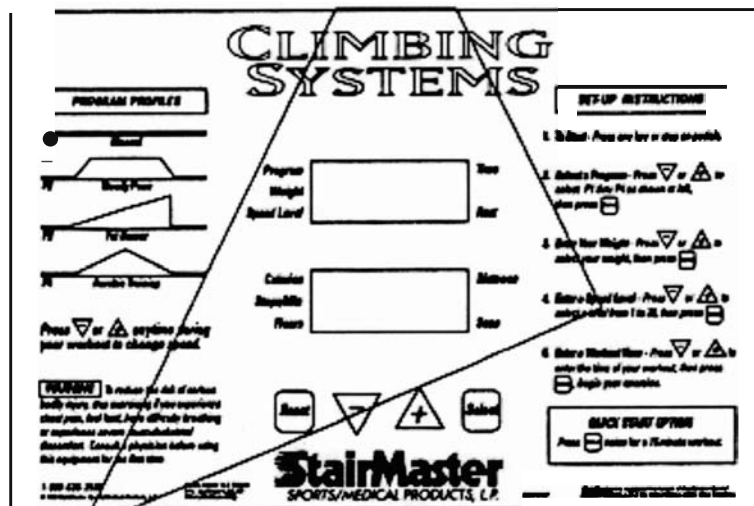


Figure 8: 4200 PT Console Diagram

TOP WINDOW

The top LCD window displays information while you set up your workout. It also displays elapsed time during your workout or during your rest period.

Workout Setup

1. While the console is in the ATTRACT mode, either press [START/STOP] or step on the pedals. Look at the top LCD window.

FREECLIMBER 4200 PT CONSOLE

2. The arrow pointing to the word "Program" should be flashing and "P1" should be displayed. P1 corresponds to the MANUAL program. Use the [+ or - ARROW] to change the workout option. "P2" corresponds to Steady Pace, "P3" to Fat Burner, and "P4" to Aerobic Training. The different workout option profiles are shown on the right side of the console.
3. When the correct workout option is displayed on the top LCD window, press [ENTER/SELECT].
4. The arrow pointing to the word "Weight" will flash and the number "150" will be displayed. Use [+ or - ARROW] to adjust it to your body weight. Press [ENTER/SELECT] when it is correct.
5. If you selected a workout option other than "P1" (MANUAL), the arrow pointing to the words "Speed Level" will flash and the number "10" will be displayed. Adjust the level between 1 (the slowest) and 20 (the fastest) with [+ or - ARROW]. Press [ENTER/SELECT] when it is correct.

If you selected MANUAL, your workout will start at speed level 3. Level 1 is the slowest and level 20 is the fastest.
Use the [+ or - ARROW] to adjust the climbing speed once your workout begins.
6. The arrow pointing to the word "Time" will flash and the number "15" will be displayed. Press [+ or - ARROW] to adjust the length of your workout between 5 and 45 minutes.
7. Press [ENTER/SELECT]. Begin exercising.

FREECLIMBER 4200 PT CONSOLE

Timer

During your workout, the top window keeps track of your workout time in minutes and seconds. The display arrow points to the word "Time" on the console.

You may rest for up to 30 seconds at any time during your workout. Either stop stepping or press [START/STOP] to begin your rest period. To resume your workout, step on the pedals. If you press [START/STOP] during a rest period, or if you rest for more than 30 seconds, the console will return to the ATRACT mode.

BOTTOM WINDOW

The bottom LCD window keeps track of four different statistics during your workout: the number of Calories burned, the climbing speed in steps per minute, the total number of floors climbed, and the total distance covered. As the console scrolls through each statistic, an arrow on the side of the display window points to the name of what is being shown.

Calories. Provides a running total of the number of Calories burned during a workout.

Steps/Min. Indicates the climbing speed based on an eight-inch step.

Floors. Shows the total number of floors you have climbed. There are 16 eight-inch steps per floor.

Distance. Provides the equivalent horizontal distance you would have traveled if you used the same amount of energy. There are 48 floors per horizontal mile.

When the display arrow points to the word "Scan", all workout statistics are scrolled. Press [ENTER/SELECT] during your workout to lock the bottom display window on anyone statistic. For instance, press [ENTER/SELECT] three times to lock the display on the total number of floors climbed. Press [ENTER/SELECT] two more times to resume scrolling the statistics. During rest periods, only Calories, Floors, and Distance are shown (even if the display was locked on one statistic). At the end of your workout, these same three statistics are shown one last time.



FREECLIMBER 4200 PT CONSOLE

Keypad

ENTER/SELECT. During workout setup, press this key to enter your personal information and then move to the next entry. During your workout, press this key to lock the bottom display window on anyone's statistic or to return to the scrolling mode.

+ or - ARROWS. During workout setup, press these keys to adjust your personal information before you press [ENTER/SELECT]. During your workout, use these keys to adjust the level (or climbing speed).

START/STOP. Press this key while the console is in the ATTRACT mode to begin the workout setup. If pressed at any time during workout setup, all entries are cleared and workout setup starts over again. If pressed during a workout, a 30 second rest period is started. If pressed during a rest period, the console returns to the ATTRACT mode.

QUICK START OPTION

You can quickly start the MANUAL program (IP1") by pressing [ENTER/SELECT] twice (double-clicking) at the start of workout setup. The workout statistics are based on a 150 pound person, the climbing speed starts at level 3, and the workout time is set to 15 minutes. Use the [+ or - ARROW] to adjust the climbing speed once your workout starts.

MAINTENANCE INSTRUCTIONS

HELPFUL HINTS

Read all maintenance instructions thoroughly before beginning work. In some cases, an assistant is required to perform the necessary tasks.

All references to the right or left side and to the front or back are made as if you were on the machine ready to exercise. For example, the console is located on the front of the machine. Major component names and locations are shown in Figure 10. When ordering parts, reference the part number in parentheses next to the part's description on the figures.

TOOL LIST

The following tools are needed to perform service and maintenance:

- standard screwdriver
- combination wrenches (sizes 7/16 - 3/4")
- combination pliers
- volt-ohm meter (multimeter)
- allen wrench set (sizes 5/64 _ 1/4")
- shop goggles or other eye protection
- socket set or nut driver set (sizes 1/4 - 3/4" in 1/16" increments)
- phillips screwdriver
- adjustable wrench
- locking pliers
- wire stripper/crimper tool
- external snap ring pliers
- torque wrench

MAINTENANCE RECORDS

The 4600/4400 PT/CL console will keep track of the following data on machine usage:

- The number of hours the power supply was turned on.
- The number of hours the machine was in use.
- The total number of floors climbed.
- The number of exercise programs started.
- The hours of MANUAL use.

To display the data, press [+ INCREASE], [7], [7], [0], [3], [ENTER] while the console is in the ATTRACT mode. The console will display the data in the sequence listed above. The machine may show a few hours of use due to testing at the manufacturing facility.



MAINTENANCE INSTRUCTIONS

The 4200 PT console keeps track of the number of hours the machine was used and the total number of floors climbed. From the ATTRACT mode, press [+ ARROW] and then double-click [RESET]. The hours are shown in the top LCD window and the total floors are shown in the bottom LCD window.

INITIAL SERVICE

Upon receiving your machine, use a soft, clean towel to wipe off the dust which may have accumulated during shipping. Your new machine will require minor assembly. Refer to the "Installation Instructions" section for details.

PREVENTIVE MAINTENANCE

Most of these preventive maintenance procedures can be performed after removing the mid cover. The preventive maintenance schedule is summarized in Table 5. The schedule is based on normal usage in a commercial health club environment; adjust the schedule to meet actual machine usage. Refer to the "Parts Removal and Replacement" section for all disassembly and assembly instructions.

Cleaning

1. DO NOT USE GLASS CLEANERS OR ANY OTHER HOUSEHOLD CLEANER ON THE CONSOLE. Clean the console daily with a water-dampened cloth and wipe dry after cleaning.
2. Clean the exterior of the machine daily using soap and water or a diluted household cleaner such as Fantastic®.
3. Thoroughly clean the entire machine, including the interior, at least once a week (see Table 5).

Inspecting

1. Inspect the frame for any rust, bubbling, or paint chips during the weekly cleaning. The salt in perspiration can damage the unpainted surfaces.



MAINTENANCE INSTRUCTIONS

2. Inspect the Poly-V belt and **HTD** belts for excessive wear during the quarterly lubrication. Adjust the belt tension if necessary.

LUBRICATION

There are nine components that need periodic lubrication: the drive chain, the step chains, the pedal arm return springs, the step chain connection points, the pedal arm bushings, the leveling arm bushings, the spring pulley shafts, the pedal shafts and the leveling arm pins. These parts are shown in Figure 10. Remove the bottom cover to get to the components.

1. Place a protective mat on the floor while you lubricate your machine. A rubber floor mat is available from StairMaster® Sports/Medical Products, Inc.
2. Lubricate the drive chain and the step chains weekly. Try to penetrate the entire length of the chains with 30W motor oil.
3. Remove the drive chain and step chains every three months to thoroughly clean and lubricate them. Use a mild degreaser and a stiff brush to remove dirt and corrosion from the chains.
4. Unhook the pedal arm return springs from the spring hanger every week. To protect them from corrosion, wipe the entire length of each pedal arm return spring with a cloth dampened with 30W motor oil before reconnecting it. Replace the spring if it is rusty or otherwise damaged.
5. Remove the double pitch master link from the step chain connection points every three months. Clean the master link and the bushing in the pedal arm. Lubricate the master link and bushing with a thin coat of multi-purpose grease before reassembling.
6. Remove the pedal arms and leveling arms every three months. Clean the pedal arm and leveling arm shafts and bushings with a clean cloth. Protect the shafts from corrosion by wiping them with a cloth dampened with 30W motor oil.
7. Remove the spring pulleys every three months. Clean the spring pulley

MAINTENANCE INSTRUCTIONS

shafts with a dry cloth. Protect the shafts from corrosion with a thin coat of mUlti-purpose grease before reassembling.

8. Remove the pedals every three months. Clean the pedal shaft and leveling arm pin with a dry cloth. Protect the pedal shaft and leveling arm pin from corrosion with a light coat of mUlti-purpose grease before reassembling.



WARNING

TO REDUCE THE POSSIBILITY OF SLIPPING, BE SURE THE PEDAL AREA IS FREE OF GREASE OR OIL. WIPE ANY EXCESS OIL OFF THE MACHINE SURFACES.

Battery Charge

If you have a 4600/4400 CL, remove the bottom cover and check the battery voltage level every three months.

1. Using your multimeter, touch the red lead to the positive terminal of the battery and the black lead to the negative terminal.
2. If the voltage level is less than 6.1 VDC, charge the battery. Plug the wall pack battery charger into the connector located near the bottom of the left bottom cover. Charge the battery for approximately 24 - 48 hours and then recheck it. It is okay to use machine while the battery charger is connected.

Battery Disposal

When ordering new batteries, you will need to properly dispose of (recycle) your old lead-acid batteries. Most federal and state regulations require lead-acid batteries be recycled.

Do not throwaway old batteries. Lead is a toxic heavy metal hazardous to living organisms. Disposal instructions and a list of recycling centers are tabulated in the Appendix. If you have questions, contact the Customer Service Department at (800) 331-3578.

MAINTENANCE INSTRUCTIONS

Table 5. Recommended Preventive Maintenance Schedule

PART	RECCOMENDED ACTION	FREQUENCY	CLEANER	LUBRICANT
Console	Wipe Clean	Daily	Water	N/A
Covers	Clean and inspect	Daily	Diluted house hold cleaner	N/A
Drive and Step Chains	Lubricate	Each week or after 70 hours	N/A	30W motor oil
	Remove, clean and lubricate	Every 3 months or 900 hours	Degreaser	30W motor oil
Step Chain Connection Points	Clean and lubricate	Every 3 months or 900 hours	Clean, dry rag	Multi purpose grease
Spring Pulley Shafts	Clean and lubricate	Every 3 months or 900 hours	Clean, dry rag	Multi purpose grease
Pedal Shafts & Leveling Arm Pins	Clean and lubricate	Every 3 months or 900 hours	Clean, dry rag	Multi purpose grease
Pedal Arm Return Springs	Inspect and wipe down	Each week or after 70 hours	N/A	Clean, oil dampened rag
Pedal Arm Shafts	Clean and lubricate	Every 3 months or 900 hours	Clean, dry rag	Multi purpose grease
Battery	Check Voltage	Every 3 months or 900 hours	N/A	N/A
Belts	Inspect & adjust tension	Every 3 months or 900 hours	N/A	N/A

-Note: Use of lubricants other than those specified will result in diminished performance and a shorter life span for that part.

TROUBLESHOOTING

GENERAL TROUBLESHOOTING GUIDELINES

This troubleshooting section is organized into three basic problem sections: electrical troubleshooting, console diagnostics, and mechanical troubleshooting. Once you have identified the problem section, perform all the tests in the same order as written. To order a replacement part or for help with troubleshooting, contact our Customer Service Department. Refer to the Appendix for the appropriate phone number.

ELECTRICAL TROUBLESHOOTING

The 4600/4400 PT electrical system has three major components: the power supply, the power cables and the console. The 4600/4400 CL also has three major components: the battery, the power cables, and the console. The console, power supply and battery are not serviceable by the owner. If any of these parts are inoperable, they must be replaced. Opening the console or the power supply will void the warranty.

4600/4400 PT:

1. Use a voltmeter set on VAC to verify that the AC wall outlet has 100 to 120 VAC (or 220 to 240 VAC, if applicable). If you do not have a voltmeter plug in an alternate AC-powered device (a lamp, for example). If the device does not work when plugged into the AC wall outlet, consult an electrician for further assistance and then retest the AC wall outlet.
2. Plug the power supply into the wall outlet. The green Light Emitting Diode (LED) on the power supply should be on. If the LED does not light up, replace the power supply.
3. Disconnect the DC cable from the left side panel. Set the voltmeter to VDC and test for 12 - 19 VDC in pins #1 (+) and #2 (-). Replace the power supply if the voltage reading is outside the specified range.
4. Remove the bottom cover and connect the DC cable to the power connector on the left side of the frame. Locate the black and white wires on the backside of the power connector.



ELECTRICAL TROUBLESHOOTING

5. Follow the white power connector wire to the where it plugs into the main cable white wire, and disconnect it from the main cable white wire.
6. Set your voltmeter to VDC. Connect the positive lead of your voltmeter to the white wire from the power connector and touch the gray casing of the alternator with the negative lead of your voltmeter.
7. DC voltage measured should be 12 - 19 VDC. Replace the power connector if the voltage is not the same value as in step 3. Connect the two white wires.
8. Remove the console knobs from the back of the console, lift the console up, and disconnect the main cable from the console.
9. Test for 12 - 19 VDC in pins #1 (+) and #9 (-) in the main cable connector. Replace the main cable if the voltage reading is not the same as in step 7.
10. If all voltage readings have been within the specified range and the console will not power up, the console should be replaced.

Alternator Test

11. Check for loose wiring connections on the alternator, diode and load resistor (see Final Assembly Figure).
12. Perform the Positive Output to Field test on the alternator:
 - Turn the power off
 - Remove the white wire from the B+ terminal on the alternator
 - Remove the brown wire from the field terminal on the alternator
 - Place a short wire with alligator clips on the B+ terminal and the field (FLD) terminal of the alternator
 - Step on the machine for approximately 10- 15 seconds
 - If full resistance is achieved during this time, your alternator has correct current flow. If no resistance is achieved, replace the alternator.



ELECTRICAL TROUBLESHOOTING

Diode Test

13. Remove the brown wire and diode from the field terminal of the alternator and set your voltmeter to the Ohms setting.
14. Place one lead from the voltmeter on each end of the diode, and then reverse the leads. A diode that is good will show a high reading in one direction and a low reading when the leads are reversed. Replace the diode if the readings recorded are both high or both low.

Resistor Test

15. Remove one wire from the load resistor (see Final Assembly Figure) and place one lead from the voltmeter on each of the threaded posts on the load resistor. Replace the load resistor if the voltmeter does not read 0.5 Ohms ($\pm 10\%$).

4600/4400 CL:

Battery Test

1. Remove the mid cover and top covers and unplug the battery from the power control board. Locate pins #1 & 2 in the end of the cable. Use a voltmeter to verify that the voltage is a minimum of 6.1 VDC. Reconnect the battery back to the power control board and install the battery charger for at least 24 hours if the voltage measured is below 6.1 VDC.
2. Remove the console knobs from the back of the console, lift the console up, and disconnect the main cable from the console.
3. Step up on the machine. With the voltmeter set to DC voltage, test for greater than 6.1 VDC in pins #1 (-) and #8 (+) in the main cable connector while stepping. Replace the main cable if the voltage reading is less than 6.1 VDC. Next, Check for continuity in the main cable (see Final Assembly Figure).
4. If all voltage readings have been within the specified range and the console will not power up, the console should be replaced.

ELECTRICAL TROUBLESHOOTING

Alternator Test

5. Perform the Positive Output to Field test on the alternator:
 - Unplug the battery from the power control board
 - Remove the white wire from the B+ terminal on the alternator
 - Remove the brown wire from the field terminal on the alternator
 - Place a short wire with alligator clips on the B+ terminal and the field (FLD) terminal of the alternator
 - Step on the machine for approximately 10 to 15 seconds
 - If full resistance is achieved during this time, your alternator has correct current flow. If no resistance is achieved, replace the alternator.

Resistor Test

6. Unplug the load resistor from the power control board and set your voltmeter to Ohms. Place one lead from the voltmeter on each of the threaded posts on the load resistor. Replace the load resistor if the voltmeter does not read 2.5 Ohms ($\pm 10\%$).
7. If the problem still exists, contact the Customer Service Department at 800-331-3578.

4600/4400 PTICL CONSOLE DIAGNOSTIC TESTS

The following tests are performed while the console is in the DIAGNOSTIC mode. While the console is in the ATTRACT mode, and without stepping on the pedals, press [+INCREASE], [1], [0], [7], [ENTER] to activate the DIAGNOSTIC mode. The numbers will not appear on the display as you enter them. If the console fails any test, the console should be replaced or exchanged. To return to the ATTRACT mode, press either [CLEAR] or [START/STOP] while in the DIAGNOSTIC mode.

Display Test

Use this test if the console display or text bar exhibits blank spots during use. This test checks for inoperable Light Emitting Diodes (LEOs) in the console display and the text bar. If any LED will not light, replace the console.

1. From the DIAGNOSTIC mode, press [0] to start the test.
2. All LEOs in the console display will flash on and off as a block.
3. Press [CLEAR] to end the test.

Speaker Test

Use this test to make sure the console speaker is fully operational. The speaker will ascend and then descend through the musical scale.

1. From the DIAGNOSTIC mode, press [1] to start the test.
2. Press [ENTER] to pause the test. Press [CLEAR] to end the test.

Keypad Test

Perform this test if you are having trouble entering data into the console. If you cannot enter the DIAGNOSTIC code due to an inoperable keypad, replace the console.

1. From the DIAGNOSTIC mode, press [2] to start the test.
2. The display LEOs will light up in an L-shaped formation, representing the keypad matrix. Pressing a button on either the exercise program

4600/4400 PTICL CONSOLE DIAGNOSTIC TESTS

keypad or the function keypad will light an LED within the outline on the display that corresponds to that button's position on the console.

3. Firmly press each button. If the LED corresponding to the button you pushed does not light up, the keypad is bad and the console should be replaced.
4. Press [CLEAR] to test the LED and then end the test 10 seconds later.

Speed Test

Use this test to verify the electronic speed control routines of the console. You will need to briefly exercise on the machine for this test.

1. From the DIAGNOSTIC mode, press [3] to start the test.
2. The console will be set at a certain speed. The alternator speed, in RPMs, is displayed on the text bar as "Target" and a single column of lights will light up on the left side of the display.
3. Begin exercising. As you move the pedal arms, the text bar will alternately show the actual RPM and the target RPM.
4. Press [CLEAR] to return to the DIAGNOSTIC mode.

Software Revision Level Test

This test allows you to check the version number of the software installed in the console.

1. From the DIAGNOSTIC mode, press [4] to start the test.
2. The software version number will be scrolled across the text bar. The console automatically returns to the DIAGNOSTIC mode.

4600/4400 PTICL CONSOLE DIAGNOSTIC TESTS

Contact Heart Rate Iest (4600/4400 PI/CI only)

The contact heart rate system is made up of the console and the contact heart rate handles. You can test each component by performing the following steps:

1. While the console is in the ATIRACT mode (noted by a simulated EKG signal in the console display), or at the "SELECT A WORKOUT" prompt, press [+INCREASE], [1], [0], [8], [ENTER].
2. After approximately ten seconds a flashing . should be displayed in the console text bar. Your heart rate, in beats per minute, will show next to the heart icon. If the heart icon does not show, or if your heart rate is not displayed in the text bar, you have a problem with either the console or the contact heart rate handles.
3. If possible, replace or exchange your console with a console (from the same type of machine) you know is working and retest the machine.
4. If possible, replace or exchange your contact heart rate handles with handles (from the same type of machine) that you know is working and retest the machine.
5. If you do not have spare parts contact the Customer Service Department at 800-331-3578.

Polar® Heart Rate Iest (4600/4400 PI/CI only)

The Polar heart rate system is made up of the console, the heart rate receiver, and the chest strap (available separately). You can test each component by performing the following steps:

1. You will need to put a chest strap on in order to test the Polar heart rate. Before you put the chest strap on, wet the two contact patches. Secure the chest strap as high under your pectoral muscles (chest) as is comfortable. The chest strap should fit snugly, comfortably, and allow normal breathing.

4600/4400 PTICL CONSOLE DIAGNOSTIC TESTS

2. While the console is in the ATTRACT mode (noted by a simulated EKG signal in the console display), or at the "SELECT A WORKOUT" prompt, press [+INCREASE], [1], [0], [8], [ENTER].
3. A flashing . should be displayed in the console text bar. Your heart rate, in beats per minute, will show next to the heart icon. If the heart icon does not show, or if your heart rate is not displayed in the text bar then you have a problem with either the console, chest strap, or heart rate receiver.
4. Test your chest strap with a machine that you know is working, or with a heart rate watch that you know is working.
5. If possible, replace or exchange your console with a console (from the same type of machine) that you know is working and retest the machine.
6. Visually check that the heart rate receiver is positioned correctly in the neck cover. The heart rate receiverjack should point down. Ensure that the heart rate receiver is connected to the console, and that the connection is not loose. If possible, swap the heart rate receiver with one from another machine.
7. If the problem still exists, contact the Customer Service Department at 800-331-3578.

MECHANICAL TROUBLESHOOTING

If you hear a grinding or clicking noise, or experience excessive vibration during exercise, or if the pedals are not functioning properly, you probably have a problem in the drive train. Attempt to isolate the problem area by performing the following tests in precisely the order listed below. Refer to the "Parts Removal and Replacement" section for all disassembly and assembly instructions.

1. Unplug the machine and remove the bottom side covers.



WARNING

TO REDUCE THE RISK OF INJURY, DO NOT OPERATE THE MACHINE WHILE THE COVERS ARE REMOVED. DO NOT DEPRESS OR RAISE THE PEDALS WHILE ANYONE'S HANDS ARE INSIDE THE MACHINE.

2. Noise can be generated by a Poly-V or HTD belt that is either too tight or too loose. Check the condition and the tension of the belts. Replace worn belts. Adjust the belt tension according to the instructions in the "Parts Removal and Replacement" section.
3. Remove the Poly-V belt and move the pedal arms. If the noise no longer exists, check the condition of the alternator. If the noise is still present, go to step #4.
 - Disconnect the DC power cable if you have a 4600/4400/4200 PT or unplug the connector from position J4 on the power supply circuit board if you have a 4600/4400 CL. Spin the alternator pulley with your fingers. It should spin freely and remain spinning for at least two revolutions. If it does not, the alternator should be replaced.
 - If the alternator does spin freely, check the alternator for noise, roughness, or the presence of an excessive amount of black powder inside the alternator or near the outside of the case. If any of these conditions exist, the brushes might be bad and the alternator should be replaced.
 - Do not reinstall the Poly-V belt if performing step #4. Plug in the connector at position J4 or reconnect the DC power cable, as applicable.

MECHANICAL TROUBLESHOOTING

4. Remove the drive and step chains. Check the condition of the chains by flexing each link up and down. Each link should move freely. Replace the chain if any stiff or inflexible links are found or if the chain is rusty, corroded or otherwise damaged. Do not reinstall the chains.
5. Remove the pedals. Clean any corrosion off the pedal shaft with an oil-dampened rag. Apply a thin coat of multi-purpose grease to the shaft. If the noise persists, go to step 6.
6. Check the step chain connection point. Clean and grease the master link and bushing. Replace damaged parts.
7. Check the drive hub assembly.
 - Check the condition of the drive sprocket teeth. The teeth should not be unevenly worn. Replace the worn sprocket(s).
 - The drive sprockets work independently of one another. Each sprocket should turn freely in one direction and lock when turned in the other direction. Replace an inoperable drive sprocket.
 - Remove the drive shaft. Inspect the bearings in the drive hub. Replace the drive hub assembly if the shaft does not spin freely or if there is excessive radial play at the shaft. Be careful not to get dirt into the hub.
 - Inspect the ends of the drive shaft (at the sprocket attachment points) for signs of wear or scoring. Replace the shaft if it is excessively worn.
8. Check the pedal arm and leveling arm shafts by removing both the right and left pedal and leveling arms. Inspect the shafts and the bushings for signs of wear and corrosion. Replace the bushing(s) if worn.
 - Clean all corrosion off the pedal arm shaft and leveling arm shaft and bushings. Wipe the shafts with an oil-dampened cloth before reassembling. DO NOT SAND THE PEDAL ARM SHAFT OR LEVELING ARM SHAFT.



MECHANICAL TROUBLESHOOTING

9. Remove the HTD belt. Inspect the belt, the Poly-V pulley and the HTD pulley for excessive wear. Replace if necessary. The Poly-V pulley should spin freely. If it does not, replace the eccentric shaft assembly.
10. Inspect the HTD pulley for excessive wear and smoothness of operation. If the pulley is worn, replace it. If it does not spin freely, remove the first reduction shaft and inspect the bearings.
11. Reinstall all parts, ensuring the proper tension of the Poly-V and HTD belts and the drive chain (see Figure 30). Clean and lubricate the drive and step chains with 30W motor oil before reinstalling them.

PARTS REMOVAL AND REPLACEMENT

COVERS



WARNING

TO REDUCE THE RISK OF INJURY, DO NOT OPERATE THE MACHINE WHILE THE COVERS ARE REMOVED. DO NOT DEPRESS OR RAISE THE PEDALS WHILE ANYONE'S HANDS ARE INSIDE THE MACHINE.

There are three covers on the 4400 PT/CL and the 4200 PT: the top cover, the mid cover and the bottom cover. The top and bottom covers are made of a right and left section. Do not separate the right and left sections of either the top or bottom covers to perform most maintenance tasks. Access to the interior of the machine takes three steps: remove the mid cover; slide the top cover upward; and remove the bottom cover (see Figure 27).

The 4600 PT/CL has an additional shield over the handles. Access to the interior of the machine takes four steps: remove the mid cover; remove the shield; separate the top covers and remove the bottom cover.

Mid Cover

1. Use the fastener removal tool to remove each of the four fastener pins on the mid cover (see Figure 28).
2. Stand on the pedals and keep them on the floor.
3. Slide the mid cover down and away from the machine. Remove the cover from the frame tube. Carefully let both pedals return to the upper stops.

Top Cover

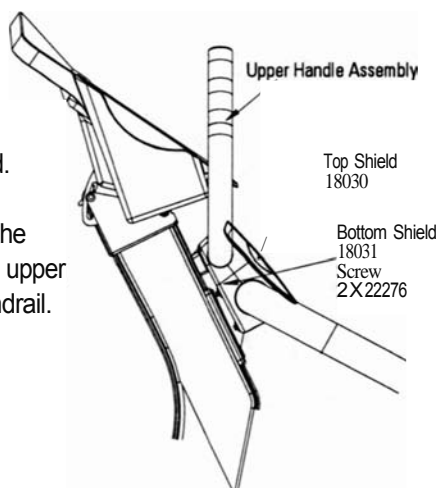
1. **4400 PT/CL, 4200 PT:** Remove the mid cover and the console.
4. Release the pins along the middle seam of the top cover. Use a small phillips screwdriver or similar tool to push the fastener center pin in at least halfway. Use your fingers to remove the fastener base from the cover and then separate the top covers.

PARTS REMOVAL AND REPLACEMENT

5. **4600 PI/CL:** Use the fastener removal tool to release the cover fasteners and separate the top covers.
6. To reinstall the 4400 PT/CL and 4200 PT fasteners, remove the pin completely from the base. Insert the base into the hole in the covers. Insert the pin into the base until it is flush with the base.

Shield (4600 PI/CL)

1. Remove the two mounting screws from the bottom shield.
2. Separate the top shield from the bottom shield and remove the upper and lower shield from the handrail.



Bottom Cover

1. Remove the mid cover.
2. **4600/4200/4400 PI:** Disconnect the DC power cable from the connector located on the bottom side of the left bottom cover.
3. Remove the fastener located on each side of the lower edge of the bottom cover (see Figure 27).
4. **4400/PI/CL, 4200 PI:** Kneel in front of the machine, facing the cover seam. Push in and hold both sides of the lower cover to disengage the locking tabs at the joint between the upper and lower covers. Use your hands to push up the top cover and separate the top cover from the bottom cover.

4600 PI/CL: Remove the cover fasteners and separate the left and right top cover from each other.
5. Pull out and forward on the lower cover to remove it from the frame.
6. Reinstall the covers in reverse order. Ensure the top cover grommet is correctly installed at the base of the handlebar.

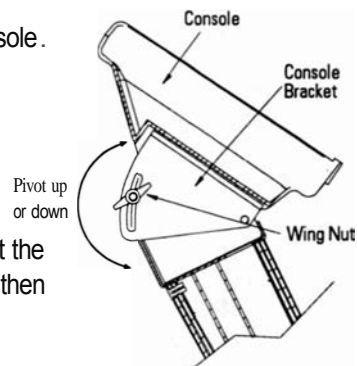
PARTS REMOVAL AND REPLACEMENT

CONSOLE

1. Remove the four mounting knobs from the back of the console.
2. Disconnect the main cable, contact heart rate cables (4600 PT/CL), and Polar® cable (4600/4400 PT/CL) from the back of the console. Lift the console off the machine.
3. Reverse the steps to reinstall the console.

CONSOLE ADJUSTMENT

1. Loosen the console bracket wing nut.
2. Pivot the console up or down to adjust the console to desired viewing angle and then tighten the wing nut.



POLV-V AND HTD BELT



WARNING

THE BELTS MUST BE PROPERLY TENSIONED. A BELT THAT IS TOO TIGHT WILL CAUSE SLOW AND SLUGGISH OPERATION. A BELT THAT IS TOO LOOSE WILL CAUSE EXCESSIVE NOISE AND BELT WEAR.

1. Remove the bottom cover.
2. Loosen the adjustment bolt that mounts the alternator to the slotted alternator brace and the pivot adjusting bolt and nut. Swing the alternator down.
3. Remove the Poly-V belt.
4. Slide the HTD belt toward you and off the HTD pulley. Remove the belt from the machine.
5. Reinstall the HTD belt.

PARTS REMOVAL AND REPLACEMENT

6. Adjust the HTD belt tension so that you have 1/4 inch (0.6 cm) of side-to-side play with fingertip pressure (see Figure 30). The bottom shaft is mounted in an eccentric hub. To adjust the tension:
 - Loosen and remove the four bolts and nyloc nuts from the hub.
 - Turn the hub one hole clockwise.
 - Install and tighten the four bolts and nyloc nuts.
 - Verify the HTD belt tension.
7. Install the POly-V belt. Make sure it is centered on the pulleys.
8. Pivot the alternator up or down as necessary to allow 1/4" (0.6 cm) of belt deflection with fingertip pressure at the center of the vertical portion of either side of the belt (see Figure 30).
9. Tighten the alternator adjustment bolt. Verify 1/4" (0.6 cm) of play in the belt and reinstall the bottom cover.

STEP CHAIN RETAINER

1. Remove the bottom cover.
2. Loosen and remove the two step chain retainer bolts. These bolts are also the top two mounting bolts for the drive hub assembly.
3. Reverse the removal procedures to install the step chain retainer. Make sure there is adequate clearance between the step chain and the step chain retainer.

PEDAL ARM RETURN SPRING

1. Remove the bottom cover.
2. Unhook the pedal arm return spring from the spring hanger.
3. Detach the spring from the step chain by removing the master link. The spring-chain connector is in good condition if it has an hour glass shape. Replace a worn spring-chain connector.

PARTS REMOVAL AND REPLACEMENT

4. Check to ensure that the spring pulley turns freely and is not worn excessively. Refer to the "Spring Pulley" section if you have to replace the pulley.
5. To reinstall the spring, connect it to the end of the step chain using the master link.
6. Route the spring under the spring pulley that is fastened to the spring pulley shaft (see Figure 10).
7. Hook the end of the pedal arm return spring onto the spring hanger.



WARNING

DO NOT TWIST THE SPRING DURING INSTALLATION. IT WILL WEAR EXCESSIVELY AND REDUCE THE LIFE OF THE SPRING.

8. Reinstall the covers.

STEP CHAIN

1. Remove the bottom cover.
2. Remove the step chain retainers.
3. Support the pedal arm. Unhook the pedal arm return spring from the spring hanger. Lift the step chain up and off the clutch sprocket and lower the pedal arm to the floor.
4. Remove the double-pitch master link (PN 21298SV) and bearing sleeve assembly from the step chain connection point on the pedal arm.
5. Remove the master link from the spring-chain connection.
6. Reverse the procedures to reinstall the step chain. Lubricate the step chain before reinstalling the covers.

PARTS REMOVAL AND REPLACEMENT

SPRING PULLEY

1. Remove the bottom cover.
2. Unhook the pedal arm return spring from the spring hanger.
3. Remove the snap ring from the pulley shaft (see Figure 10).



WARNING

TO REDUCE THE RISK OF EYE INJURY, WEAR EYE PROTECTION WHEN REMOVING SNAP RINGS.

4. Slide the pulley and washer off the shaft.
5. Before reinstalling the pulley, clean the pulley shaft thoroughly with a clean, dry cloth. Apply a thin coat of multi-purpose grease to the pulley shaft.
6. Slide the pulley and washer onto the shaft. Install the snap ring.
7. Route the spring under the spring pulley.
8. Hook the end of the spring over the spring hanger. Do not twist the spring.



WARNING

DO NOT TWIST THE SPRING DURING INSTALLATION. IT WILL WEAR EXCESSIVELY AND REDUCE THE LIFE OF THE SPRING.

9. Reinstall the covers.

DRIVE CHAIN

1. Remove the bottom cover.

PARTS REMOVAL AND REPLACEMENT

2. Remove the master link from the drive chain.
3. Remove the drive chain from the sprockets.
4. Reinstall the drive chain, ensuring the master link is properly installed.
5. Check the drive chain tension. There should be a total of 1 to 1-1/2" (2.5 to 4.0 cm) of play, up and down, at the slackest point in the chain (see Figure 29). If the drive chain tension needs adjustment, refer to the "Drive Hub Assembly" section.



WARNING

IF THE DRIVE CHAIN IS TOO TIGHT, THE DRIVE TRAIN WILL WEAR EXCESSIVELY, SHORTENING THE LIFE OF THE DRIVE HUB. IF THE CHAIN IS TOO LOOSE, THE MACHINE WILL BE NOISY AND WILL OPERATE AT LESS THAN PEAK EFFICIENCY.

6. Lubricate the chain with 30W motor oil and wipe off the excess.
7. Reinstall the covers.

DRIVE SHAFT ASSEMBLY

1. Remove the bottom cover.
2. Remove the step chain retainers.
3. Support the pedal arm. Unhook the pedal arm return spring from the spring hanger. Lift the step chain up and off the clutch sprocket and lower the pedal arm to the floor. Repeat on the other side.
4. Remove the snap ring from the left end of the drive shaft.



WARNING

TO REDUCE THE RISK OF EYE INJURY, WEAR EYE PROTECTION WHEN REMOVING SNAP RINGS.



PARTS REMOVAL AND REPLACEMENT

5. Remove the drive chain .
6. Remove the sprocket and the other small parts from the left side of the hub assembly (see Figure 21).
7. Slide the drive shaft to the right, out of the hub assembly. If you remove the right-hand clutch sprocket from the drive shaft, do not confuse it with the left-hand clutch sprocket.
8. Loosen and remove the two remaining bolts and nuts that hold the hub assembly to the frame . Remove the hub assembly.
9. Inspect the drive shaft, the bushings, the thrust washers, and clutch sprockets for excessive wear or pitting. Replace worn-out components.
10. To reinstall the hub assembly, carefully reverse the disassembly procedures. Be sure that the right- and left-hand clutch sprockets are positioned correctly; the wide shoulder of the sprocket should be facing away from the hub on both sides.
11. **Chain Tension.** The drive shaft is mounted in an eccentric hub. Rotate the hub so the marked hole is in the 12 o'clock position, lining up four holes in the hub with the four holes in the frame . Use this hub position when reinstalling the drive chain since the distance between the drive and transmission shafts is at a minimum. The hub is in the proper position when the drive chain has a total of 1 to 1-1/2" (2.5 to 4.0 cm) of play at the slackest point. As the drive chain stretches with use, increase the chain tension (and the distance between the two shafts) by rotating the hub counterclockwise (see Figure 29). The distance between the two shafts is greatest when the marked hole in the hub is at the 8 o'clock position.
12. Reinstall the covers .

PARTS REMOVAL AND REPLACEMENT

PEDAL

1. Remove the snap ring and flat washer from the leveling arm pin and the pedal shaft (see Figure 20).



WARNING

TO REDUCE THE RISK OF EYE INJURY, WEAR EYE PROTECTION WHEN REMOVING SNAP RINGS.

2. Slide the pedal off the shaft.
3. Clean the pedal shaft and leveling arm pin with a dry cloth. Lubricate the pedal shaft and the leveling arm pin with a thin coat of multi-purpose grease.
4. Reverse the procedures to reinstall the pedal.

LEVELING ARM

1. Remove the pedal.
2. Remove the bottom cover.
3. Remove the snap ring that secures the leveling arm to the leveling arm shaft (see Figure 18).



WARNING

TO REDUCE THE RISK OF EYE INJURY, WEAR EYE PROTECTION WHEN REMOVING SNAP RINGS.

4. Slide or gently tap the leveling arm off the shaft.
5. Clean the shaft and the pin with a cloth dampened with 30W motor oil before reassembly.
6. Reverse the removal instructions to reinstall the leveling arm.

PARTS REMOVAL AND REPLACEMENT

PEDAL ARM

1. Remove the pedal and the bottom cover.
2. Remove the step chain retainers.
3. Support the pedal arm. Unhook the pedal arm return spring from the spring hanger. Lift the step chain up and off the clutch sprocket and lower the pedal arm to the floor.
4. Remove the master link from the step chain connection point.
5. Remove the snap ring from the pedal arm mounting shaft and the leveling arm pin.



WARNING

TO REDUCE THE RISK OF EYE INJURY, WEAR EYE PROTECTION WHEN REMOVING SNAP RINGS.

6. Slide or gently tap the pedal arm off the mounting shaft.
7. Clean the pedal arm shaft and leveling arm pin with a cloth dampened with 30W motor oil before reassembly.
8. Reverse the removal procedures to reinstall the pedal arm.

PEDAL PAD

1. The pedal pad wraps around the pedal and locks into place under the pedal. Separate the pedal pad from the pedal by grabbing the bottom of the pedal and pulling down and out.
2. Lift the other side of the pedal pad up and remove the pedal pad from the pedal.

Note: *There is a right and left pedal pad. Do not install a left pedal pad on a right pedal, or a right pedal pad on a left pedal.*

PARTS REMOVAL AND REPLACEMENT

ECCENTRIC HUB ASSEMBLY

1. Remove the bottom cover.
2. Remove the Poly-V and HTD belts.
3. Loosen and remove the four nyloc nuts and bolts from the hub. Remove the assembly from the frame.
4. Reassemble in the reverse order. Ensure the belts are properly tensioned; refer to the "Poly-V and HTD belt" section.

FIRST REDUCTION SHAFT ASSEMBLY

1. Remove the bottom cover.
2. Remove the drive chain.
3. Remove the eccentric shaft assembly.
4. Remove the set screw from the transmission sprocket (see Figure 20). Remove the sprocket and key from the shaft.
5. Hold onto the HTD sprocket and pull the shaft out of the hub.
6. Reassemble in the reverse order. Ensure the belts are properly tensioned; refer to the "Poly-V and HTD belt" section.

HANDLEBAR (4400 PI/CL ,4200 PT)

1. Remove the console and separate the left and right top cover.
2. Cut the Ty-wraps that secure the main cable to the handlebar tube.
3. Remove the four screws and flat washers that hold the handlebar tube in the frame tube (see Final Assembly Figure).
4. Lift the handlebar out of the frame. Reverse the steps to reinstall the handlebars.

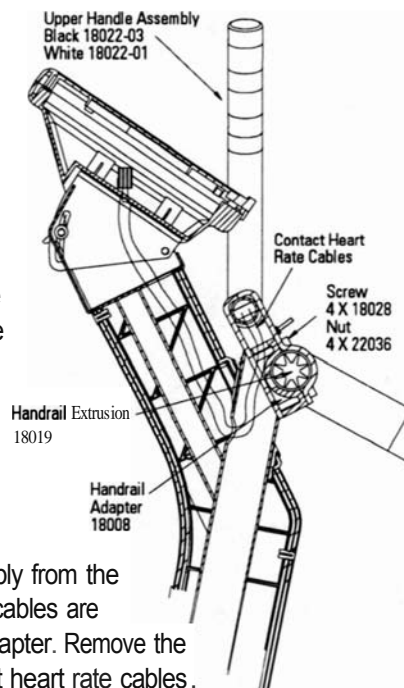
PARTS REMOVAL AND REPLACEMENT

UPPER HANDLES (4600 PI/CL)

1. Disconnect the left and right contact heart rate cables from the back of the console.
2. Remove the two mounting screws from the top and bottom shield (see Figure 19) and remove the shields from the upper handle assembly.
3. Remove the four handrail adapter screws from the upper handle assembly.
4. Remove the upper handle assembly from the machine. The contact heart rate cables are threaded through the handrail adapter. Remove the handrail adapter from the contact heart rate cables.
5. Reverse the removal procedures to install the new upper handle assembly.

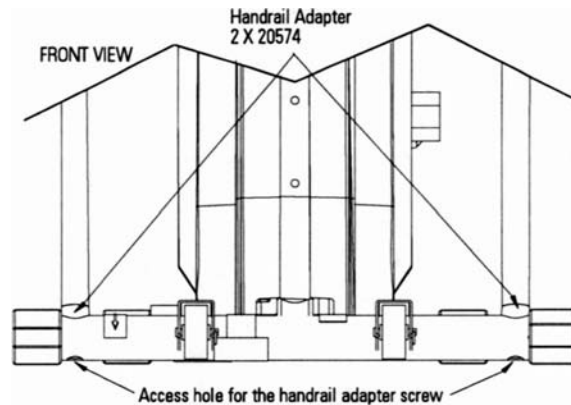
SIDE HANDRAILS (4600 PI/CL)

1. Disconnect the left and right contact heart rate cables from the back of the console.
2. Remove the two mounting screws from the top and bottom shield (see Figure 19) and remove the shields from the upper handle assembly.
3. Remove the four handrail adapter screws from the upper handle assembly.
4. Remove the upper handle assembly from the machine. The contact heart rate cables are threaded through the handrail adapter. Remove the handrail adapter from the contact heart rate cables. Set the upper handle assembly aside.



PARTS REMOVAL AND REPLACEMENT

5. Tilt the machine forward and use an extended socket to remove the two handrail adapter screws from the front leg of the machine.



6. Tilt the machine back into place and pull each handrail out sideways. Be aware that the handrail extrusion connects the left handrail to the right handrail, and may fallout when one side is removed.
7. Reverse the removal procedures to reinstall the handrail.

ALTERNATOR

1. Remove the bottom cover. Mark (by color) the location of each wire attached to the alternator (see Final Assembly Diagram). Remove the wires from the alternator.
2. Loosen and remove the alternator adjusting bolt on the slotted brace. Remove the Poly-V belt. Inspect the belt for wear and replace the belt if it is cracked, cut, or is otherwise damaged.
3. Loosen and remove the nyloc nut from the alternator post. Remove the alternator from the frame.
4. Reverse the removal procedures to install the new alternator. Be sure to verify the wiring against the Final Assembly Diagram.
5. Pivot the alternator up or down as necessary to allow 1/4" (0.6 cm) of belt deflection with finger tip pressure at the center of the vertical portion of either side of the belt (see Figure 30).

GROUNDING INSTRUCTIONS

The machine must be grounded if you are using the external power supply or the battery charger. Grounding provides the path of least resistance for the electric current, thereby reducing the risk of electric shock. The power supply or battery charger must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.



DANGER

IMPROPER CONNECTION OF THE EQUIPMENT-GROUNDING CONNECTOR CAN RESULT IN THE RISK OF ELECTRIC SHOCK. CHECK WITH A QUALIFIED ELECTRICIAN OR SERVICE PERSON IF YOU ARE IN DOUBT AS TO WHETHER THE MACHINE IS PROPERLY GROUNDED. DO NOT MODIFY THE PLUG PROVIDED WITH THIS MACHINE. IF IT WILL NOT FIT THE AVAILABLE OUTLET, HAVE A PROPER OUTLET INSTALLED BY A QUALIFIED ELECTRICIAN.

The grounding plug on the power supply and the battery charger is shown in sketch A below*. A temporary adapter, shown in sketches B and C, may be used to connect the plug to a two-prong receptacle if a properly grounded outlet is not available. The adapter should be used only until a properly grounded outlet (sketch A) can be installed by a qualified electrician. The tab extending from the adapter must be connected to a permanent ground such as the metal screw on the outlet cover.

* This may vary for International power supplies.

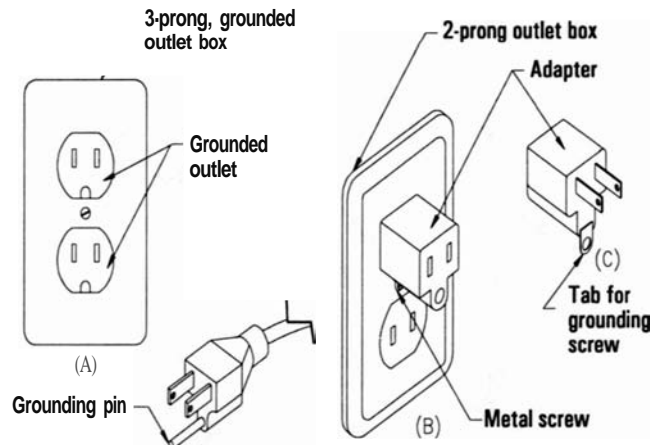


Figure 9: Grounding System

FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



WARNING

CHANGES OR MODIFICATIONS TO EQUIPMENT NOT EXPRESSLY APPROVED BY STAIRMASTER SPORTS/MEDICAL PRODUCTS, INC. COULD VOID THE USER'S AUTHORITY TO OPERATE THIS EQUIPMENT.

CANADIAN DOC CLASS B COMPLIANCE

This digital apparatus does not exceed the Class B limits for radio emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

La present appareil numerique ne depasse pas les limites etablies pour les bruits radioelectriques applicables aux appareils numeriques de la Class B prescrites dans les reglement sur le brouillage radioelectrique edicte par le Ministere des Communications du Canada.



IMPORTANT PHONE NUMBERS

If you need assistance, please have both the serial number of your machine and the date of purchase available when you contact the appropriate StairMaster® Sports/Medical Products, Inc. office listed below.

OFFICES IN THE UNITED STATES

CORPORATE HEADQUARTERS

12421 Willows Road NE, Suite 100
Kirkland, WA 98034
(800) 635-2936 or (425) 823-1825
FAX: (425) 823-9490

CUSTOMER SERVICE

12421 Willows Road NE, Suite 100
Kirkland, WA 98034
(800) 331-3578
FAX: (425) 814-0601

INTERNATIONAL OFFICES AND DISTRIBUTORS

For technical assistance and a list of distributors in your area, please call or fax one of the following numbers.

INTERNATIONAL DIVISION

(425) 823-1825
FAX: (425) 820-7505

EUROPE: HEADQUARTERS

41-91-827-3801
FAX: 41-91-827-8902

GERMANY: HEADQUARTERS

49-2204/610-27
FAX: 49-2204/628-90

U.K.: HEADQUARTERS

44-1908/221-323
FAX: 44-1908/223-162

BATTERY RECYCLING CENTERS

After installing a new battery, you will need to properly dispose of (recycle) your old lead-acid battery. Most federal and state regulations require lead-acid batteries be recycled. Do not throwaway old batteries. Lead is a heavy metal and is toxic to living organisms. Contact the nearest Yuasa-Exide, Inc. recycling center from the list below to get information on the proper disposal of your old lead-acid battery.

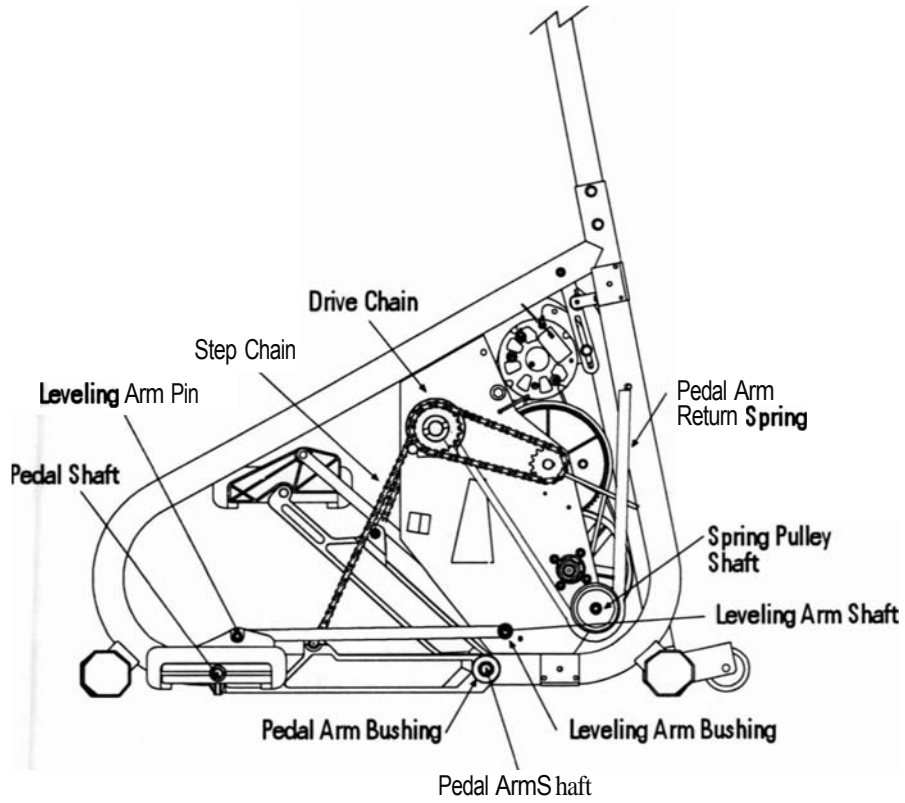
STATE	ADDRESS	PHONE NUMBER
Alabama	906 40th St. Birmingham, AL 35222	(205) 591-0606
California, (Northern)	3470 Depot Rd. Hayward, CA 94545	(510) 887-8080
California, (Southern)	1250 Bixby Dr. City of Industry, CA 91745	(818) 333-3060
Colorado	12860 W. Cedar Dr. Suite 106A Lakewood, CO 80228	(303) 763-5833
Florida	11310 Satellite Blvd. Orlando, FL 32821	(407) 857-9234
Georgia	1721-C Oakbrook Dr. NE Norcross, GA 30093	(404) 446-8663
Illinois	5303 Ninth Ave Countryside, IL 60525	(708) 352-3665
Maryland	899 Airport Rd. Ste E Glen Burnie, MD 21061	(410) 768-5586
Massachusetts	13 Wheeling Ave. Woburn, MA 01801	(617) 932-6570
Michigan, Southeast	2760 Auburn Rd. Auburn Hills, MI 48326	(616) 531-1120
Michigan, West:	2882 Remico St. SW Grandville, MI 49418	(612) 631-2150
Minnesota	1900 Oakcrest Ave. Ste 5 Roseville, MN 55113	(816) 231-4414
Missouri	5328 Winner Rd. Kansas City, MO 64127	(816) 231-0685
New Hampshire	17 Clinton Dr. Hollis, NH 03049	(603) 886-5900

BATTERY RECYCLING CENTERS

STATE	ADDRESS	PHONE NUMBER
New Jersey	131 Industrial Ave. Hasbrouck Hgts NJ 07604	(201) 641-5900
New York	26 Corporate Circle E Syracuse, NY 13057	(315) 437-1788
Ohio, Central	Rickenbacker ANG Bldg. 1073 Columbus, OH 43217	(513) 851-3838
Ohio, North	2635 Hamilton Ave. Cleveland, OH 44114	(216) 241-6231
Ohio, Southwest	540 Northland Blvd. Cincinnati, OH 45240	(216) 241-6231
Pennsylvania, East	3000 Montrose Ave. Laureldale, PA 19605	(215) 921-4480
Pennsylvania, East	320 Constance Dr. Warminster, PA 18974	(215) 443-0912
Pennsylvania, West	920 Vista Park Rd. Pittsburgh, PA 15205	(412) 788-1613
Tennessee	2934 Brooks Road Memphis, TN 38116	(901) 396-5031
Texas, Northeast	11420 Ferrell Dr. Ste 300 Dallas, TX 75234	(214) 869-1855
Texas, South	4738 Cotton Belt San Antonio, TX 78219	(210) 661-5497
Texas, Southeast	4301 S. Pinemont Ste 114 Houston, TX 77041	(713) 690-8700
Washington	660 Industry Dr. Tukwila, WA 98188	(425) 575-3090
West Virginia	P.O. Box 1666 Rte. 2, Box 1 Bluefield, WV 24701	(304) 327-3594

FIGURES

Figure 10: Parts Needing Periodic Maintenance



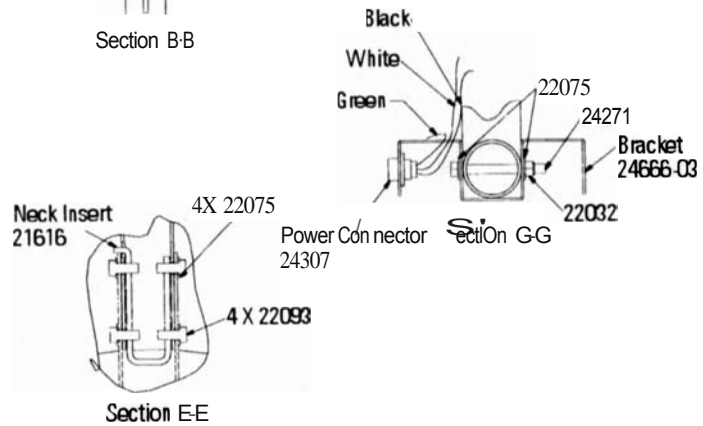
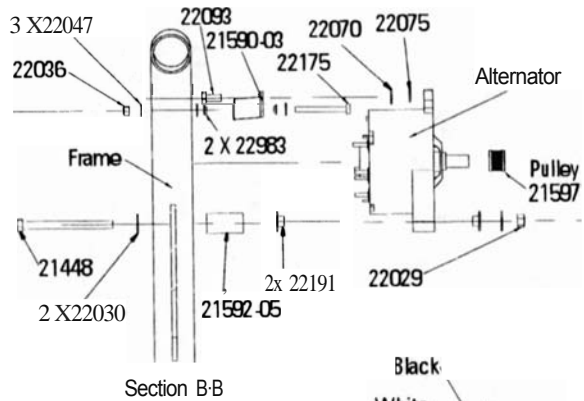
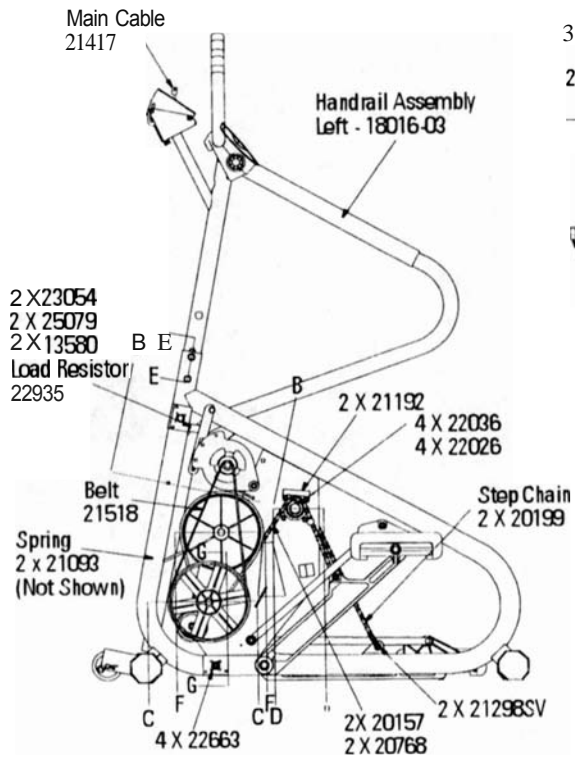
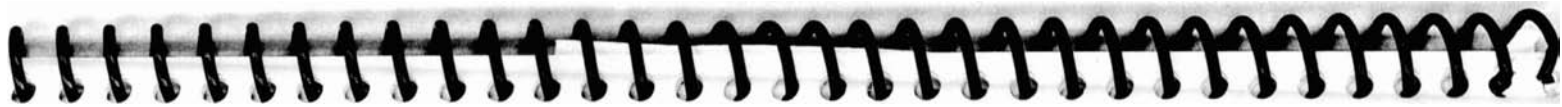
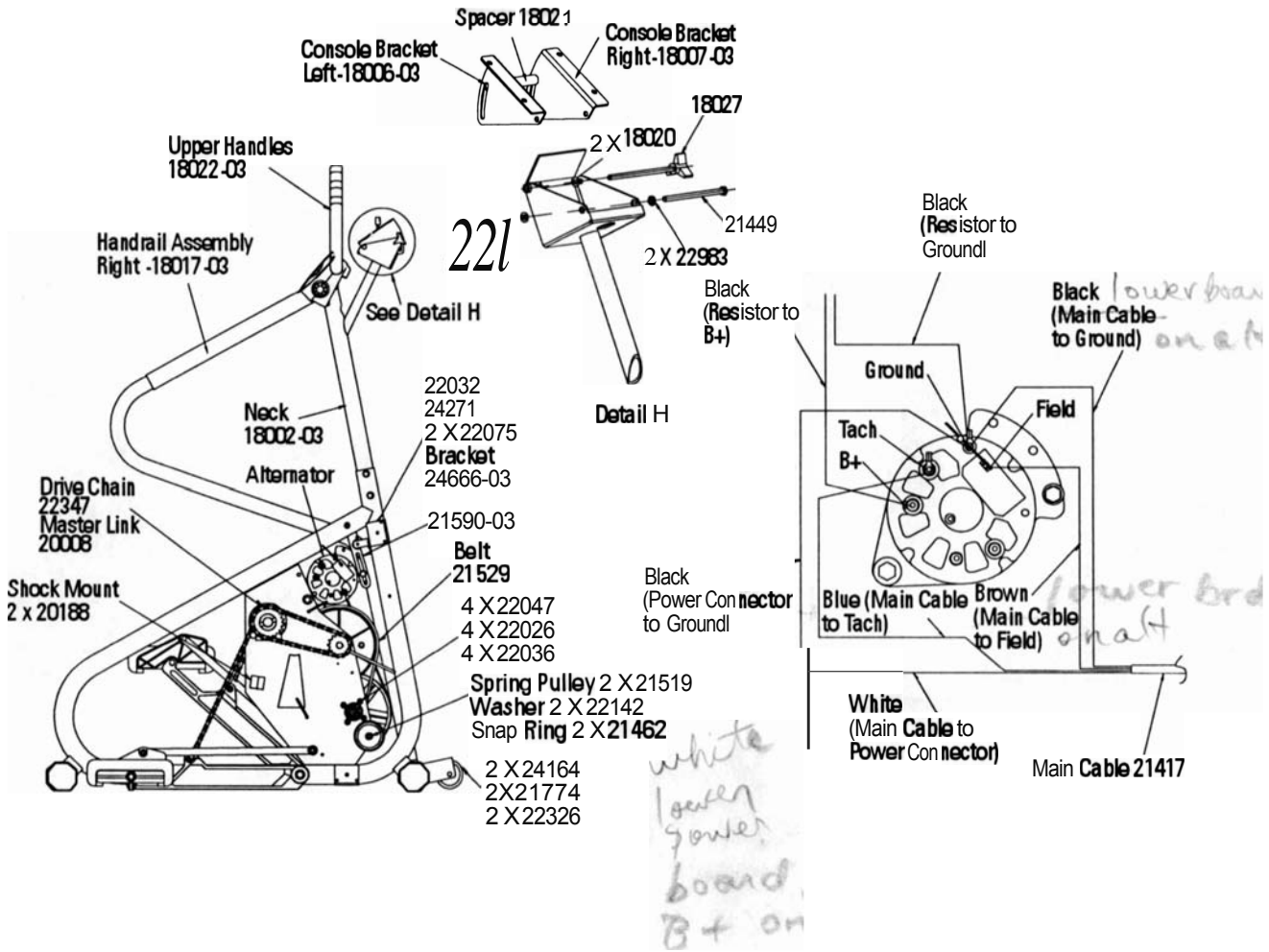


Figure II Fina Assembly Left, 4600 PT

FIGURES



FIGURES

Figure 12: Final Assembly - Right/4600 PT

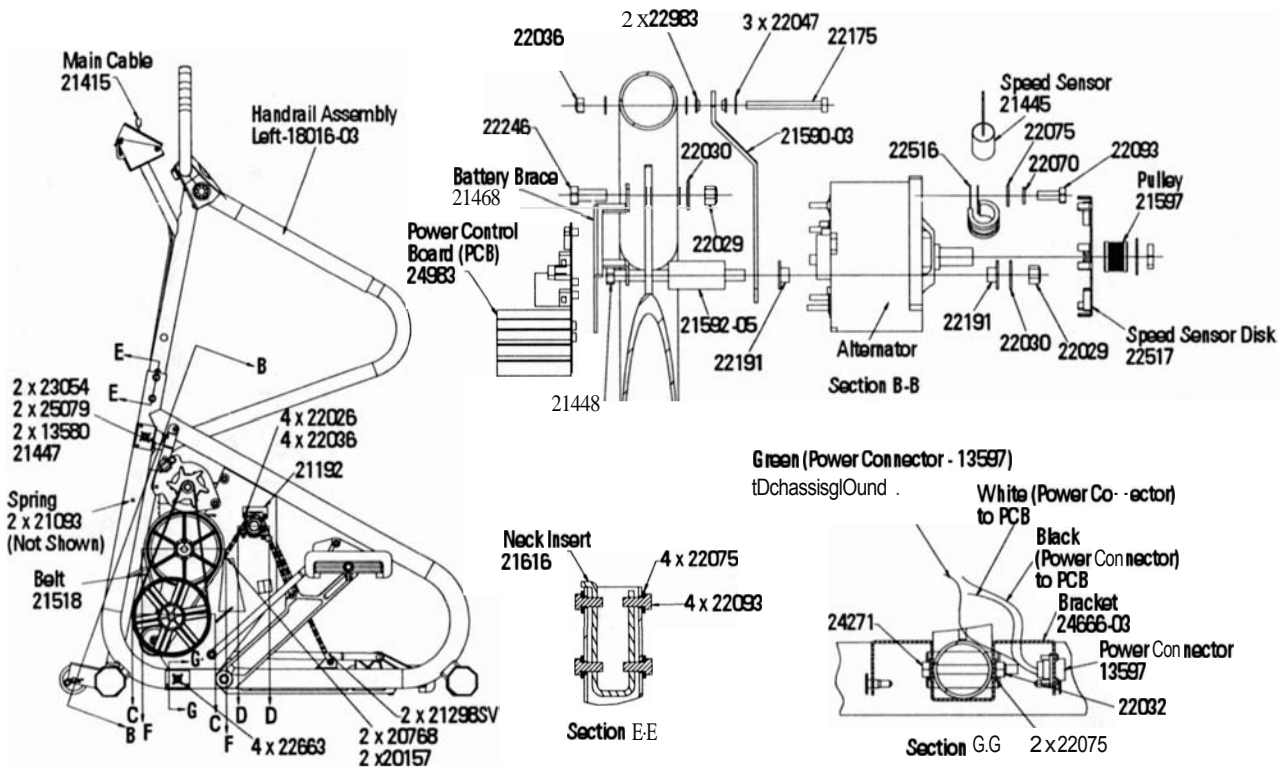
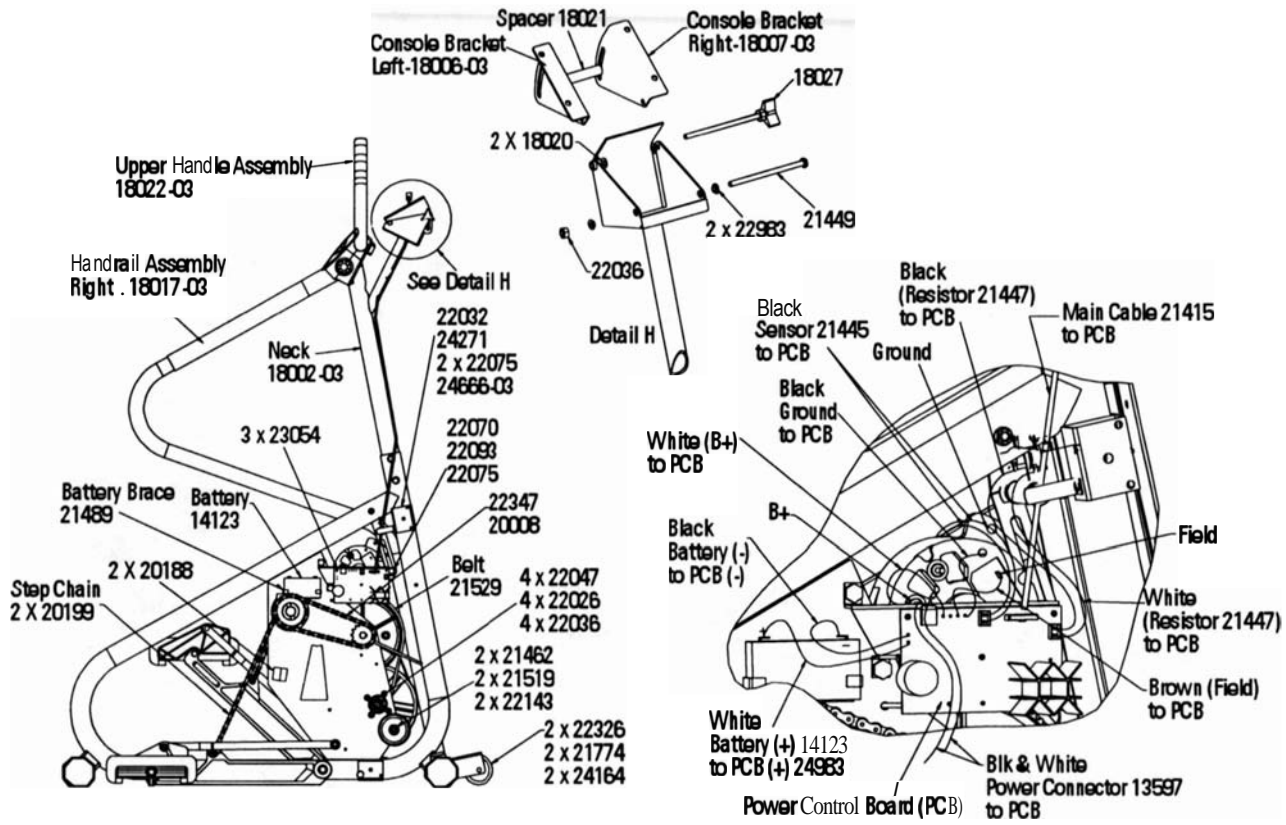


Fig. 13: Final Assembly - Left, 4600 CL

FIGURES



FIGURES

Figure 14: Final Assembly - Right, 4600 CI

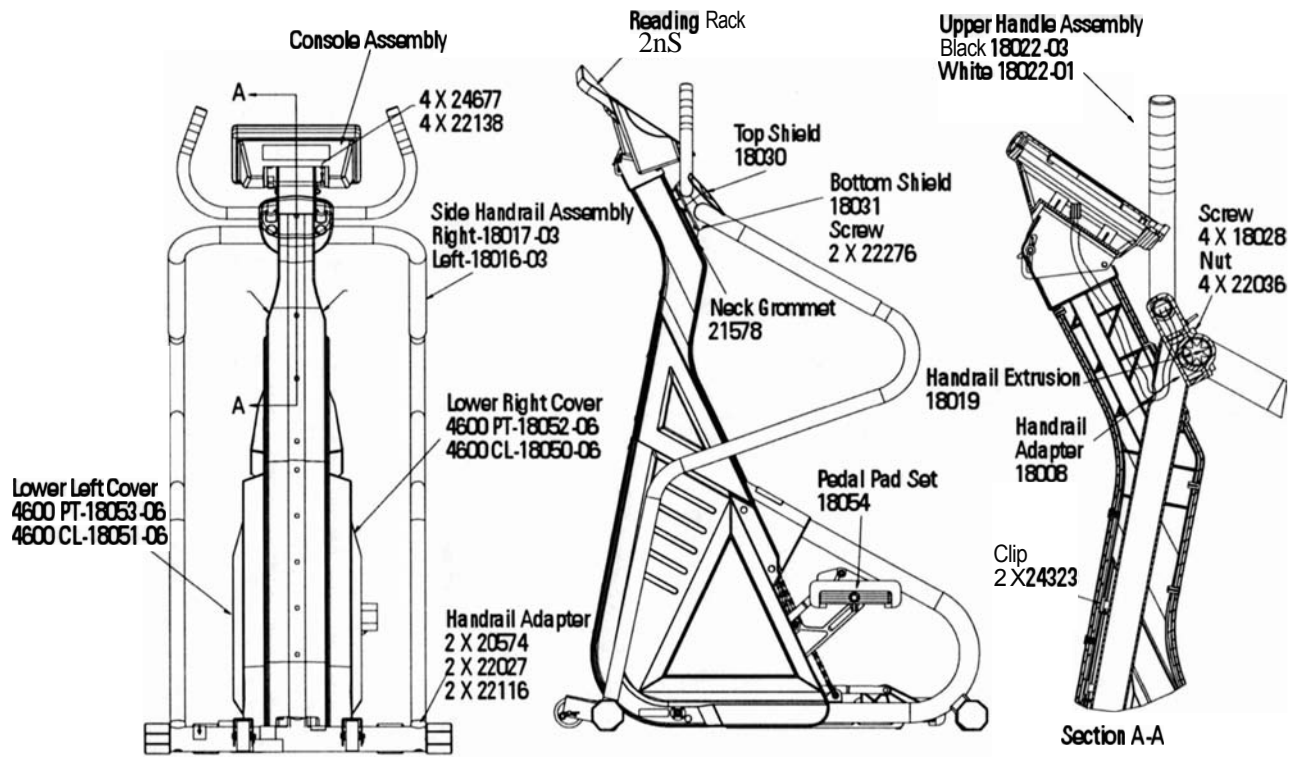
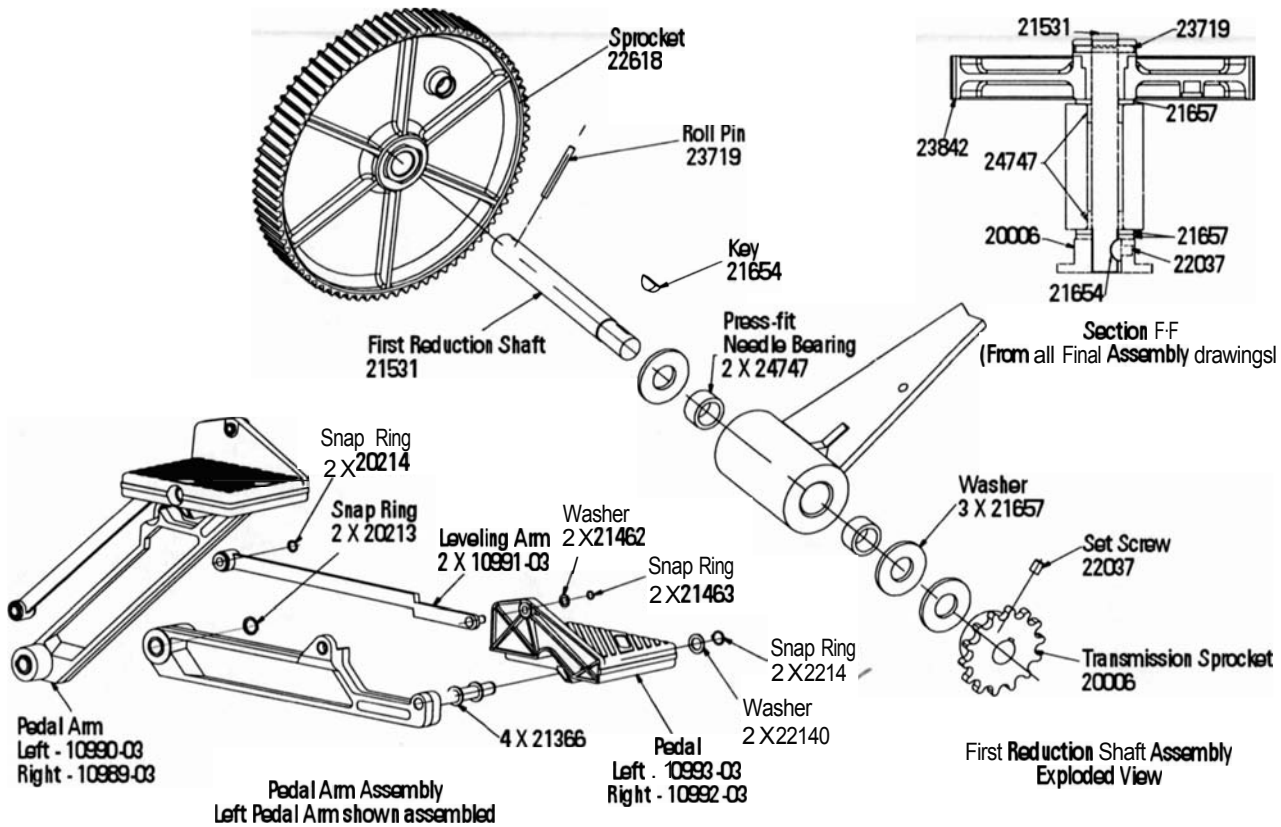


Figure 15: Covers • 4600 PT/CL

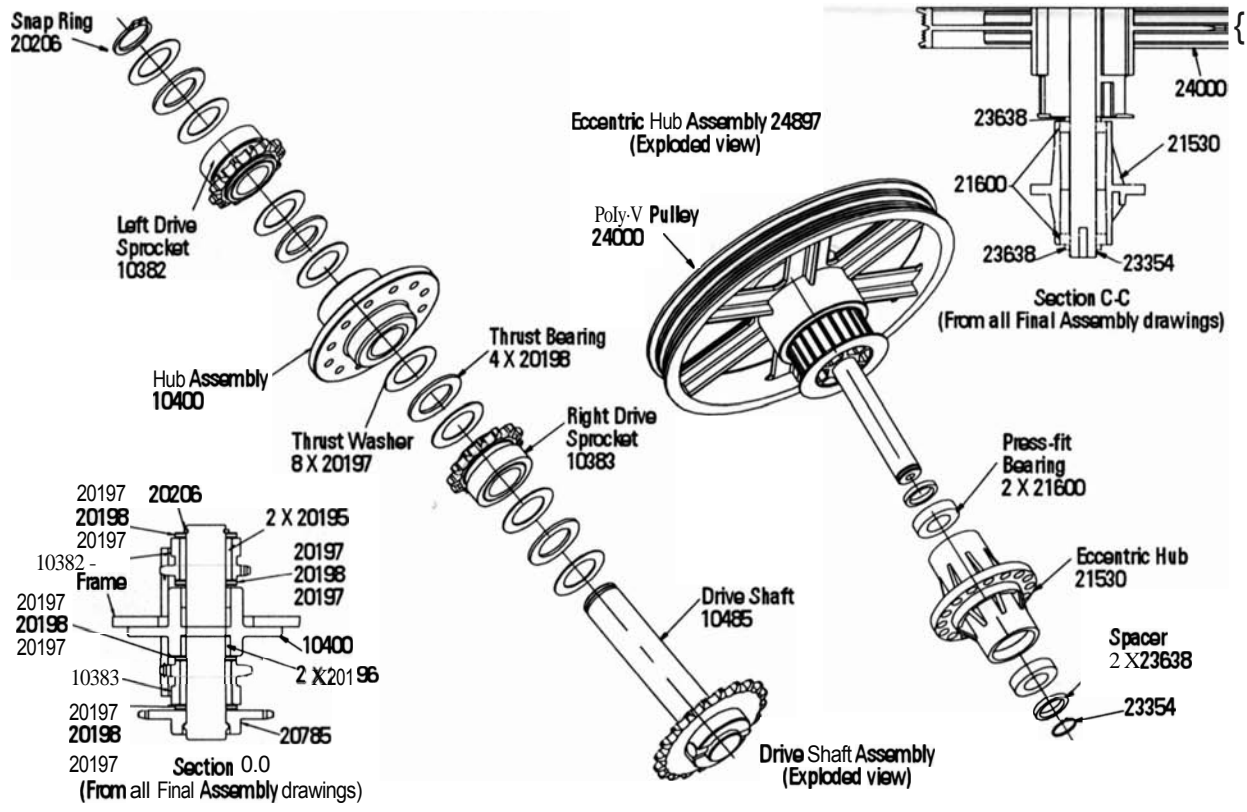
FIGURES

*Cover part numbers shown are for Black - call Customer Service for additional part numbers



FIGURES

Figure 16: Pedal Arm Assembly & First Reduction Shaft Assembly
 (4600/4400 PT/CL, 4200 PT)



**Figure 17: Drive Shaft Assembly & Eccentric Hub Assembly
4600/4400 PT/CL, 4200 PT)**

FIGURES

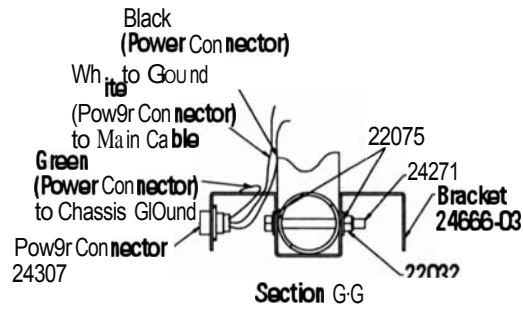
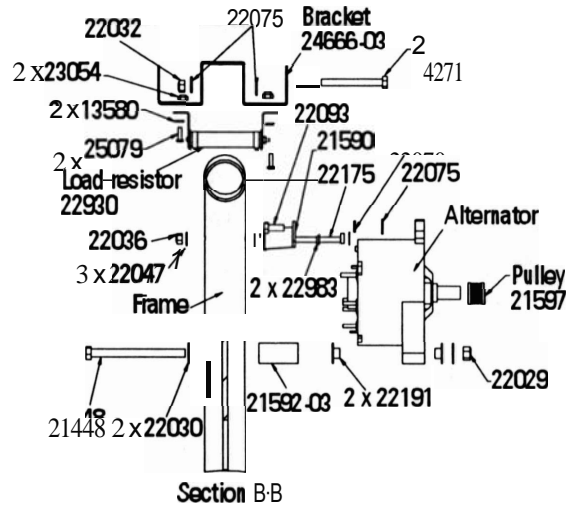
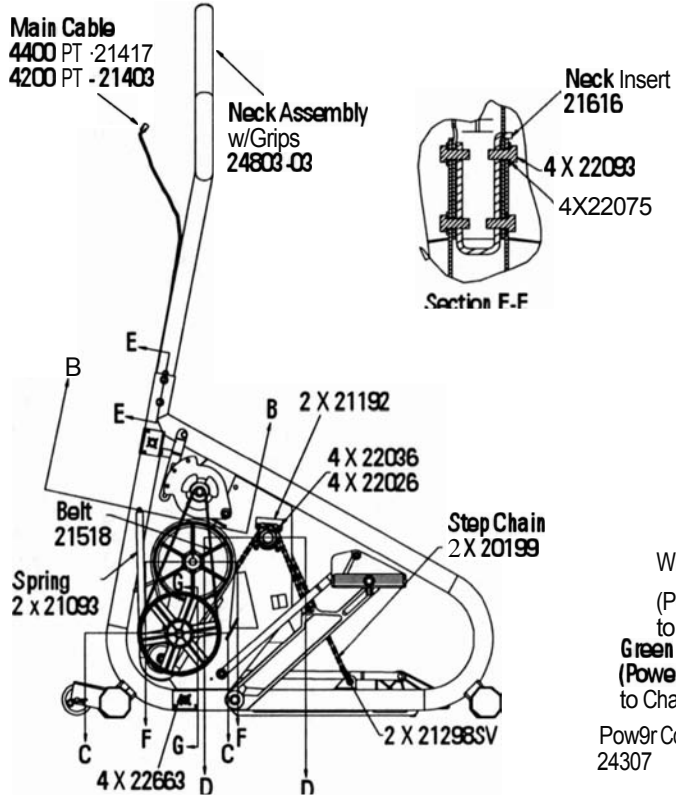


Figure 18: Final Assembly - Left, 4400/4200 PT

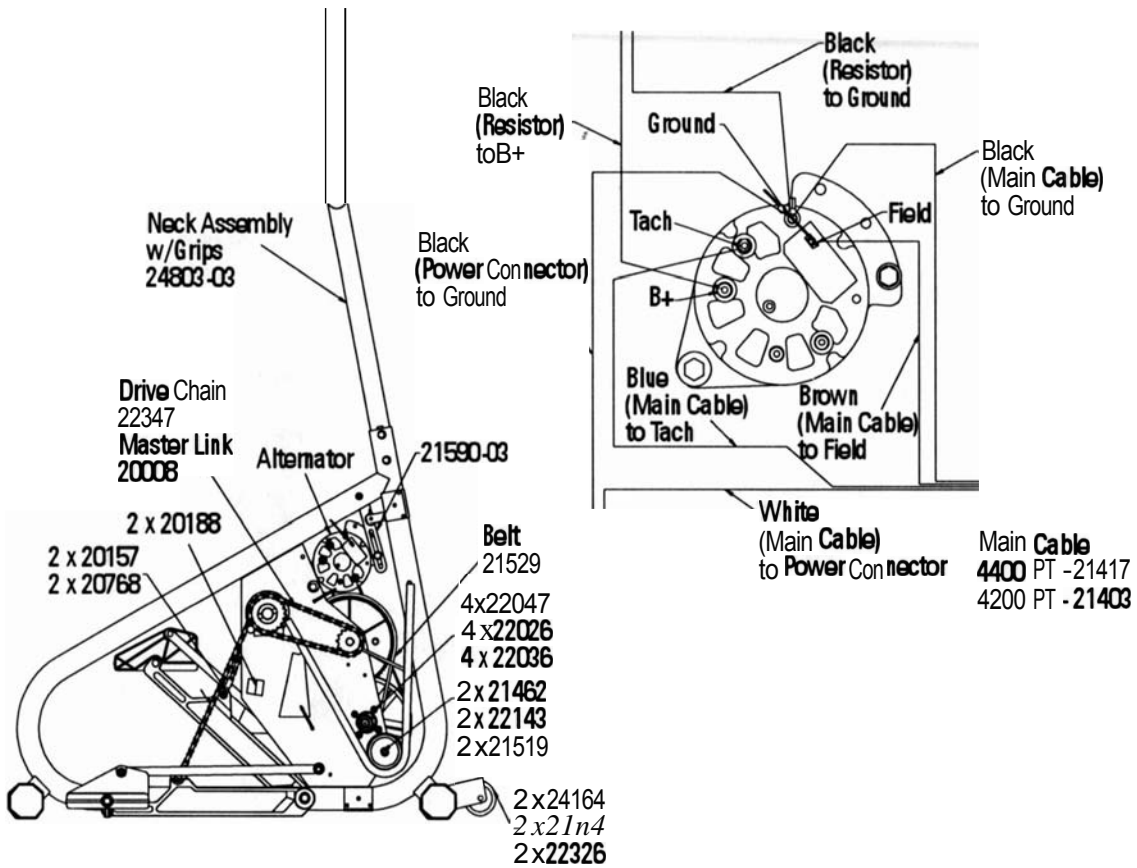


Figure 19: Final Assembly - Right, 4400/4200 PT

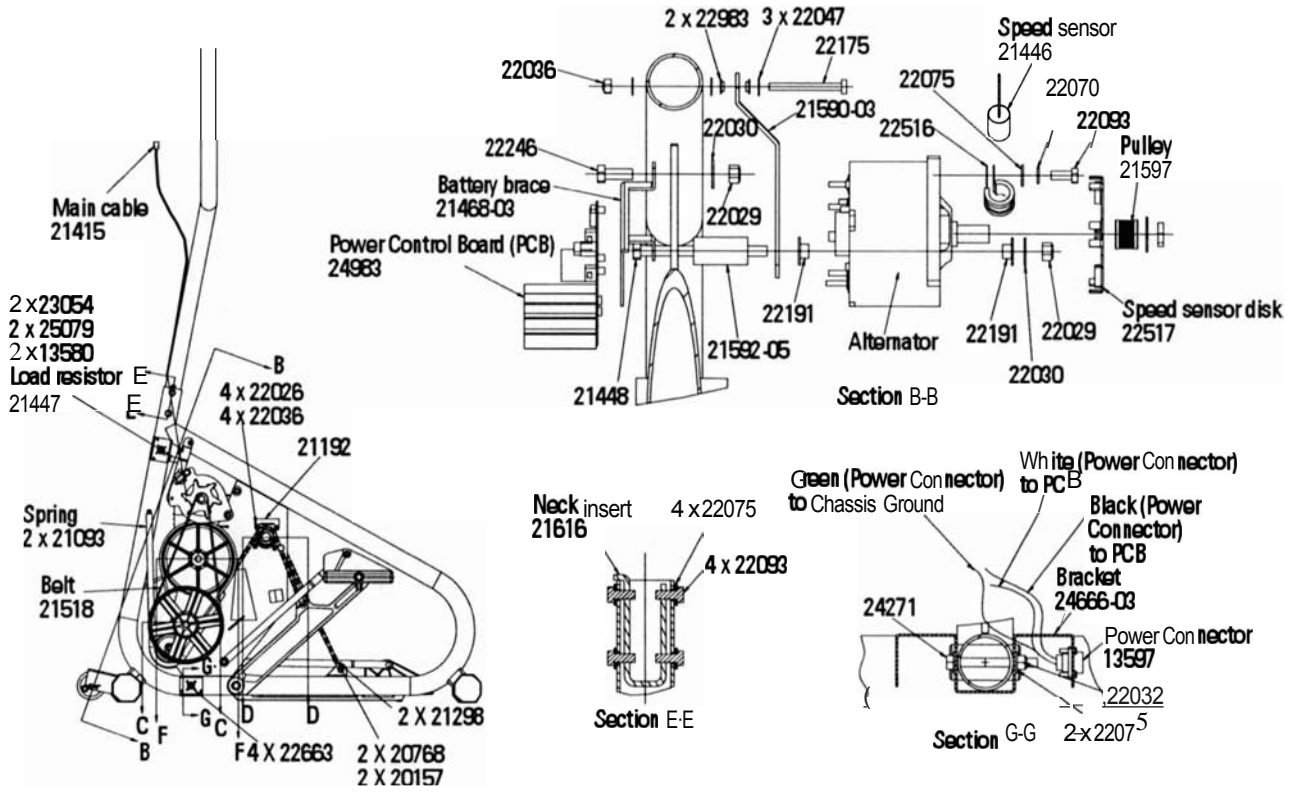


Figure 20: Final Assembly - Left, 4400 CL

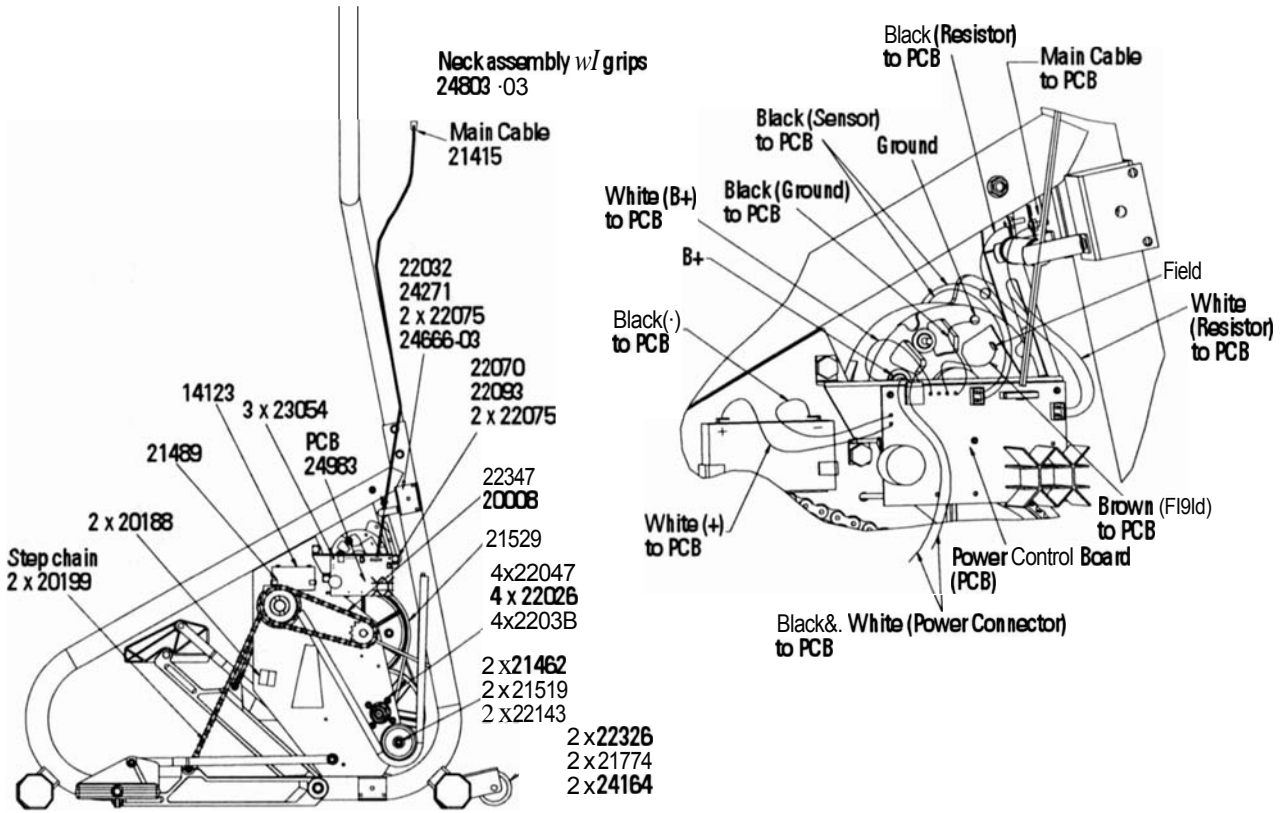


Figure 21 Final Assembly • Right, 4400 CL

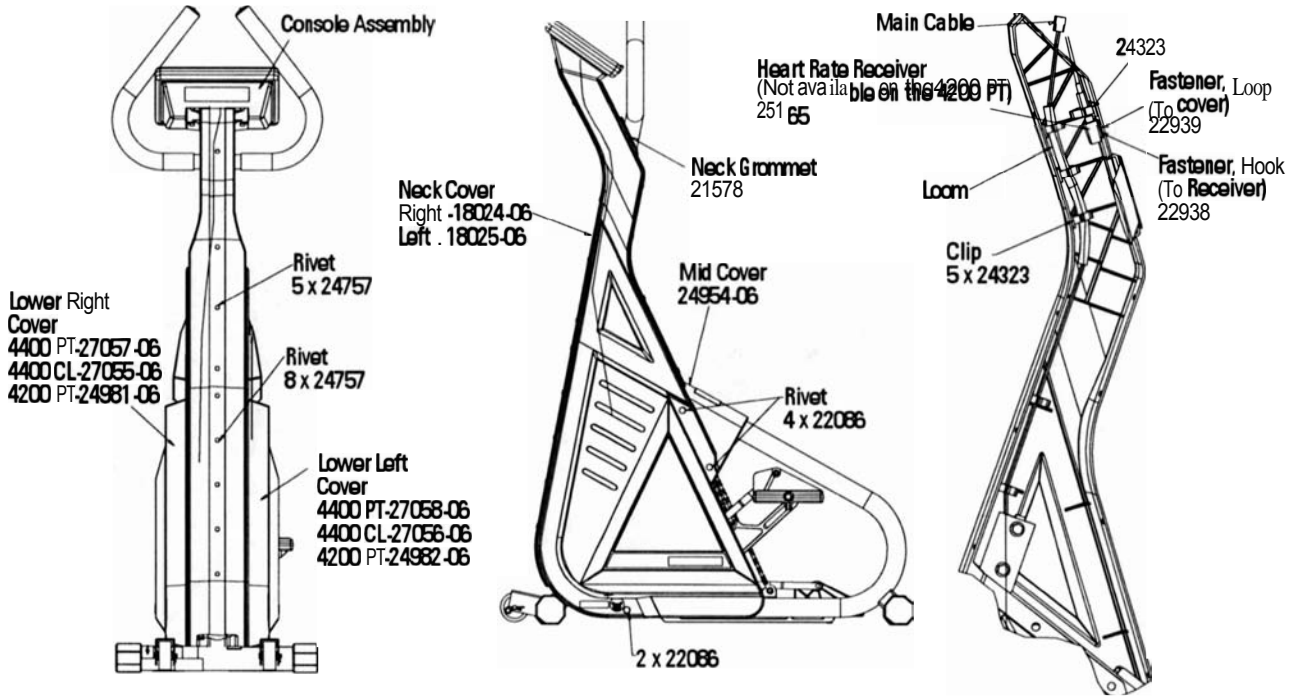
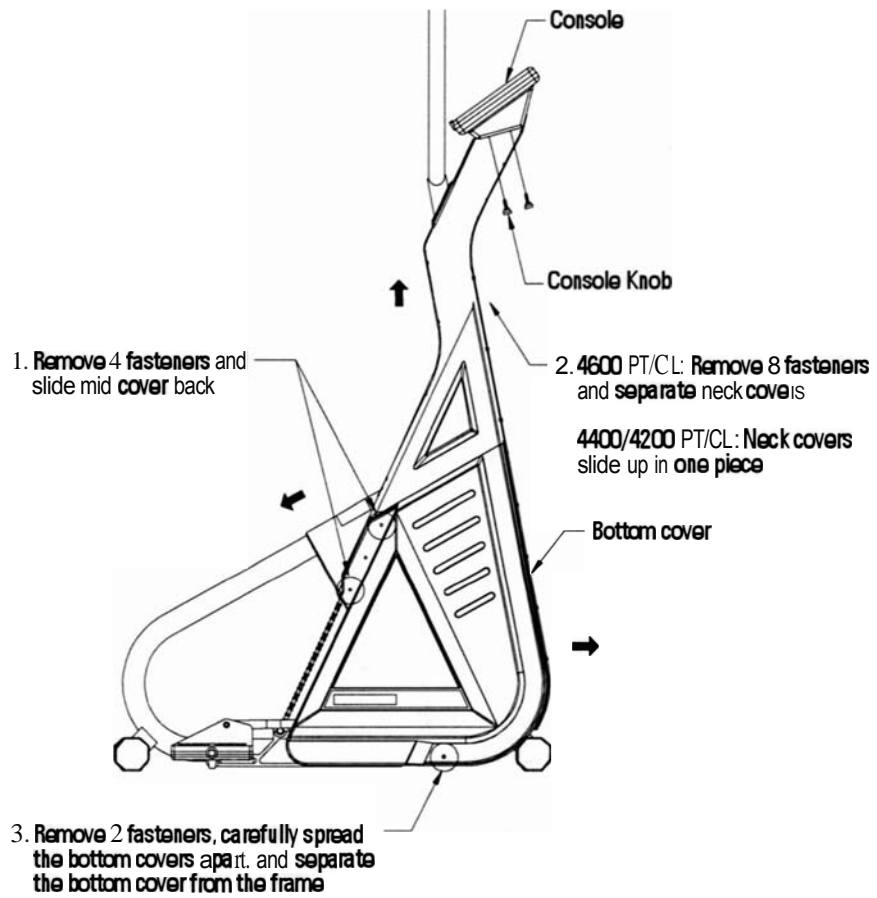


Figure 22: Covers: 4400 PT/CL, 4200 PT

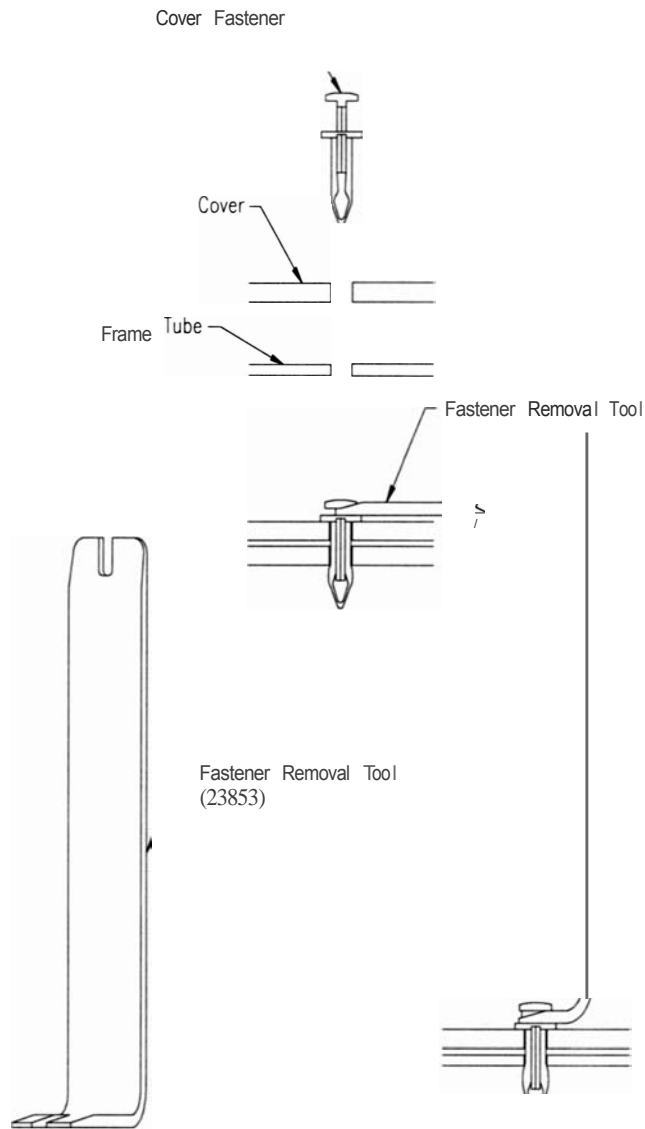
FIGURES

Figure 23: Cover Removal



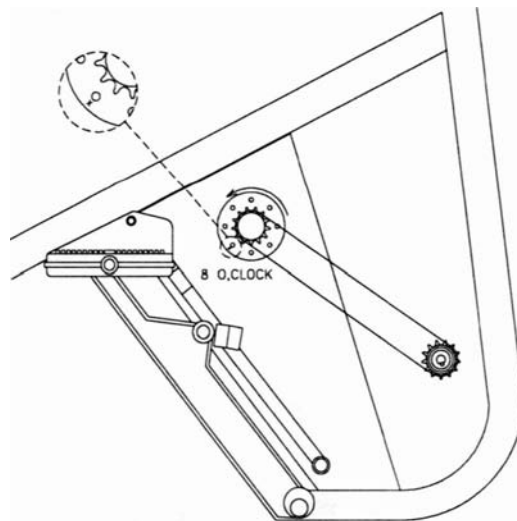
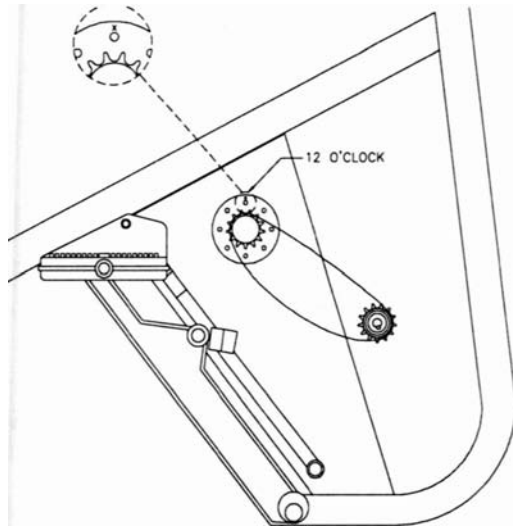
FIGURES

Figure 24: Cover fasteners



FIGURES

Figure 25: Drive Chain tensioning



FIGURES

Figure 26: Belt Tension

