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StairMaster
SPORTS/MEDICAL PRODUCTS, INC.

P/N 24310-B

WARRANTY

This is to certify that the StairMaster® Crossrobics® 2650 UE™ Kayak™ conditioning system is warranted for a period of one year 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 nontransferable from the original owner.

If, within one year from date of purchase, the StairMaster Crossrobics 2650 UE Kayak conditioning system should fail to operate properly, contact the Customer Service Department of StairMaster Sports/Medical Products, Inc. to report the problem. International customers may contact their local distributor. When calling, please be prepared to provide our customer service representative with the following information:

- Your name, shipping address, and telephone number;
- The model number of the inoperable unit;
- The serial number of the inoperable unit (located on the frame);
- The date(s) of purchase for the inoperable unit(s);
- Your billing address.

This information will enable StairMaster Sports/Medical Products, Inc. to ensure that you are the only one ordering parts under your warranty protection. If warranty replacement parts are shipped to you, StairMaster Sports/Medical Products, Inc. may require that the inoperable part be returned. To facilitate this process, the following policy has been established:

- Please call the Customer Service Department of StairMaster Sports/Medical Products, Inc. to receive a return goods authorization prior to shipment.
- StairMaster Sports/Medical Products, Inc. will incur all freight (i.e., shipping and handling) charges for warranty parts ordered for a product that is less than 45 days old. The parts will be shipped to you via an overnight courier*.
- The customer is responsible for freight charges on warranty parts for product that are more than 45 days old. Customers will not be responsible for the return shipment of the inoperable parts (see below).
- Some inoperable warranty parts must be promptly returned to the Customer Service Department of StairMaster Sports/Medical Products, Inc. The freight charges for the return of inoperable warranty parts will be paid by StairMaster Sports/Medical Products, Inc.—detailed instructions are included with each warranty replacement part shipment.

StairMaster Sports/Medical Products, Inc. neither makes, assumes, nor authorizes any representative or other person to make or assume for us, any other warranties 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 StairMaster Crossrobics 2650 UE Kayak conditioning system, only authorized replacement parts can be used. This warranty is void if any parts other than those provided by StairMaster Sports/Medical Products, Inc. are used.

* Note: Aerosol products cannot be transported via air.

The StairMaster Crossrobics 2650 UE Kayak conditioning system is a highly effective tool for developing and improving upper extremity strength and aerobic fitness. The design of the machine makes it particularly well-suited for weight management programs. Your purchase of this machine is a positive affirmation of your commitment to use the best means available to develop a high level of functional fitness. In order to achieve the greatest gains possible from your Crossrobics 2650 UE Kayak conditioning system, you should read the first section of this manual thoroughly and adhere closely to all instructions.

WHAT IS IN THIS MANUAL?

Following the information on installation and a brief explanation of how the Crossrobics 2650 UE Kayak works, this manual contains two major sections. The first section provides an explanation of how the machine should be used to achieve maximum results. The second section offers instructions and advice on how to properly maintain your machine. The "Appendix" contains additional information for the owner.

WHAT IS THE STAIRMASTER® CROSSROBICS® 2650 UE™ KAYAK™ CONDITIONING SYSTEM?

The Crossrobics 2650 UE Kayak is an upper-body exercise system that uses a significantly greater amount of muscle mass than the typical arm ergometers currently available. Regular use produces increased aerobic capacity as well as stronger muscles and bones. Traditional types of weight-loading exercise, such as weight lifting, produce stronger muscles and bones but cannot be performed in the rhythmic, continuous fashion needed to improve aerobic fitness. Traditional weight-bearing exercise, such as jogging, improves aerobic fitness, but does little to enhance muscular strength. This type of exercise also increases a user's risk of injury by placing high impact forces on their joints.

The difference between the Crossrobics 2650 UE Kayak conditioning system and other types of exercise is the patented Crossrobic loading system. The Crossrobic loading system allows the user independent control of both exercise movement speed and resistance. The exercise speed is controlled with the UP and DOWN ARROWS on the console. The resistance is controlled by selecting the appropriate number of plates on the weight stack.

The training emphasis of any given workout depends on how the two variables are combined (refer to Figure 1). A strength workout consists of lower exercise speeds and heavier resistance. A power workout combines faster exercise speeds and heavy resistance. Fast exercise speeds and lighter resistance improve arm speed. An endurance program using slower speeds and lighter weights is ideal for the long-duration workouts recommended by weight-control experts.

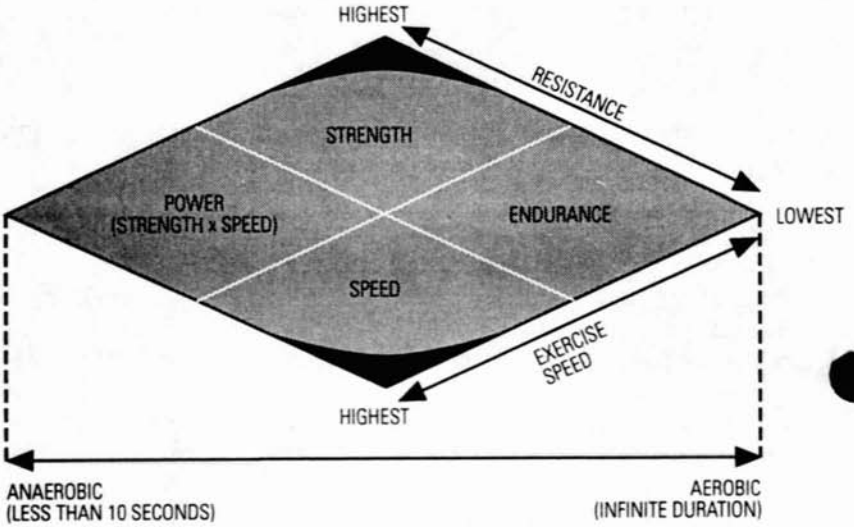

Figure 1: The Crossrobics® Conditioning Response Matrix

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When using any electrical equipment, several basic precautionary guidelines should always be strictly enforced. Among the safety precautions to which you should adhere when operating the Crossrobics 2650 UE Kayak are the following:

1. Read all instructions thoroughly before using the StairMaster Crossrobics 2650 UE Kayak conditioning system.

DANGER

2. To reduce the risk of electric shock, always unplug the machine from the electrical outlet before cleaning, performing maintenance, or making repairs.

WARNING

3. To reduce the risk of burns, fire, electric shock, or injury to individuals:

   - Always unplug the Crossrobics 2650 UE Kayak conditioning system from the outlet before putting on or taking off parts. Never attempt any adjustments or repairs while someone is exercising on the machine.
   - Closely supervise the Crossrobics 2650 UE Kayak conditioning system whenever it is used by, or near children, invalids, or disabled persons. Keep children away from the handlebar (or other similar moving parts). A serious injury could result from an infant's or a small child's fascination with the moving components of the exercise machine.
   - Keep your hands away from all moving parts. Do not operate with the side panels removed.
   - Use the Crossrobics 2650 UE Kayak only for its intended use as described in this *Manual*. Do not use attachments or accessories that are not genuine products provided by StairMaster Sports/Medical Products, Inc.

SAFETY GUIDELINES

- Never operate the Crossrobics® 2650 UE™ Kayak™ if it has a damaged cord or plug, if the power is not applied, if the console or machine does not appear to be operating properly, if it has been dropped or damaged, or if the power supply has been dropped into water. Call the Customer Service Department of StairMaster® Sports/Medical Products, Inc. at (800) 331-3578 to arrange for damaged parts to be returned to our manufacturing facility for examination and repair. International customers may contact their local distributor. Do not attempt to use the equipment until all problems have been corrected.
- Connect the power supply to a properly grounded outlet only (refer to the "Grounding Instructions" section in this *Manual*).
- Keep the power supply cord and the DC cable away from heated surfaces.
- Never drop or insert any object into any opening on the machine.
- Do not use the machine outdoors.
- Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- To disconnect the machine, switch off the power supply and then remove the plug from the AC wall outlet.

4. 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.

SAVE THESE INSTRUCTIONS

Before leaving the manufacturing facility in Tulsa, Oklahoma, your StairMaster® Crossrobics® 2650 UE™ Kayak™ was thoroughly inspected and tested for proper operation. To minimize shipping damage, careful attention was given to making your machine ready for shipment. The machine must be placed on a solid, level surface near an AC wall outlet. A minimum ceiling height of 65 inches (1.7 meters) and a doorway width of 19 inches (48 cm) is required.

Upon delivery, the shipping representative of StairMaster Sports/Medical Products, Inc. will place your new machine wherever you designate in your facility. To allow room for the handlebar, the side covers of the machine must be 26 inches (66 cm) from the nearest wall. If you are installing more than one Crossrobics 2650 UE Kayak, maintain a distance of at least 42 inches (107 cm) between the side covers so that the handlebars of adjacent machines do not hit each other.

Each machine requires minor assembly. Machines shipped outside the United States may require additional assembly; refer to the international installation instruction sheet for details. To install the machine, you must perform the following steps:

1. Attach the foot rests to the frame.
   - Line up the holes in the foot rest mounting flange with the holes in the frame rail (refer to Figure 34).
   - Insert the mounting bolts, lock washers, and flat washers; tighten the bolts securely.

2. Cut the nylon restraining strap from the weight stack.

3. Connect the DC power cable to the machine at the connector located inside the top cover on the left side of the machine. Connect the other end of the cable to the power supply.

4. Place the power supply on the floor near an AC wall outlet.

5. 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.

6. Connect the AC power cord to the AC wall outlet. Connect the other end of the cord to the power supply.

7. Turn on the power supply using the switch located to the left of the AC power cord connection.

8. Watch the console. It should produce an audible sound when plugged in and then display a simulated EKG and a software revision level scrolling message. If it does not, turn off the power supply and then turn it back on. If the sound and/or the display are still not present, contact the Customer Service Department of StairMaster® Sports/Medical Products, Inc. at (800) 331-3578. International customers should call their local distributor.

9. 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. To change the language of the prompts, press [UP ARROW], [7], [4], [2], [4], [ENTER]. Press the code number corresponding to the desired language according to Table 3 and then [ENTER].

   To change the console to metric units, press [UP ARROW], [9], [7], [6], [0], [ENTER]. Press [1], [ENTER] when prompted and the console will display metric units. To change the console back to English units, press [UP ARROW], [9], [7], [6], [0], [ENTER]. Press [0], [ENTER] when prompted and the console will display English units.

The dimensions and electrical specifications for a fully assembled machine are listed in Table 1. 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 the power supply may overheat. Custom-length DC cables, brackets for multiple power supplies, and other accessories are available from StairMaster Sports/Medical Products, Inc. Refer to the Appendix "How to Order Parts" for the phone number of the office nearest you.

Table 1. Specifications of the Crossrobics® 2650 UE™ Kayak™ Conditioning System

Physical:	
Length	63 inches (160 cm)
Width of handlebar	49 inches (124 cm)
Height	65 inches (165 cm)
Weight	325 pounds (148 kg)
Power Supply Characteristics:	
Input Voltage	110-120 VAC, 50/60 Hz*
Output Voltage (with load, console connected)	9 to 15 VDC
Output Voltage (no load)	14 to 17 VDC
Output Current Capacity	2.5 amps
Input Power Consumption	55 watts

* Optional power supplies, intended for use outside the United States, are available for 220-240 VAC, 50/60 Hz power requirements. These power supplies have not been evaluated by Underwriters Laboratories, Inc.

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 SELF PACE exercise program at the lower speeds and the recommended weight until you feel comfortable and capable of exercising at a higher intensity.

3. The speed and the duration of your exercise bout should always be consistent with how you feel. Never permit external influences to override your personal judgment about what constitutes a safe exercise intensity for you at a particular moment in time.

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. is thoroughly inspected at the manufacturing facility prior to shipment, proper installation and regular maintenance are required to ensure safety. The owner has sole responsibility for maintaining the machine.

YOUR FIRST WORKOUT ON THE STAIRMASTER® CROSSROBICS® 2650 UE™ KAYAK™ CONDITIONING SYSTEM

The ATTRACT Mode

The Crossrobics 2650 UE Kayak is ready to use when the console is in the inactive or ATTRACT mode. The ATTRACT mode is denoted by a scrolling simulated EKG in the display and/or a typewritten message that scrolls across the text bar.

You can program your own message to scroll across the text bar. Refer to the "Customizing the Text Bar Scrolling Message" section of the *Manual*. A diagram of the console is shown in Figure 3.

Basic Instructions for First-Time Users

1. Warm up with light calisthenics and easy stretching exercises for approximately 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. Sit on the seat facing the console. Sit close enough to the handlebar rubber bellows so you won't have to bend forward to reach the handlebar.

3. Select the SELF PACE exercise program so you can control the pace of your first workout and get used to the unique exercise motion.

4. Press [SELF PACE]. When the "ACCEPT?" prompt appears on the display, press [ENTER]. The console will return to the ATTRACT mode if you do not press [ENTER] within 10 seconds.

5. The console will prompt you to enter your body weight. You should then enter your weight in pounds (or kilograms if the console is set up for metric units).

NOTE: EXCEPT FOR THE PROMPT FOR ACCEPTING YOUR EXERCISE PROGRAM, ALL PROMPTS LAST FOR THIRTY SECONDS. IF YOU DO NOT RESPOND WITHIN THIRTY SECONDS, THE CONSOLE WILL RETURN TO THE ATTRACT MODE.

6. The next prompt asks you for the number of weight stack plates. For your first Crossrobic workout, the recommended load is five plates for men and three plates for women. Place the pin in the appropriate weight stack plate and then enter the corresponding number of plates on the console.

BASIC OPERATING INSTRUCTIONS

7. Next, the console will prompt you to enter the duration of your workout. A workout can last from five to 45 minutes. Your first workout should last 10 minutes.

8. After you press [ENTER], the messages "START EXERCISE" and "10 MIN WORK-OUT" will scroll across the text bar. One dot will light up in the lower left corner of the display.

9. Grip the handlebar, with your hands about a shoulder's width apart, and bring it to an upright position.

> **⚠ WARNING**
>
> TO PREVENT INJURY, MAKE SURE THE AREA IS CLEAR BEFORE EXERCISING.

10. Begin exercising by pulling downward and back with one arm while pushing upward and forward with the other arm (refer to Figure 2). Visualize paddling a kayak.

11. Alternate the pulling and pushing movements at a pace (speed) that keeps the weight stack hanging so it does not click at the top or touch the remaining plates of the weight stack.

12. As you become accustomed to the movement, increase the exercise speed by pressing [UP ARROW]. The display will now show a flashing column of at least two lights. Throughout the rest of your workout, you may continue to vary the speed with [UP ARROW] and [DOWN ARROW].

13. You will get the most benefit from your workout if you move the handlebar through the greatest range of motion.

14. Change your rate of handlebar movement (faster or slower as appropriate), not the handlebar range of motion, to keep up with changes in speed.

15. At the end of your workout, the machine will automatically slow down. Use both hands to push the handlebar forward before releasing your grip.

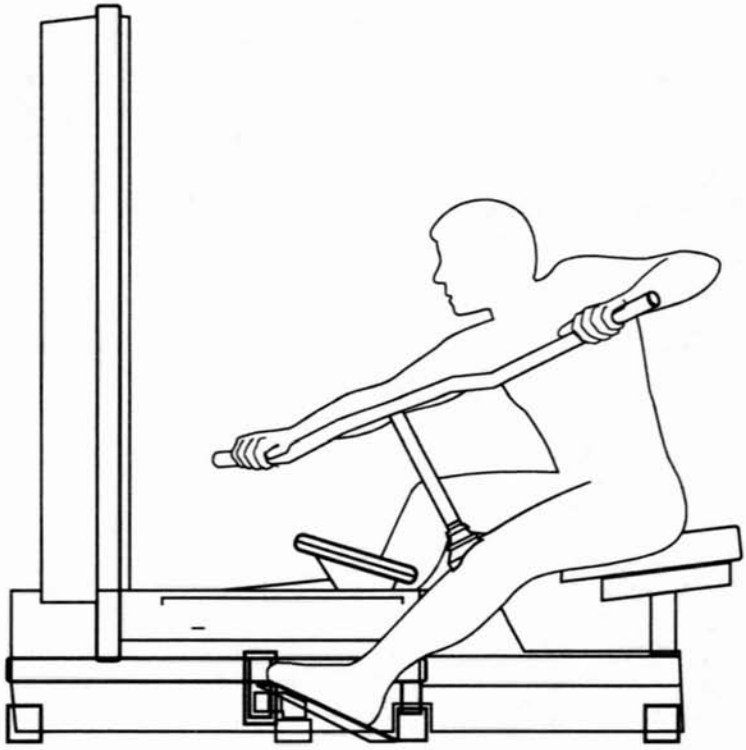

Figure 2: Exercise Motion

End-of-Workout Summary

1. At the end of your workout, the message "GOAL ATTAINED" will scroll across the text bar. Your Crossrobic point total is then displayed for 10 seconds. During this time, you may press any of the function keypad buttons to receive feedback concerning your workout. Refer to the "Function Keypad" section of this *Manual* for feedback details.

2. The summary information regarding the last workout is saved in the console memory until the next person begins an exercise program. Your summary information may be recalled by pressing [WORKOUT STATS] and then the appropriate button.

NOTE: IF YOU END YOUR WORKOUT EARLY, YOUR CROSSROBIC POINT TOTAL WILL BE PRECEDED BY THE MESSAGE "WORKOUT SUMMARY" WHEN YOU PRESS [WORKOUT STATS].

Pauses

The console is programmed for two types of pauses during a workout.

1. The first type is an unlimited number of weight change pauses. When you stop exercising, the prompt "ENTER # PLATES" scrolls across the text bar and the current number of plates is shown in the display. This pause lasts for 30 seconds before the console resets to the ATTRACT mode.

   If you only want to rest for 30 seconds and not change the weight load, just start exercising before the 30 seconds are up. If you do want to change the weight load, change the weight stack pin location, press the new number on the function keypad and then [ENTER]. The console will compute the workout statistics according to the new weight load from that point forward.

2. The second type of pause is a rest break that lasts longer than 30 seconds but less than two minutes. "RESTING" will appear in the text bar after the 30-second weight change pause. When you resume exercise, your workout will start where you left off. One rest break is allowed for every 30 intervals of exercise. For example, you are allowed one rest pause during exercise program Crossrobics One. You are allowed three rests for exercise program Crossrobics Six, one during each of the thirty interval sections.

The StairMaster® Crossrobics® 2650 UE™ Kayak™ console is divided into four sections: the text bar, the display, the function keypad and the exercise program keypad (refer to Figure 3).

TEXT BAR

Information regarding workout statistics and data entry is displayed or scrolled across the text bar. There are five words under the text bar that are only visible when lit from behind—an arrangement which is called a deadfront. Reading from left to right, the deadfronts are: ENDURANCE, SPEED, STRENGTH, POWER, and TIME.

ENDURANCE, SPEED, STRENGTH, and POWER correspond to the four elements of the Crossrobics Conditioning Response Matrix (refer to Figure 1). Various combinations of these four deadfronts light up during your workout showing you the conditioning emphasis of the current interval.

A countdown timer is located on the text bar directly above the TIME deadfront. The timer shows the time, in seconds, remaining in the current interval.

DISPLAY

For all exercise program options except SELF PACE, a profile of the selected program appears in the display. A flashing interval column indicates where on the profile you are currently exercising (the active interval). The flashing, active column moves left to right across the display area as you complete each interval.

FUNCTION KEYPAD

The function keypad is located on the right side of the console. Ten of the keys on the keypad have two pieces of information on them—a number and a workout statistic. Before the exercise program begins, the numbers are used to enter data in response to the console prompts. During or immediately after the exercise program, the performance feedback keys are pressed to display workout statistics on the text bar.

1. WORKOUT TIME displays the elapsed time, in minutes and seconds, of your workout. This is the default statistic during a workout.

2. TONNAGE LIFTED is another way of expressing work (refer to number 7 below). In this case, it is the equivalent number of tons you have lifted a distance of one vertical foot.

3. DISTANCE TRAVELED provides a cumulative total of the equivalent distance, in

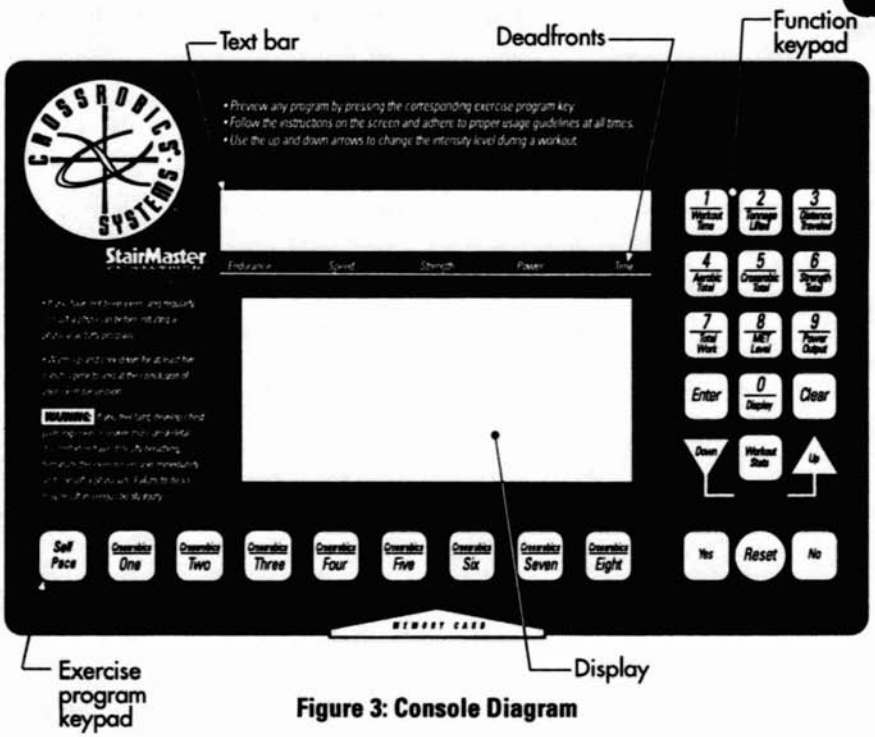

Figure 3: Console Diagram

miles (or kilometers if your console is set to metric units), you would have traveled at the same relative intensity of exercise.

4. AEROBIC TOTAL provides a cumulative total of the Calories expended during a particular workout. Calories expended is probably the most common way to measure the energy cost of exercise. Since the energy content of food is expressed in Calories, a convenient way exists to control or manage your body weight. When your total energy intake is less than your total energy output, you lose weight and vice versa. Technically, a Calorie is a measure of heat. One Calorie is the amount of heat needed to raise the temperature of one liter (or one kilogram) of water one degree Celsius.

5. CROSSROBIC TOTAL is the sum of the aerobic and the strength totals. The components of this total can be used to identify which fitness element was emphasized during your workout. Whichever factor (aerobic or strength total) was higher indicates which element received the greater training stimulus. The Crossrobic total should be used as a relative measure to evaluate your training program.

6. STRENGTH TOTAL indicates the number of tons lifted, adjusted for individual differences in body weight and workout duration.

7. TOTAL WORK provides a cumulative total of the amount of work performed during a workout. Work is the product of an applied force multiplied by the distance over which the force is applied. Work is expressed in kilogram-meters and is the number of kilograms (2.2 pounds) you have lifted one vertical meter (3.3 feet). Since work is a quantity, the total amount of work you perform while exercising increases with time.

8. MET LEVEL is the relative energy cost of exercise. One MET is equivalent to the resting oxygen consumption of about 3.5 milliliters of oxygen per kilogram of body mass per minute (ml $O_2 \cdot kg^{-1} \cdot min^{-1}$). For example, exercising at 10 METs requires ten times the resting metabolic rate or about 35 ml $O_2 \cdot kg^{-1} \cdot min^{-1}$. During the exercise program, this button displays the MET level at which you are currently exercising. After you have completed your exercise program, the average MET level during your workout is displayed.

9. POWER OUTPUT displays the physical power output of the machine. In order to better understand this measure, it is important to appreciate the differences between work, power and energy. Work is force times distance. Power is the rate of doing work, or work divided by time. Energy, on the other hand, is the capacity to do work. Power output is measured in units known as watts (746 watts = 1 horsepower). Since power is a rate, power output does not accumulate over time and will not change during your workout unless you change the speed and/or the weight load.

10. The DISPLAY button allows you to return the text bar graphics to the default display (workout time) during a workout. During the workout summary after a workout, pressing [DISPLAY] will show the intensity level in the text bar and the exercise program profile in the display.

11. The WORKOUT STATS button scrolls the information from all nine performance feedback buttons, plus the number of repetitions, continuously across the text bar. You can press any function keypad button during the scrolling summary and stop at that statistic.

    If you press [WORKOUT STATS] while the Crossrobic points total is shown on the text bar immediately after your workout, the information from all nine performance feedback buttons, plus the number of repetitions, scrolls once across the text bar. You can press any function keypad button during the scrolling summary and stop at that statistic.

Pressing [WORKOUT STATS] while the console is in the ATTRACT mode will recall the final totals of the last workout. When you first press [WORKOUT STATS], "GOAL ATTAINED" will scroll across the text bar (or "WORKOUT SUMMARY" if you ended your workout early). Then your Crossrobic points total will be shown. You have 10 seconds to press another button before the summary ends. Your workout statistics are stored in the console memory until another exercise program is started.

12. The UP and DOWN ARROWS increase or decrease, respectively, the exercise intensity level (or the speed of SELF PACE) of all exercise programs. The exercise intensity level ranges from 1 (the easiest) to 20 (the most difficult). Your selected intensity level is shown in the text bar at the start of your workout. Each time you press an arrow, your new intensity level is shown in the text bar.

13. The ENTER button confirms selections and stores the information used to calculate the performance feedback into the console memory.

14. The CLEAR button erases data from the console before the ENTER button is pressed. The CLEAR function also works during the projected totals as explained in number 15 below.

15. The YES and NO buttons are used to respond to data entry prompts. Pressing [YES] after data entry, but before you start exercising, will display the projected aerobic, strength and Crossrobic totals for your exercise program (except for a SELF PACE workout). You can press [CLEAR] during the projected total display t go back to the data entry screens and modify any entry.

16. The RESET button returns the console to the ATTRACT mode.

17. The cumulative number of REPS (repetitions) is displayed on the text bar as the first statistic when you press [WORKOUT STATS]. One rep is counted each time the handlebar is pulled back. The length of an average person's handlebar stroke is used to calculate the number of reps.

EXERCISE PROGRAM KEYPAD

The exercise program 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 Crossrobics exercise programs is slightly different than the sequence described earlier for the SELF PACE program. After you press

one of the Crossrobics® exercise program buttons, the exercise program profile is scrolled across the display. After the profile is scrolled, the prompts are:

- "PRESS ENTER KEY TO SELECT"
- "ENTER BODY WEIGHT" — type in your body weight in pounds (or kilograms if your console is set to metric units).
- "ENTER NUMBER OF PLATES 3-12" — select the weight load for your workout.
- "ENTER LEVEL 1-20" — select your intensity level with level 1 being the easiest and level 20 the most difficult.
- "ENTER TIME 5-45" — select the workout duration in one minute increments from 5 to 45.

There are eight Crossrobics exercise program options:

- The exercise speed during the eight Crossrobics exercise programs varies automatically over 14 increments within each of the twenty possible intensity levels. Varying the intensity of a Crossrobics exercise program, however, does not change the profile shown on the screen. Change the intensity level of your workout by pressing [UP or DOWN ARROW]. Your new intensity level is shown in the text bar.
- The average energy cost of the eight Crossrobics exercise programs is about the same. The peak energy cost during a particular workout varies from program to program. For example, the average METs at the end of a 30-minute Crossrobics Three workout at intensity level 10 with 5 plates would be the same as the average METs at the end of a 30-minute Crossrobics Six workout at level 10 with 5 plates. The peak METs, however, would be higher during the Crossrobics Six workout.
- Crossrobics One is a 30-interval exercise program with gradual speed changes (refer to Figure 4). This program is well-suited to short, low-intensity workouts.
- Crossrobics Two is a 60-interval exercise program with speeds that are appropriate for the longer duration workouts recommended by most weight control experts (refer to Figure 5).

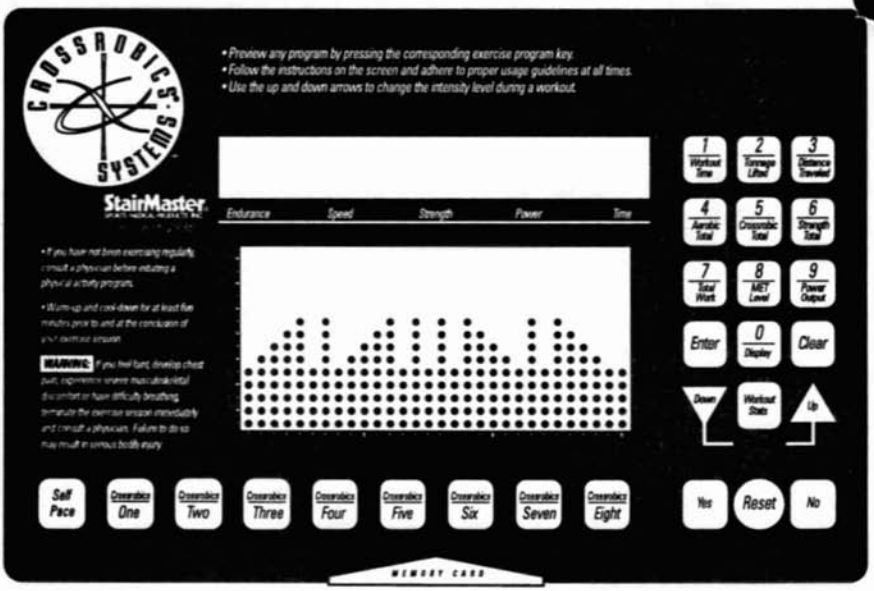

Figure 4: Crossrobics One

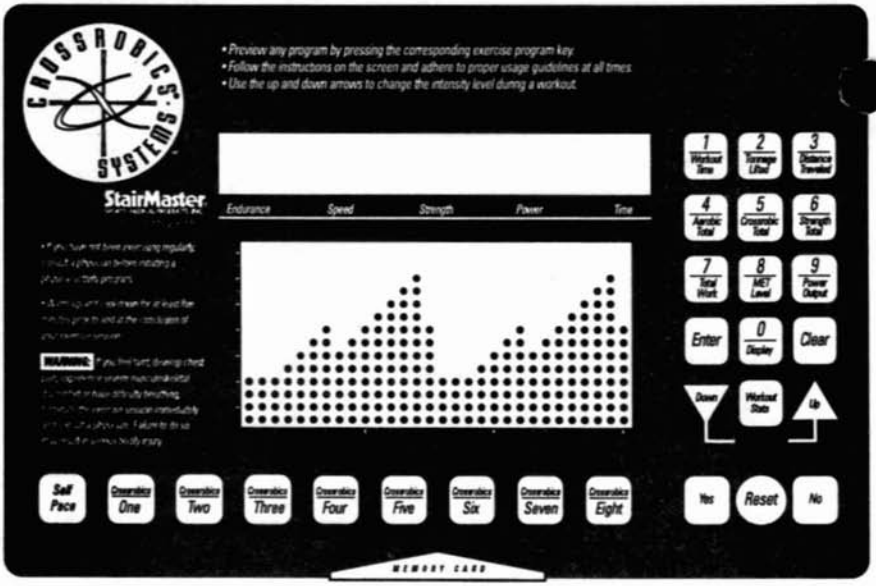

Figure 5A: Crossrobics Two, Screen 1

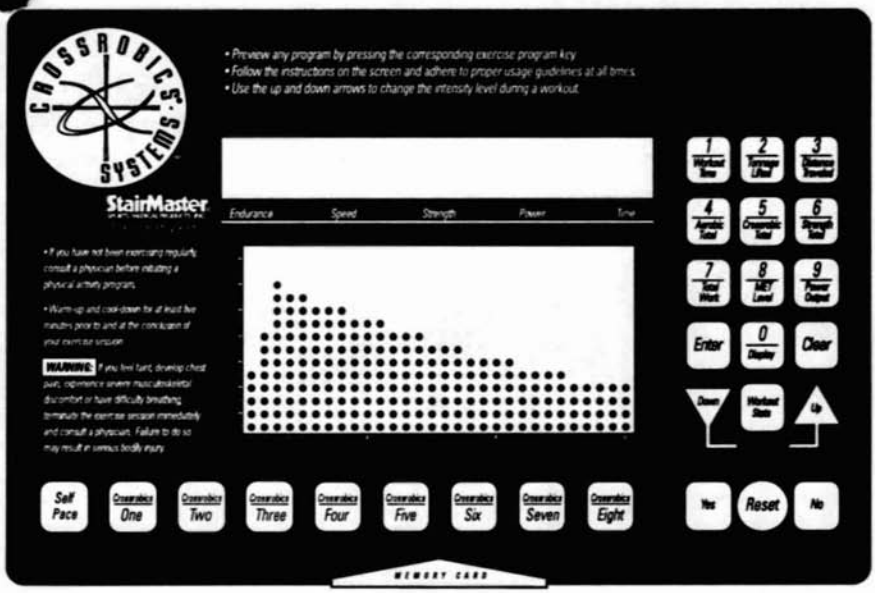

Figure 5B: Crossrobics Two, Screen 2

- Crossrobics Three is a 90-interval exercise program with constantly changing speeds (refer to Figure 6). This program emphasizes strength, speed and endurance. This program is suitable for training programs designed to enhance athletic performance.

- Crossrobics Four is a 60-interval exercise program (refer to Figure 7). After 30 intervals, you are prompted to decrease the weight while the average speed of the next thirty intervals increases. The first half of this program emphasizes strength, speed and endurance. The second half emphasizes speed and endurance.

- Crossrobics Five, Six and Seven are 90-interval exercise programs (refer to Figures 8-10). After 30 intervals, the weight load is increased and the average speed decreases. The last 30 intervals are performed with a lighter weight load over a faster average speed. These programs are divided into three, 30-interval phases: a) strength and endurance; b) strength and power; and c) endurance and speed. Crossrobics Five and Six incorporate constant changes in velocity and are better suited to improving performance. The velocity changes in Crossrobics Seven are more gradual. This program, along with Crossrobics Two, is ideal for long duration workouts geared toward weight control.

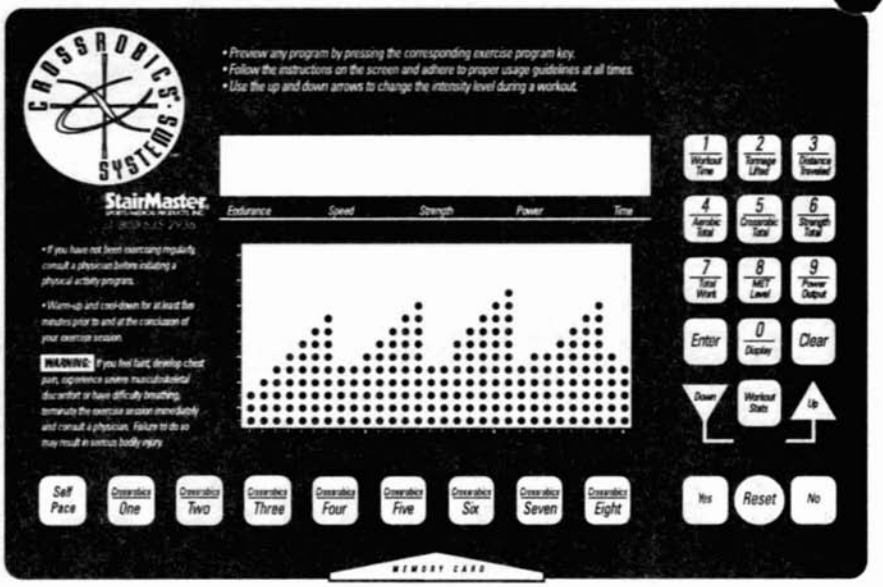

Figure 6A: Crossrobics Three, Screen 1

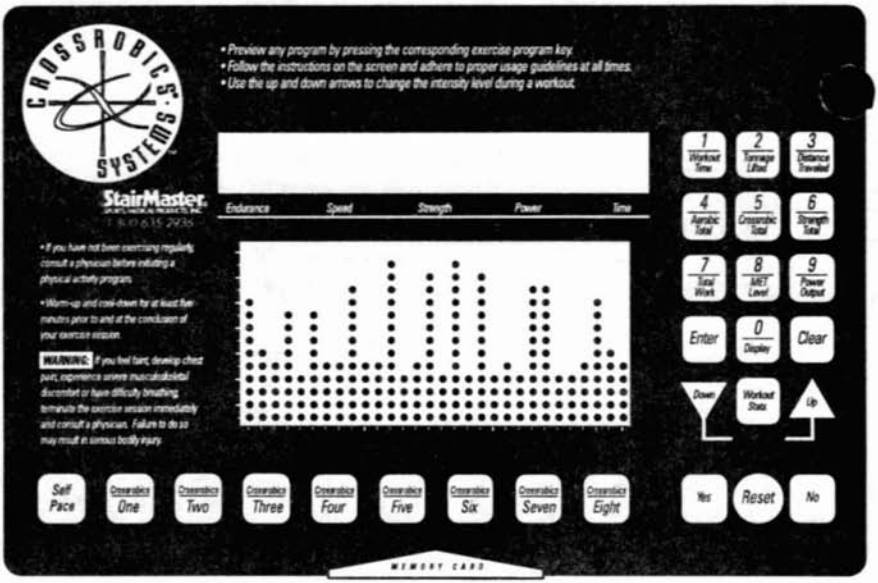

Figure 6B: Crossrobics Three, Screen 2

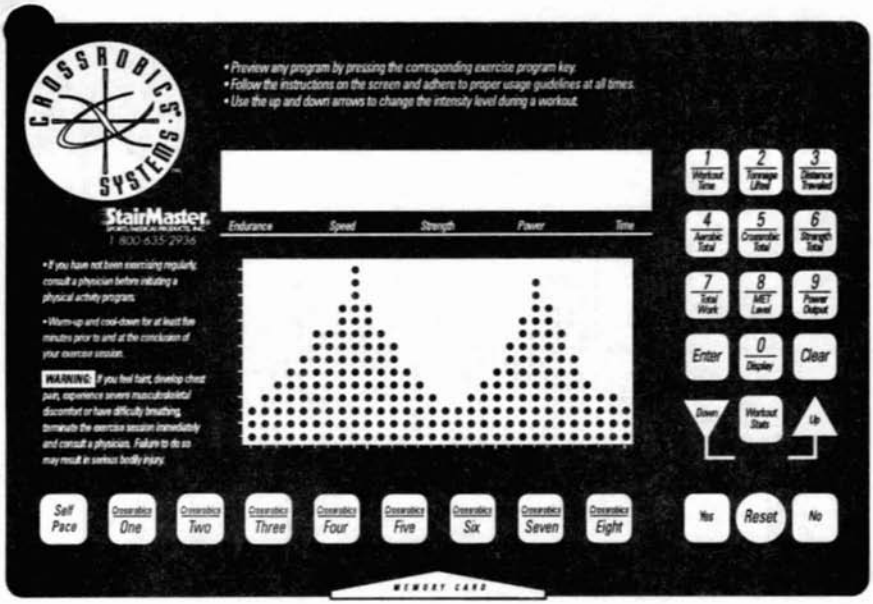

Figure 6C: Crossrobics Three, Screen 3

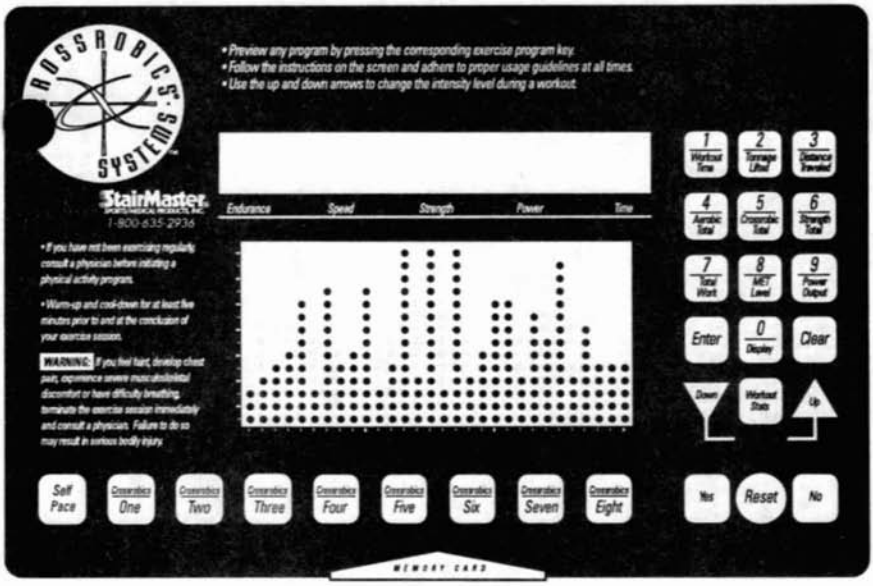

Figure 7A: Crossrobics Four, Screen 1

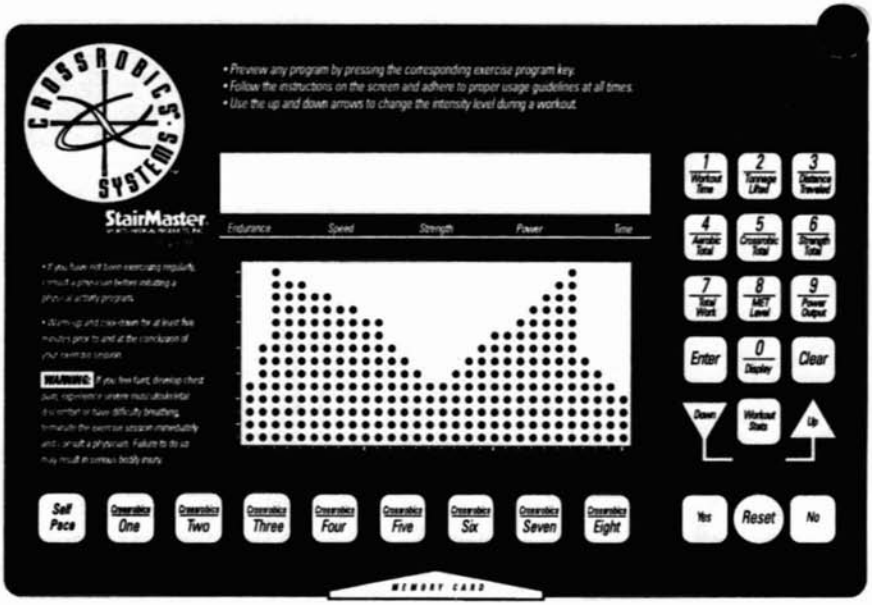

Figure 7B: Crossrobics Four, Screen 2

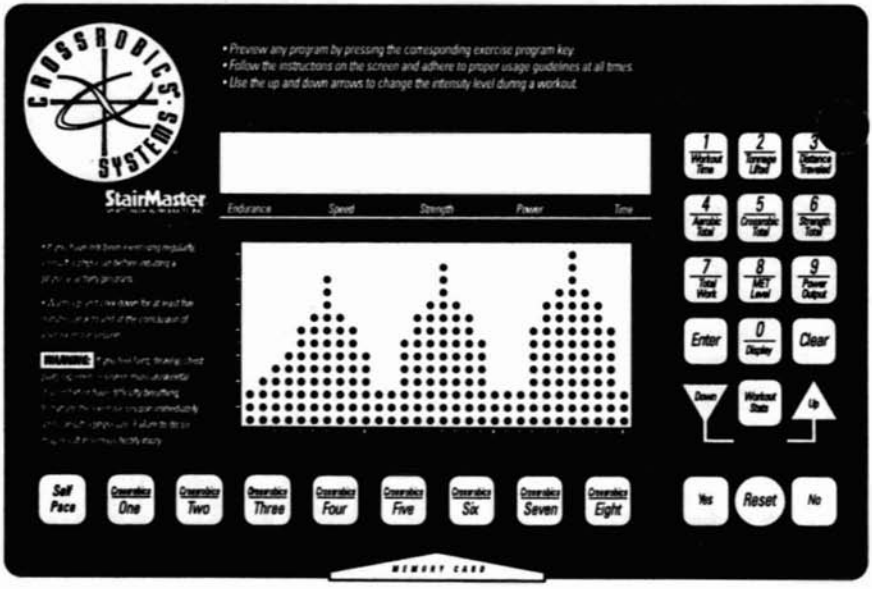

Figure 8A: Crossrobics Five, Screen 1

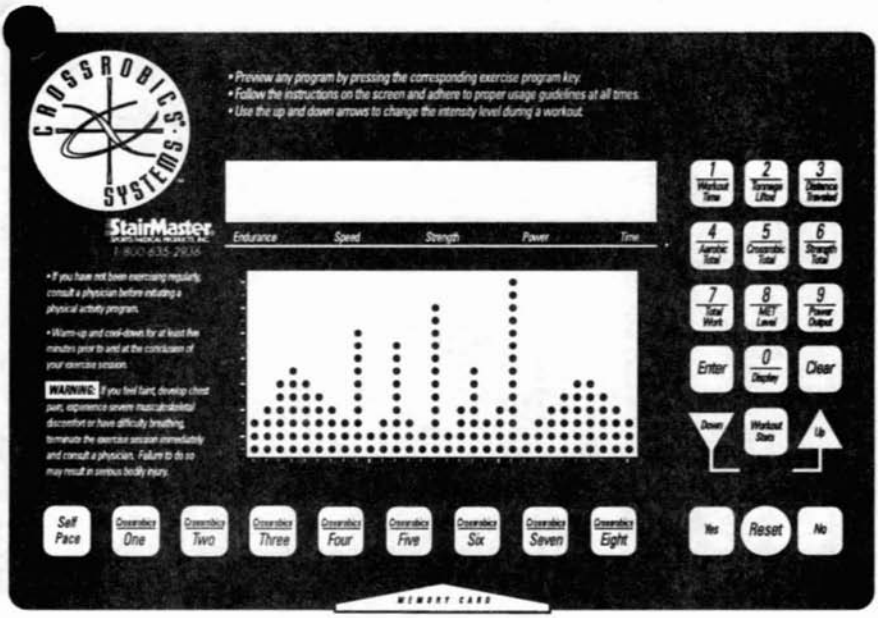

Figure 8B: Crossrobics Five, Screen 2

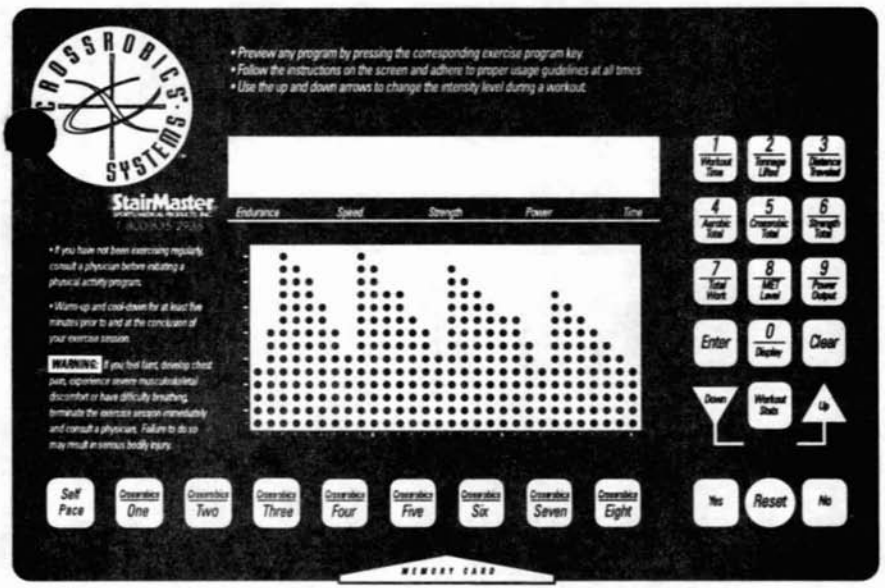

Figure 8C: Crossrobics Five, Screen 3

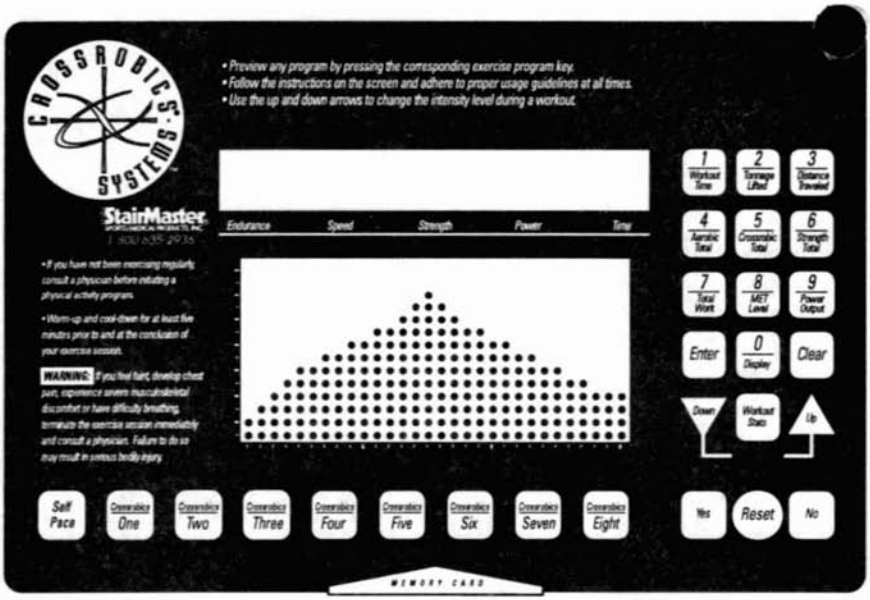

Figure 9A: Crossrobics Six, Screen 1

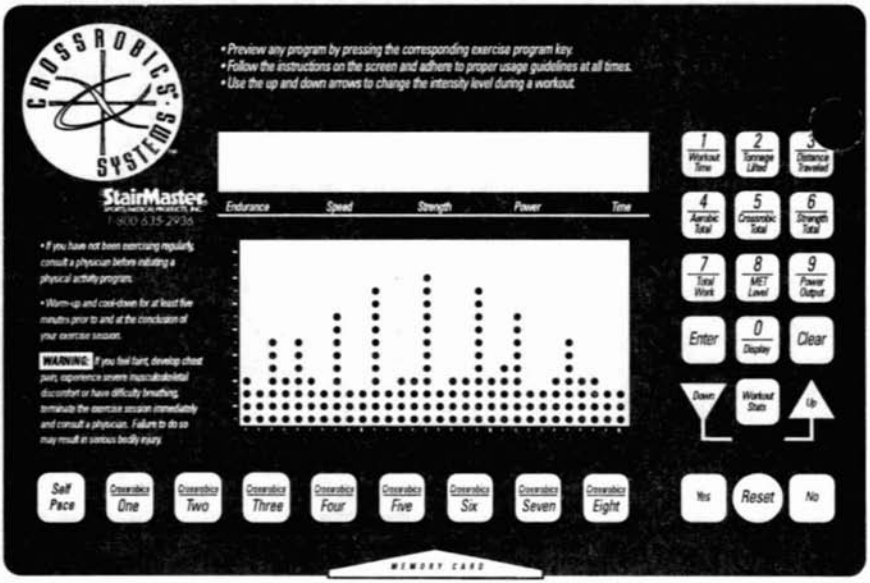

Figure 9B: Crossrobics Six, Screen 2

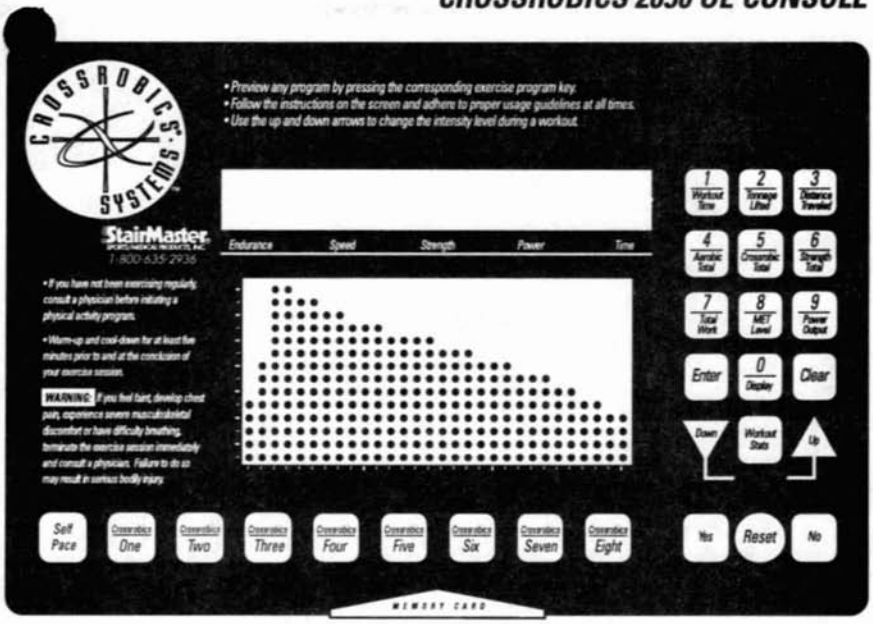

Figure 9C: Crossrobics Six, Screen 3

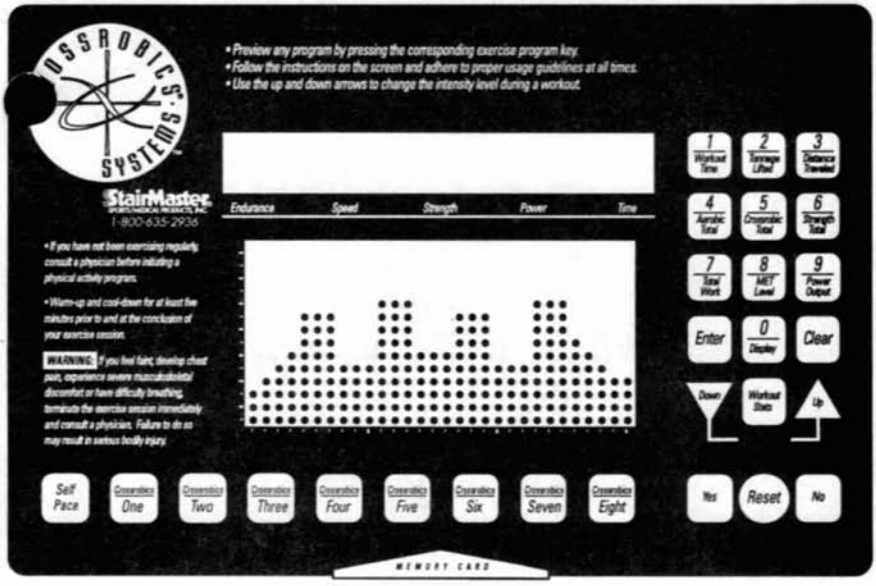

Figure 10A: Crossrobics Seven, Screen 1

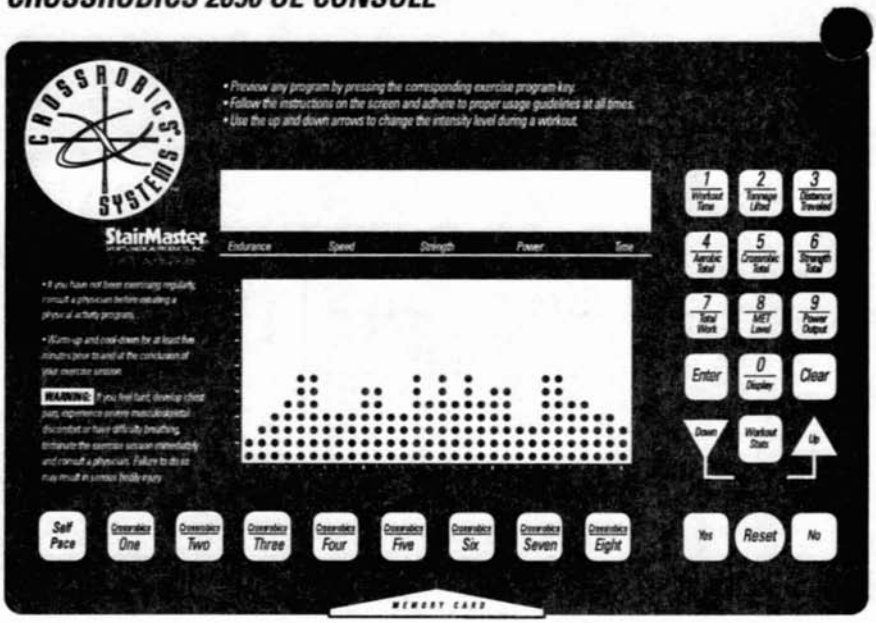

Figure 10B: Crossrobics Seven, Screen 2

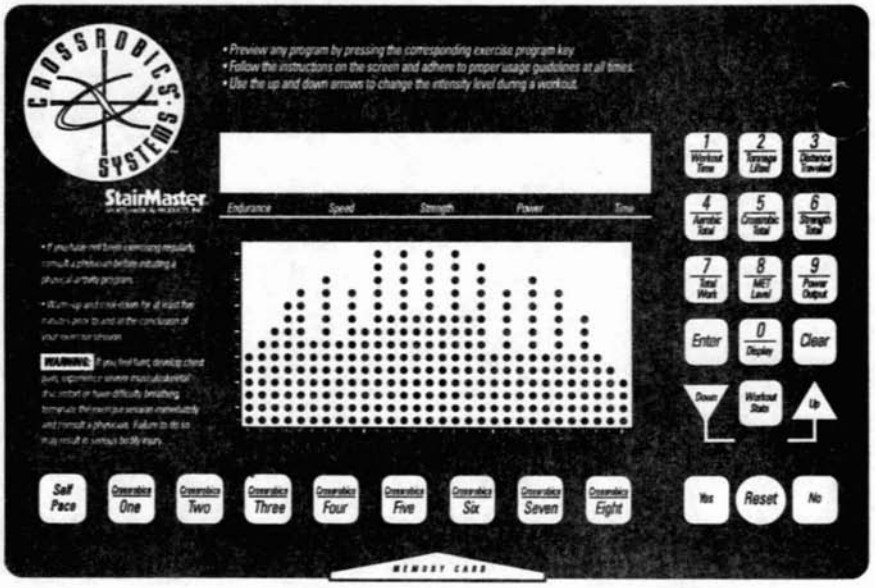

Figure 10C: Crossrobics Seven, Screen 3

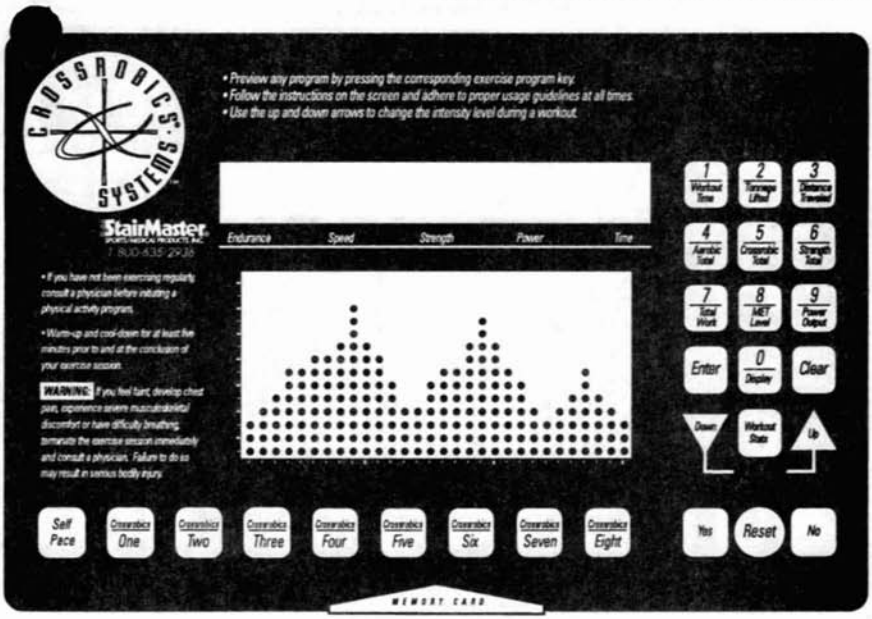

Figure 11A: Crossrobics Eight, Screen 1

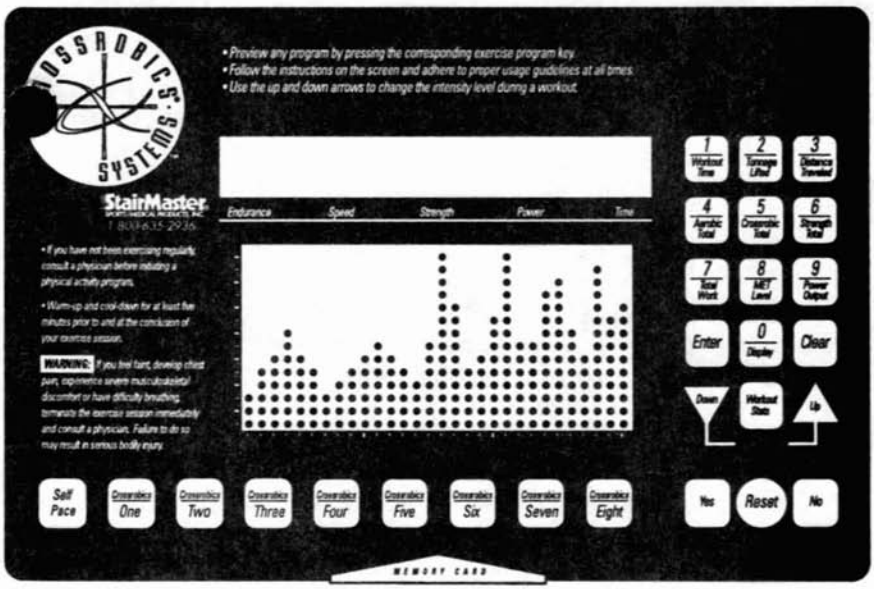

Figure 11B: Crossrobics Eight, Screen 2

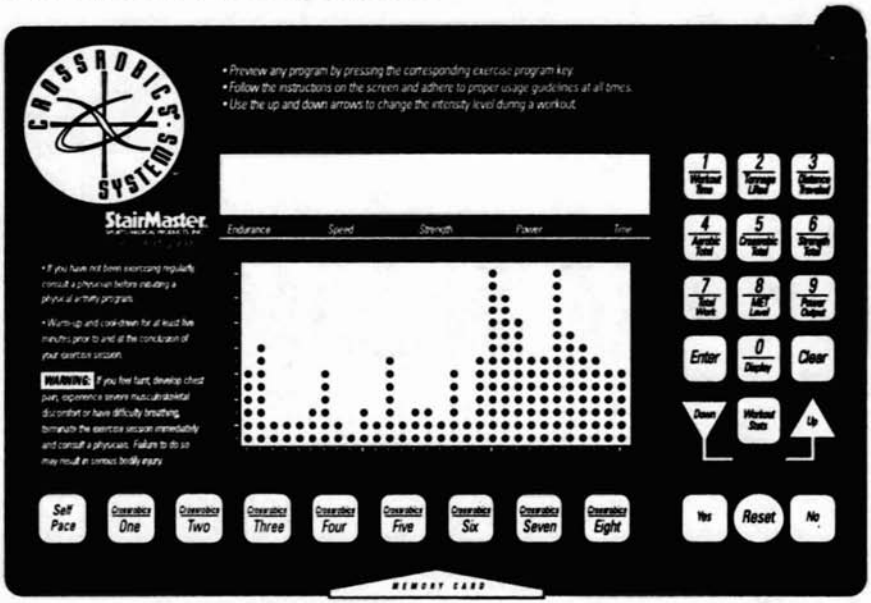

Figure 11C: Crossrobics Eight, Screen 3

- Crossrobics Eight is a 90-interval exercise program (refer to Figure 11). It is similar to Crossrobics Five, Six or Seven with an extra strength phase.

- While you are working out in an exercise program with more than 30 intervals, you may scroll ahead to view the remaining intervals by pressing the appropriate exercise program button. After the brief preview, the display will return to the active phase. You are allowed one 2-minute rest break for every 30 intervals.

CUSTOMIZING THE TEXT BAR 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 2.

2. While the console is in the ATTRACT mode, press [UP ARROW], [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 [UP 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.

Editing the Scrolling Message

1. While the console is in the ATTRACT mode, press [UP ARROW], [7], [6], [0], [7], [ENTER] to display the first character of the message onto the text bar.

2. Press the [UP or DOWN ARROW] to scroll through the message character-by-character.

Table 2. Character Codes for the Scrolling Message

Character	Code	Character	Code	Character	Code
0	00	M	23	¡	46
1	01	N	24	À	47
2	02	O	25	Î	48
3	03	P	26	È	49
4	04	Q	27	Ã	50
5	05	R	28	Ç	51
6	06	S	29	É	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	Ä	37	'	60
E	15	Ü	38	!	61
F	16	Ö	39	—	62
G	17	ß	40	#	63
H	18	Å	41	:	64
I	19	Á	42	;	65
J	20	Ó	43	)	66
K	21	Ê	44	(	67
L	22	Ñ	45	/	68

3. Press [CLEAR] to delete the last character displayed on the text bar. Press [ENTER] to end the editing process.

4. To edit multiple characters at one time, press [9], [9], [ENTER]. This will erase all of the characters to the right of the last character displayed on the text bar.

5. To erase the entire message, press [UP ARROW], [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 [UP ARROW], [2], [1], [2], [3], [ENTER] to display the default scrolling message on the text bar.

8. Press [UP ARROW], [2], [1], [2], [1], [ENTER] to display your custom scrolling message on the text bar.

CODES FOR THE STAIRMASTER® CROSSROBICS® 2650 UE™ KAYAK™ CONSOLE

There are several console functions that can be accessed by entering a numerical code. A list of the codes and the corresponding functions is presented in Table 3.

Table 3. Special Codes

Code	Function
UP ARROW, 105, ENTER	Clears the custom programmed scrolling message
UP ARROW, 107, ENTER	Activates the Diagnostic mode
0	Display test
1	Speaker test
2	Keypad test
3	Speed test
4	Software revision level test
UP ARROW,2121, ENTER	Turns on the custom scrolling message
UP ARROW,2123, ENTER	Turns off the custom scrolling message
UP ARROW,7424, ENTER	Changes the language of the console prompts
0	English
1	German
2	French
3	Italian
4	Spanish
5	Swedish
UP ARROW, 7607, ENTER	Allows you to program a scrolling message for the ATTRACT mode
99, ENTER	Text bar scrolling message editing function
UP ARROW, 7703, ENTER	Displays machine usage information
UP ARROW, 7704, ENTER	Allows you to turn the console speaker on or off
0	Turns the speaker on
1	Turns the speaker off
UP ARROW, 9760, ENTER	Allows you to change the units displayed by the console
0	Changes the console to English units
1	Changes the console to metric units

MAINTENANCE

HELPFUL HINTS

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. 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 weight stack is at the front of the machine. Major component names and locations are shown in Figures 13 and 14. The circled numbers in the figures identify parts that are referenced in the Parts Key of the Appendix.

TOOL LIST

The following tools are needed to perform service and maintenance:

- standard screwdriver
- adjustable wrench
- internal snap ring pliers
- external snap ring pliers
- wire stripper/crimper
- hammer
- volt-ohm meter (multimeter)
- phillips screwdriver
- combination wrenches (sizes 7/16" - 3/4")
- combination pliers
- shop goggles or other eye protection
- allen wrenches (sizes 5/54" to 1/4")
- drift pin punch
- socket set or nut driver set (sizes 1/4" to 3/4" in 1/16" increments)

MAINTENANCE RECORDS

The 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 tons lifted
- the number of exercise programs started
- the hours of SELF PACE use

When the console is in the ATTRACT mode, the machine usage data can be displayed by pressing [UP ARROW], [7], [7], [0], [3], [ENTER]. The console displays the data in the sequence listed above.

N[redacted]: The console may display several hours of use when your machine is delivered due to testing at the manufacturing facility.

INITIAL SERVICE

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

PREVENTIVE MAINTENANCE

A schedule of the recommended preventive maintenance is shown in Table 4. This schedule assumes moderate to heavy usage in a commercial health club environment. Refer to the appropriate "Parts Removal and Replacement" section of this *Manual* for all disassembly and assembly instructions.

Cleaning

1. DO NOT USE GLASS CLEANER OR ANY OTHER HOUSEHOLD CLEANERS ON THE CONSOLE. Use a water-dampened cloth when you clean the electronic parts and wipe them dry after cleaning.

2. Clean the plastic covers daily using soap and water.

3. Clean the foot rests weekly with soap and water.

4. [redacted] Thoroughly clean the entire machine, including the interior, at least once a week.

Weekly Inspection

1. Inspect the exposed frame for any rust, bubbling, or paint chips during the weekly cleaning. The salt in perspiration can damage the unpainted surfaces. Repair the damaged area with a touch-up kit (refer to the Parts Key for the touch-up kit part number).

2. Remove the top and outside weight stack covers.

⚠ WARNING

TO REDUCE THE RISK OF INJURY, DO NOT EXERCISE ON THIS MACHINE WHILE THE COVERS ARE REMOVED. DO NOT MOVE THE HANDLEBAR WHILE ANYONE'S HANDS ARE INSIDE THE MACHINE. DO NOT WEAR LOOSE CLOTHING OR NECKTIES WHILE WORKING ON THIS MACHINE.

- Inspect the weight stack belt for undue wear and/or fraying. The 3/4" (2 cm) weight stack belt is made of Kevlar fibers and can withstand rather severe fraying. Replace the belt if it wears to two-thirds of its original width (i.e., 1/2" or 1 cm).
- The frame-end junction of the belt is located on the bottom frame rail. Visually inspect this end of the belt for undue wear.
- Inspect the weight stack belt connector plates at both ends of the belt (refer to Figure 21). The plates should be evenly tensioned and parallel. Inspect the belt at the connections. Visible serrations on the weight stack belt above the connector plates indicates belt slippage that should be corrected immediately.
- Inspect the alternator reduction and the drive reduction belts for wear and proper tension. You should be able to deflect the belt approximately 1/4" (0.6 cm) in either direction with your fingertip (refer to Figure 16).
- Carefully turn the 8-inch Poly-V pulley counterclockwise and check for smoothness of operation. If noise or roughness of operation is present, you must inspect the pivot shaft assembly.
- Check the upper input drive assembly for smooth operation. Inspect the rubber bellows for cracks or tears.

3. Reinstall the top and outside weight stack covers.

Lubrication

There are six components that require periodic lubrication: the weight stack guide rods, the drive shaft, the lower input drive shaft, the input chains, and the drive chain (refer to Figure 15). These lubrication procedures, if performed as outlined, will minimize chain wear and maximize parts life. You need to remove the left and right side covers to lubricate these components.

1. Place a protective mat on the floor when you are oiling your machine. A rubber floor mat is available from StairMaster® Sports/Medical Products, Inc.

2. Lubricate the drive and input chains weekly using SAE 30W motor oil. Turn the handlebar while you drip oil onto the drive chain and input chains, especially on the section of the input chains which are in contact with the drive hub sprockets.

Let the oil soak in for a few minutes and then remove any excess oil with a dry rag.

⚠ WARNING

TO REDUCE THE RISK OF SERIOUS BODILY INJURY, BE EXTREMELY CAREFUL WHEN LUBRICATING THE CHAINS. BE PARTICULARLY AWARE OF ALL BELTS AND PULLEYS WHICH ARE EXPOSED WHEN THE SIDE COVERS ARE REMOVED.

3. Remove the chains every three months to thoroughly clean and relubricate them. Use a mild degreaser and a stiff brush to remove dirt and corrosion from the chains.

4. Wipe the weight stack guide rods weekly (do not remove the weight stack covers) with a rag dampened with window cleaner in order to clean off the old lubricant and prevent buildup. To lubricate the guide rods, spray silicon lubricant onto a clean rag and wipe the guide rods.

5. Place a block under the frame, below the seat to support the rear of the machine.

6. Grease the drive shaft assembly at the zerk fitting every three months with heavy multi-purpose grease.

7. Grease the lower input drive hub assembly at the zerk fitting every three months with heavy multi-purpose grease.

8. Remove the support you placed under the seat.

⚠ WARNING

NEVER LUBRICATE THE SEALED BEARINGS ON THE IDLER PULLEYS OR IDLER SPROCKETS. THEY ARE PERMANENTLY LUBRICATED AND MAY FAIL IF YOU ADD LUBRICATION.

Table 4. Preventive Maintenance Schedule

PART	RECOMMENDED ACTION	FREQUENCY	CLEANER	LUBRICANT
Plastic side cover (exterior only)	Clean	Daily	Soap & water	N/A
Seat	Clean	Daily	Soap & water	N/A
Console	Clean	Daily	Water	N/A
Weight stack belt and connectors	Inspect	Weekly or after 70 hours of use	N/A	N/A
Alternator and drive belts	Check tension and inspect for wear	Weekly or after 70 hours of use	N/A	N/A
Input chains and drive chain	Clean and lubricate	Weekly or after 70 hours of use	Degreaser	30Wmotor oil
	Remove, clean and lubricate	Every 3 months or after 900 hours of use	Degreaser	30W motor oil
Guide rods	Clean and lubricate	Weekly or after 70 hours of use	Window cleaner	Silicone spray
Drive shaft and lower input drive hub	Grease	Every 3 months or after 900 hours of use	N/A	Heavy multi-purpose grease

Note: Use of a silicone spray on parts not so specified will result in diminished performance and a shorter life span for that part.

N/A = Not Applicable

This section outlines several tests to systematically identify and isolate the cause of problems in the electrical system and the drive train. The first step is to identify the problem. This troubleshooting section is organized into four problem sections: Electrical System, Console Diagnostics, Speed Control, and the Power Train. Once you have identified the problem, perform the tests in exactly the same order as written. Refer to the appropriate "Parts Removal and Replacement" section of this *Manual* for all disassembly and assembly instructions. To order a replacement part, or to get help with the troubleshooting process, contact the Customer Service Department of StairMaster® Sports/Medical Products, Inc. at (800) 331-3578. International customers should contact their local distributors or call (206) 823-1825.

TROUBLESHOOTING THE ELECTRICAL SYSTEM

The electrical power system has three major components: the power supply, the power cables and the console. In order to identify the component that is causing the problem, you must systematically test the system. You will need a volt-ohm meter (multimeter) to conduct portions of the following procedures. The console and power supply are not user serviceable. If either of these parts are inoperable, they must be replaced. Opening the console or power supply will void the warranty.

⚠ WARNING

TO REDUCE THE RISK OF ELECTRICAL SHOCK, A QUALIFIED ELECTRICAL TECHNICIAN SHOULD PERFORM ALL ELECTRICAL TESTS THAT INVOLVE CHECKING AC POWER.

The Console Fails to Power Up

A. Perform a visual check of the machine. Check the following things first.

1. Is the power supply plugged in?
2. Is the green light lit on the power supply? If the light is not on, is the power supply switched on and/or does the circuit breaker need to be reset?
3. Are all the cables connected to the power supply and the machine?

B. Verify AC power.

1. Disconnect the AC power cord from the power supply and the AC wall outlet.

2. Verify that the AC wall outlet is supplying the correct power in one of two ways: a) Use an AC voltmeter to verify that the AC line voltage is between 100 and 120 VAC (or between 220 and 240 VAC, if applicable) at the AC wall outlet; or b) Plug in an alternate AC-powered device (a lamp, for example). If the voltage is outside the range or 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.

3. Plug the AC power cord into the wall outlet. Use a multimeter to verify that the AC line voltage is between 100 and 120 VAC (or between 220 and 240 VAC, if applicable) at the opposite end of the cord. Replace the AC power cord if the voltage is outside the range and then test the new cord.

4. Reconnect the AC power cord to the power supply and proceed to the next section.

C. Verify DC power.

1. Make sure that the AC power cord is properly connected to the power supply and that the AC wall outlet is delivering the proper voltage.

2. Turn on the power supply. The indicator light on the front panel should be lit. If it is, proceed to Step #3. If the indicator is not lit when the switch is on, reset the circuit breaker located on the power supply just above the AC power cord connector. If the indicator light is still not lit, replace the power supply and test the new power supply.

3. Disconnect the DC cable from the power supply. Use a DC voltmeter to verify the DC power at the DC connector on the power supply front panel. Pin #1 is positive, and pin #2 is negative. The voltage should range between 15 and 17 VDC. Replace the power supply if the DC voltage is outside the range and test the new power supply.

4. Reconnect the DC cable to the power supply. Disconnect the cable from the DC power connector located inside the bottom cover on the left side. Use a DC voltmeter to verify 15-17 VDC at this end of the DC cable. Pin #1 is positive, and pin #2 is negative. Replace the DC cable if the reading is outside the range, and test the new DC cable.

5. Remove the top cover. Disconnect the main cable from the back of the console. Set the top cover (with the console still attached) aside. Reconnect the DC cable to the connector located on the left side of the frame.

6. Use a DC voltmeter to measure the VDC at pin #1 (negative) and pin #9 (positive) of the main cable connector. You should get a reading between 15 and 17 VDC. If your reading is not within the range, replace the main cable and retest.

7. If the console is still not working, but you have power up to this point, the console is probably inoperable. Replace or exchange the suspect console with a console that you know is good and retest.

8. If the problem still exists, contact the Customer Service Department at StairMaster® Sports/Medical Products, Inc. for further assistance.

CONSOLE DIAGNOSTIC TESTS

The following tests must be performed while the console is in the DIAGNOSTIC mode. To activate the DIAGNOSTIC mode, press [UP ARROW], [1], [0], [7], [ENTER]. If the console fails any test, the console should be replaced or exchanged. To return to the ATTRACT mode, press either [CLEAR] or [RESET] 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 (LEDs) in the console display and the text bar. If any LED will not light, replace the console.

1. Press [0] to start the test.

2. All LEDs in the console display will flash on and off as a block. The 26 letters (A-Z) will scroll across the text bar.

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. 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 mode code due to an inoperable keypad, replace the console.

1. Press [2] to start the test.

2. The display LEDs will light up in an L-shaped formation, representing the keypad matrix. Pressing a button on either the exercise program 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 light that LED and then end the keypad 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. Press [3] to start the test.

2. The console will be set at a certain speed. The alternator speed, in rpm, is displayed on the text bar as "Target" and a single column of lights will light the display.

3. Begin exercising. As you move the handlebar, 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. Press [4] to start the test.

2. The software version number will be scrolled across the test bar. The console automatically returns to the DIAGNOSTIC mode.

3. Contact the Customer Service Department at StairMaster® Sports/Medical Products, Inc. for the most current software revision updates.

4. Press [CLEAR] to return to the DIAGNOSTIC mode.

SPEED CONTROL PROBLEMS

If you have problems with erratic speed control while operating the machine, the cause may be either electrical or mechanical in nature. You will have to remove the top cover to conduct the following tests.

A. Perform the console diagnostic Speed Test to verify that there is a speed control problem. There should be less than 10% difference between the actual and target rpm.

B. Perform a visual check of the machine. Check the following things first.

   1. Inspect the alternator belt. Replace the belt if it is worn or cut. Adjust the belt tension so that you can deflect either side of the belt 1/4" (0.6 cm) with your fingertip (refer to Figure 16).

   2. Check for loose wires at the connections on the alternator, diode, and load resistor (refer to Wiring Diagram 1).

C. Test the diode on the alternator (refer to Wiring Diagram 1). If you have an analog multimeter, use the resistance setting (R x 1). If you have a digital multimeter, use the diode check (>+) setting.

   1. Disconnect the brown wire and diode from the alternator field terminal. Connect the multimeter negative lead to the end of the diode with the white band. Connect the positive lead to the other end of the diode. This is known as forward bias.

   2. The digital multimeter should give a low reading (~ .565). An analog multimeter should read near zero ohms.

   3. Switch the multimeter leads; the positive lead onto the white-banded end of the diode and the negative lead on the other end. This is known as reverse bias.

   4. A digital multimeter should read "OL" or "overload." An analog multimeter should be pegged at the highest ohms.

5. Replace the diode if the readings in either bias are out of range.

D. Replace or exchange the console with another console you know is good and retest the machine.

E. Replace or exchange the alternator and retest the machine.

F. If the speed control problem still exists, contact the Customer Service Department of StairMaster® Sports/medical Products, Inc. for further assistance.

LOAD RESISTOR TEST

The alternators are heavy-duty models designed to withstand the rigors of commercial use. One possible reason for repeated failure is an inoperable load resistor. To test the load resistor:

1. Disconnect AC power from the power supply.

2. Remove the top cover. Locate the load resistor on the left frame rail (refer to Figure 13).

3. Disconnect one of the black wires from the resistor (refer to Wiring Diagram 1).

4. Set your multimeter for R x 1 or the lowest available resistance range. Touch the two leads together and adjust the meter for a zero reading.

5. Measure the resistance of the load resistor by placing the multimeter leads on the studs sticking out of the ends of the resistor. You should get a reading of approximately 0.7 ohm or less.

6. Replace the load resistor if the reading is out of range and retest the new load resistor.

TROUBLESHOOTING THE POWER TRAIN

If you hear a grinding or clicking noise, or experience excessive vibration during exercise, a problem probably exists in the power train of your machine. Attempt to isolate the problem area by performing the following tests in precisely the order listed below. Refer to the appropriate "Parts Removal and Replacement" section of this *Manual* for all disassembly and assembly instructions.

1. Weight stack plates binding on the guide rods can produce excessive noise and vibration. Ensure the weight stack guide rods are properly lubricated.

2. Check the upper drive assembly for smooth operation. The CV joint should move freely in all directions. Replace the assembly if necessary.

3. Remove the top cover.

4. Noise can be generated by a reduction belt that is either too loose or too tight. Check the condition and tension of the alternator reduction and drive reduction belts. Replace any belt which is worn or missing teeth. Adjust the belt tension so that you can deflect either side of the belt 1/4" (0.6 cm) with your fingertip (refer to Figure 16).

5. To check the condition of the alternator, remove the alternator reduction belt and move the handlebar as if you were exercising. If the noise is still present, go to step #6; do not reinstall the alternator reduction belt. If the noise is no longer present:

   - Disconnect the DC power cable from the left side of the machine. Spin the alternator shaft with your fingers. The shaft should spin freely for at least two revolutions. If it does not, the bearings are bad, indicating that the alternator needs to be replaced.

   - If the shaft spins freely, check the alternator for any noise, roughness, or evidence of excessive black powder falling out of the alternator case. If any of these conditions exist, the brushes might be bad, indicating that the alternator needs to be replaced.

6. Remove the drive and input 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. Do not reinstall the chains.

7. To check the pivot shaft assembly, remove the drive reduction belt from the 8-mm, 80-tooth HTD sprocket and move the belt out of the way. Spin the 11.5-inch Poly-V pulley (refer to Figure 16). The shaft should spin smoothly without excess play. If it does not, the assembly may need replacement. Do not reinstall the belt.

8. Check the lower reduction shaft and bearings for wear (refer to Figure 14). Spin the shaft and check for excessive play. The assembly may need to be rebuilt if the shaft does not spin freely or has excessive side play.

9. If the noise is still present, check the drive shaft assembly (refer to Figures 1[illegible] 27). Make sure the shaft is well-greased before continuing:

   - The drive hub 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 hub sprocket.

   - Inspect the bearings in the drive hub and replace the drive bearing assembly if the shaft does not spin freely or if there is excessive radial play at the shaft.

   - Remove the drive shaft. 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.

10. Check the lower drive assembly. The shaft should spin freely. Replace the lower drive hub assembly if the shaft does not spin freely or if there is excessive radial play at the shaft.

11. Reinstall the alternator reduction and drive reduction belts. Adjust the belt tension so that you can deflect either side of the belt 1/4" (0.6 cm) with your fingertip (refer to Figure 16).

12. Clean and lubricate the drive and input chains before reinstalling them.

[redacted]ERS

There are six covers: right and left side covers, a top cover, a bottom cover, and an inside and an outside weight stack cover. The covers have overlapping seams and a particular order for removal and replacement. The removal order is: left side cover, right side cover, top cover, and then the bottom cover. Reverse the order when reinstalling the covers.

The inside weight stack cover and outside weight stack cover can be removed by themselves since they do not have overlapping seams. However, the outside weight stack cover must be removed before the bottom cover can be removed.

⚠ WARNING

DO NOT OPERATE THE MACHINE WHILE THE SIDE OR TOP COVERS ARE REMOVED. DO NOT MOVE THE HANDLEBAR WHILE ANYONE'S HANDS ARE INSIDE THE MACHINE. DO NOT WEAR LOOSE CLOTHING OR NECKTIES WHILE WORKING ON THIS MACHINE WITH THE SIDE COVERS REMOVED. GEARS, SPROCKETS, CHAINS AND BELTS OPERATE AT HIGH SPEEDS AND HAVE THE POTENTIAL TO INFLICT SERIOUS BODILY INJURY.

Cover Fasteners

All covers are held in place with reusable, plastic fasteners (refer to Figure 17 for their location). There are two types of fasteners: one type requires a fastener removal tool, the other type does not. Refer to Figures 18 and 18A to identify the type of fastener on your [redacted]ne. To remove the fasteners shown in Figure 18:

1. Slide either end of the fastener removal tool under the edge of the pin head and pull the pin out about halfway. The pin should not be removed. You may now pull the cover away from the frame. Do NOT use the fastener removal tool or any other sharp tool to pry out the fastener base because you may damage the covers.

2. To reinstall the fastener, insert the base of the fastener through the cover and into the frame. When the base is in place, push the pin in all the way to secure the fastener.

The other type of fasteners consist of an expandable base and a pin that locks in three positions (refer to Figure 18A).

1. To release the fastener, use a phillips screwdriver to push the center pin in about 1/8" (0.3 cm). Use your fingertips to pull the cover away from the frame. Do NOT pry the covers off with a screwdriver or other metal tool because you may damage the covers or the frame.

2. To reinstall the fastener, pull the center pin out about 1/4" (0.6 cm) and insert the base of the fastener through the cover and into the frame. When the base and the cover are in place, secure the fastener by pushing the pin in until it is flush with the base.

Left Side Cover

1. Remove the four fasteners on the seam between the two side covers.
2. Remove the four fasteners along the left side seam.
3. Remove the cover.
4. To reinstall the left side cover, fit it into place on the frame. Insert and secure the 8 fasteners.

Right Side Cover

1. Remove the left side cover.
2. Remove the four fasteners on the right side seam.
3. Remove the cover.
4. Reinstall in the reverse order.

Top Cover

1. Remove the left side cover.
2. Remove the right side cover.
3. Remove the four fasteners on each side of the top cover.
4. Lift the top cover off of the frame just enough to reach inside and disconnect the main cable from the back of the console. The top cover is now free of the machine.
5. Reinstall the top cover after connecting the main cable to the back of the console. Then reinstall the right and left side covers.

Outside Weight Stack Cover

1. Remove the 14 fasteners securing the outside weight stack cover to the frame. Remove the top middle fastener last. Lift the cover away from the frame.

2. Insert the top middle fastener first when reinstalling the outside weight stack cover.

Bottom Cover

1. Remove the left side, right side, and top covers.

2. Remove the five fasteners on the bottom edge of the outside weight stack cover.

3. Disconnect the DC power cable from the connector located inside the bottom cover on the left side of the machine.

4. The machine must be tipped forward to get the bottom cover away from the frame. This operation needs two people. One person lifts the machine by the frame rail under the seat, tipping the machine forward on the front casters. The other person, standing in front of the weight stack, can easily support the machine by the weight stack frame tower.

5. Remove the bottom cover once the machine is securely supported in the forward-tipped position.

6. Reinstall the covers in the reverse order.

Inside Weight Stack Cover

1. Remove the nine fasteners securing the inside weight stack cover to the frame. Remove the top middle fastener last. Lift the cover away from the frame.

2. Insert the top middle fastener first when reinstalling the inside weight stack cover.

HANDLEBAR ASSEMBLY

1. Two people are required to remove the handlebar.

2. Remove the plastic tie from the CV bellows (refer to Figure 19).

3. While one person uses two standard screwdrivers to spread the c-clip, the other person lifts up on the handlebar to slide it up and out of the CV joint (refer to Figure 20).

4. If the lower drive assembly was not moved while the handlebar was removed, reinstallation is simple. Position the handlebar above the CV joint at right angles to the seat frame. When the splines on the handlebar shaft are lined up with the grooves in the CV joint, push down on the handlebar until it snaps into place.

5. If the lower drive assembly was moved, you must first remove the left side cover. Align the two input chain adapter blocks, one over the other (refer to Figures 24 and 25). Now you may proceed as in step #4 above.

CONSOLE

1. Remove the top cover, lifting it off of the frame just enough to reach inside and unscrew the main cable from the back of the console. The top cover is now free of the machine.

2. Loosen and remove the four mounting bolts and flat washers. Remove the console from the top cover.

3. To install the console, align the holes in the top cover with the holes in back of the console. Insert and tighten the four mounting bolts and flat washers.

4. Screw the main cable connector into the receptacle on the console. Reinstall top cover, the right side cover and then the left side cover.

ALTERNATOR REDUCTION BELT

⚠ WARNING

THE REDUCTION BELTS MUST BE TENSIONED SO THAT THE CENTER OF EITHER SIDE CAN BE DEFLECTED 1/4" (0.6 CM) FROM ITS CENTER LINE WITH FINGERTIP PRESSURE. A TIGHT BELT MAY CAUSE SLOW AND SLUGGISH OPERATION; A LOOSE BELT WILL CAUSE EXCESSIVE NOISE AND BELT WEAR.

1. Remove the top cover.

2. Loosen the adjustment bolt that mounts the alternator to the slotted alternator brace. Rotate the alternator away from the seat.

3. Remove the Poly-V belt.

4. Install the new belt and center it on the pulleys.

5. Pivot the alternator as necessary to allow 1/4" (0.6 cm) of belt deflection using a fingertip in either direction (refer to Figure 16).

6. Tighten the alternator adjustment bolt. Verify 1/4" (0.6 cm) of play in the belt.

7. Reconnect the console. Reattach the top cover and both side covers.

DRIVE REDUCTION BELT

1. Two people are required to remove the drive reduction belt.

2. Remove the bottom cover. Support the machine in the tipped-forward position.

3. Remove the alternator reduction belt.

4. Use an allen wrench to loosen the pivot assembly mounting bolts.

5. Remove the drive reduction belt from the 8-mm, 80-tooth lower drive reduction sprocket.

6. Remove the pivot assembly from the frame.

7. The drive reduction belt can be removed over the pivot assembly bracket.

8. Install the new belt over the pivot assembly bracket. Reinstall the pivot assembly and adjust the drive reduction belt to the proper tension. Pivot the bracket up or down as necessary to allow 1/4" (0.6 cm) of play.

9. Tighten the pivot assembly mounting bolts. Install and adjust the alternator reduction belt.

10. Reattach the bottom cover. Lift the machine by the weight stack tower and carefully lower the machine to its original position.

11. Reconnect the console. Reattach the top cover and both side covers.

PARTS REMOVAL AND REPLACEMENT

WEIGHT STACK BELT

1. Remove the outside weight stack cover.

2. Lift the top three weight plates four to five inches above the fourth weight plate. Insert the weight stack pin through the hole in the fourth plate and through a hole in the selector rod to create slack in the weight stack belt.

3. Use two wrenches to loosen the four nuts and bolts on the weight stack belt connector plates at the weight stack end (refer to Figure 21).

4. Remove the belt from the idler pulleys (refer to Figure 14).

5. Loosen the four nuts and bolts on the connector plate at the frame junction of the belt. Remove the old belt.

6. Insert ~1" (2.5 cm) of the new belt in between the plate and the frame block at the frame junction. Tighten the bolts securely and evenly; the plates should be parallel.

7. Thread the belt over the floating pulley assembly idler pulley and over the idler pulleys (refer to Figure 14).

8. Insert ~1" (2.5 cm) of the new belt in between the weight stack connector plates. Tighten the nuts securely, keeping the two plates parallel.

9. Lower the weight stack and ensure that the belt is properly seated in both idler pulleys. The belt should be taut, with the spring of the lower spring stop compressed ~3/4" (2 cm), and the top three weight plates resting on the top of the fourth weight plate. If the belt is tensioned properly, skip step 10.

10. If necessary, adjust the portion of the belt between the connector plates at the weight stack junction to take up excess slack. Trim off the extra belt.

11. Reattach the outside weight stack cover.

WEIGHT STACK BELT IDLER PULLEY

1. Remove the outside weight stack cover.

2. Lift the top three weight plates 4-5" (10-12.5 cm) above the fourth weight plate. Insert the weight stack pin through the hole in the fourth plate and through the

selector rod hole to create slack in the weight stack belt.

3. Use two wrenches to remove the nut and bolt securing the damaged idler pulley to its bracket and slide the pulley out (refer to Figure 14).

4. Install the new pulley.

5. Remove the weight stack pin and carefully lower the top three plates of the weight stack. Ensure the weight stack belt is seated properly on the pulleys.

6. Reattach the outside weight stack cover.

SELECTOR ROD

1. Remove the outside weight stack cover.

2. Remove the weight selector pin, lift the first three plates to create slack in the weight stack belt and remove the belt from the top idler pulley. Set the plates back down onto the stack.

3. Punch out the roll pin in the third weight plate and remove the selector rod from the weight stack (refer to Figure 22).

4. Punch out the roll pin securing the weight stack belt connector plates to the selector rod.

5. Install the new selector rod by reversing the steps. Ensure the holes in the weight stack plug are lined up with the holes in the weight stack before driving in the weight stack roll pin.

WEIGHT STACK GUIDE ROD

1. Remove the outside weight stack cover.

2. Loosen and remove the bolts at the top of the guide rods (refer to Figure 23).

3. Pull one guide rod (only) out of the weight stack and replace it before pulling out the other guide rod.

⚠ WARNING

TO REDUCE THE RISK OF PERSONAL INJURY, NEVER PULL MORE THAN ONE GUIDE ROD OUT OF THE WEIGHT STACK AT ANY GIVEN TIME. REMOVING BOTH GUIDE RODS FROM THE WEIGHT STACK MAY CAUSE THE WEIGHT STACK TO FALL.

WEIGHT PLATE

1. Remove the outside weight stack cover.
2. Remove the selector rod.
3. Remove one of the two guide rods. (Note: One guide rod must be in the weight stack at all times.)
4. Pivot the weight plate out of the stack and put the new weight plate in place. Replace the guide rod which was previously removed.
5. Remove the other guide rod and take out the plate. Pivot the new plate into place and reinstall the guide rod.
6. Reinstall the weight stack cover.

DRIVE CHAIN

1. Remove the top cover and the outside weight stack cover.
2. Place the open end of a 3/4" combination wrench under the idler spring bracket (the spring assembly under the front left idler sprocket). Pry up on the bracket to slacken the chain. While supporting the idler sprocket assembly, slide the chain off the right rear idler sprocket. Remove the chain from the remaining sprockets.
3. Remove the master link to remove the chain from the floating pulley assembly.

⚠ WARNING

UPON INSTALLATION, MAKE SURE THE CLOSED END OF THE MASTER LINK RETAINING PLATE IS FACING THE DRIVE DIRECTION OR THE MASTER LINK MAY COME OFF DURING OPERATION.

4. When installing the chain, perform the following steps (refer to Figure 13):

   - Install the chain on the right rear sprocket.
   - Install the chain on the right front sprocket.
   - Thread the chain through the floating pulley sprockets.
   - Install the master link on the drive chain.
   - Install the chain on the left rear sprocket.
   - While prying up on the idler sprocket bracket, install the chain on the left front sprocket.

5. Lubricate the new chain and reattach the outside weight stack cover.

6. Reconnect the console and reattach the top cover and both side covers.

INPUT CHAIN ASSEMBLY

1. Remove the top cover.

2. Hold onto the rear input chain to relieve some tension as you remove the master link from the upper input chain at the chain adapter block (refer to Figure 24).

3. The upper and lower input chains can be removed from input drive shaft.

4. Note the orientation of the master links on the input drive shaft sprockets (refer to Figure 25). Remove the master links to remove the upper and lower input chains from the input drive shaft sprockets.

5. Reassemble the chains in the reverse order. Ensure the handlebar is at right angles to the seat frame and the chain adapter blocks are aligned, one above the other.

6. Reconnect the console. Reattach the top cover and both side covers.

LOWER SPRING STOP ASSEMBLY

1. Remove the top cover and the outside weight stack cover.

2. Remove the weight selector pin, lift the first three plates to create slack in the weight stack belt and remove the belt from the top idler pulley. Set the plates back down onto the stack.

3. Push the floating pulley assembly off the spring.

4. Punch out the roll pin securing the spring (refer to Figure 26).

5. Remove the spring.

6. Apply multi-purpose grease to the spring before reinstalling it.

7. Reconnect the console. Reattach the top cover, both side covers, and the outside weight stack cover.

INPUT CHAIN IDLER SPROCKET ASSEMBLY

1. Remove the top cover.

2. Remove the rear input chain from the idler sprocket.

3. Loosen and remove the nut and bolt securing the idler sprocket to its bracket.

4. Reassemble the idler sprocket assembly in the reverse order. Ensure the input chains are installed according to the instructions in the "Input Chain Assembly" section of this *Manual*.

5. Reconnect the console. Reattach the top cover and both side covers.

DRIVE SHAFT AND CLUTCH SPROCKET ASSEMBLY

1. Two people are required to remove the drive shaft assembly.

2. Remove the top cover.

3. Remove the drive chain.

4. Remove the input chains.

5. The machine must be tipped forward to remove the snap ring from the bottom of the drive shaft. This operation needs two people. One person lifts the machine by the frame rail under the seat, tipping the machine forward on the front casters. The other person, standing in front of the weight stack, can easily support the machine by the weight stack frame tower.

6. Remove the snap ring from the bottom of the drive shaft (refer to Figure 27).

⚠ WARNING

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

7. Remove the sprocket and other small parts from the bottom of the shaft assembly.

8. Slide the drive shaft up and out of the drive hub assembly.

9. Inspect the shaft and the hub bearings for excess wear or pitting. The bearings should spin freely. Replace the shaft or the hub, if necessary.

10. Two sprockets are located on the top of the shaft: a 30-tooth drive sprocket and the smaller clutch sprocket. To remove the clutch sprocket, slide it off the bottom of the shaft.

11. Remove the 30-tooth sprocket by removing the snap ring from the top of the shaft. Unscrew the allen head set screws located on the inside flange of the drive sprocket.

⚠ WARNING

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

12. To reinstall the drive shaft, carefully reverse the disassembling procedures. Ensure the input chains are reinstalled according to the instructions in the "Input Chain Assembly" section of this *Manual*.

⚠ WARNING

TO REDUCE THE RISK OF INJURY, DO NOT OIL OR GREASE THE CLUTCH ASSEMBLY. THE CLUTCHES MAY MALFUNCTION IF GREASED.

13. After carefully tipping the machine back to its original position, be sure to reconnect the console when reattaching the top cover and both side covers.

PARTS REMOVAL AND REPLACEMENT

DRIVE HUB ASSEMBLY

1. Remove the input drive shaft assembly.

2. The hub assembly is held in place by four nuts and bolts. Loosen and remove the bolts and slide the hub out of the frame (refer to Figure 27).

3. If the bearings are worn out (indicated by excessive radial play between the shaft and the bearings), replace the housing assembly.

4. Reinstall the hub and the drive shaft assembly.

5. Lubricate the bearings with heavy, multi-purpose grease, using the zerk fitting on the shaft.

6. Reattach the side covers.

CV JOINT ASSEMBLY

1. Remove the handlebar (refer to Figure 20).

2. Remove the right and left side covers.

3. Loosen and remove the four nuts and bolts from the upper drive assembly mounting flange. Lift the assembly away from the machine.

4. Reverse the procedures to reinstall the CV joint assembly. Ensure the handlebar is installed according to the instructions in the "Handlebar Assembly" section of this *Manual*.

UPPER INPUT DRIVE ASSEMBLY

1. Remove the right and left side covers.

2. Loosen and remove the four nuts and bolts from the upper drive assembly mounting flange. Lift the assembly away from the machine (refer to Figure 19).

3. Reverse the procedures to reinstall the upper drive assembly.

LOWER INPUT DRIVE ASSEMBLY

1. Two people are required to remove the lower input drive assembly.

2. Remove the right and left side covers.

3. Remove the input chains.

4. Remove the upper drive assembly.

5. The machine must be tipped forward to remove the snap ring from the bottom of the lower input drive shaft. This operation needs two people. One person lifts the machine by the frame rail under the seat, tipping the machine forward on the front casters. The other person, standing in front of the weight stack, can easily support the machine by the weight stack frame tower.

6. Remove the snap ring from the bottom of the lower input drive shaft (refer to Figure 28).

⚠ WARNING

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

7. Remove the set screw from the lower input drive sprocket. Slide the lower drive sprocket thrust washers and thrust bearing off the end of the shaft. Inspect the sprocket and thrust bearing for excessive wear. Replace worn-out components before reassembling.

8. Pull the shaft out of the bearing hub. Inspect the shaft and the hub bearings for excess wear or pitting. The bearings should spin freely. Inspect the sprocket for excessive wear. Replace the shaft or the hub, if necessary.

9. To reinstall the lower input drive shaft, carefully reverse the disassembling procedures. Ensure the input chains are reinstalled according to the instructions in the "Input Chain Assembly" section of this *Manual*.

10. After carefully tipping the machine back to its original position, reattach the both side covers.

LOWER INPUT DRIVE HUB ASSEMBLY

1. Remove the lower input drive assembly.

2. Loosen and remove the three nuts and bolts and the lower mounting plate (r to Figure 28).

3. Lift the hub out of the frame.

4. Reverse these procedures, and the procedures in the "Lower Input Drive Assembly" section of this *Manual* to reinstall the components.

PIVOT ASSEMBLY

1. Remove the top cover.

2. Loosen and remove the alternator reduction belt.

3. Remove the two lower snap rings, pivot adjustment shaft, and two upper allen bolts (refer to Figure 29) from the pivot assembly bracket.

⚠ WARNING

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

4. Remove the drive reduction belt from the 8-mm, 80-tooth drive reduction sprocket.

5. Remove the pivot assembly from the frame.

6. Inspect the shaft and the bearings for excess play or roughness. The bearings should turn freely. Replace the pivot assembly, if necessary.

7. To reassemble the pivot pulley shaft and bearings, reverse these procedures.

8. Adjust the drive reduction and the alternator reduction belts (refer to the "Alternator Reduction Belt" and "Drive Reduction Belt" sections for instructions). Adjust the drive reduction belt first, then the alternator reduction belt.

9. Be sure to reconnect the console when reattaching the top cover and both side covers.

L[illegible]ER REDUCTION SHAFT AND BEARINGS

1. Two people are required to remove the lower reduction shaft assembly.

2. Remove the top cover and the outside weight stack cover.

3. Remove the drive chain.

4. The machine must be tipped forward to remove the bottom cover. This operation needs two people. One person lifts the machine by the frame rail under the seat, tipping the machine forward on the front casters. The other person, standing in front of the weight stack, can easily support the machine by the weight stack frame tower.

5. Loosen and remove the alternator reduction belt.

6. Remove the drive reduction belt from the 8-mm, 80-tooth sprocket (refer to Figure 30).

7. Remove the pivot assembly.

8. Remove the nut from the top of the lower drive reduction shaft.

9. Unscrew the allen head set screw on the outside flange of the 16-tooth sprocket. Remove the sprocket and the key.

10. Inspect the sprocket for excessive wear. Replace it if necessary.

11. Slide the shaft out from the bottom.

12. The bearings can now be slid off the shaft. Inspect the bearings for excess play or roughness. Replace the bearings, if necessary. Install the shaft in the reverse order of the removal procedures.

13. Refer to the "Alternator Reduction Belt" and "Drive Reduction Belt" sections for belt adjustment instructions. Adjust the drive reduction belt first, then the alternator reduction belt.

14. After carefully tipping the machine back to its original position, be sure to reconnect the console when reattaching the top cover and both side covers.

PARTS REMOVAL AND REPLACEMENT

8-MM 80-TOOTH SPROCKET

1. Remove the lower reduction shaft assembly from the frame (refer to Figure 30).
2. Punch out the roll pin and remove the sprocket from the shaft.
3. Reinstall the sprocket; use a new roll pin.
4. Reinstall the shaft.
5. Adjust the drive reduction and the alternator reduction belts (refer to the "Alternator Reduction Belt" and "Drive Reduction Belt" sections for instructions). Adjust the drive reduction belt first, then the alternator reduction belt.
6. After carefully tipping the machine back to its original position, be sure to reconnect the console when reattaching the top cover and both side covers.

DRIVE CHAIN IDLER SPROCKET

1. Remove the top cover.
2. Remove the drive chain.
3. Inspect the idler sprockets. They should spin freely and the teeth should be uniform. Any damaged sprocket should be replaced.
4. Remove the snap ring securing the damaged sprocket to its shaft.

> **⚠ WARNING**
>
> TO REDUCE THE RISK OF EYE INJURY, WEAR EYE PROTECTION WHEN REMOVING SNAP RINGS.

5. Pull off the damaged sprocket and replace it with a new sprocket.
6. Reinstall the drive chain.
7. Be sure to reconnect the console when reattaching the top cover and both side covers.

FLOATING PULLEY ASSEMBLY

1. Remove the top cover and outside weight stack cover.
2. Detach the weight stack belt at the frame junction.
3. Remove the drive chain.
4. Remove the floating pulley assembly (refer to Figure 31).
5. To install the assembly, reverse these procedures. Make sure that the drive chain and weight stack belt are routed properly.
6. Be sure to reconnect the console when reattaching the top cover and both side covers.

FLOATING PULLEY ASSEMBLY BELT IDLER PULLEY

1. Remove the floating pulley assembly.
2. Loosen and remove the nut and bolt securing the idler pulley to the assembly (refer to Figure 31).
3. Replace the pulley and tighten the nut and bolt.
4. Reinstall in the reverse order of the removal procedures.

FLOATING PULLEY ASSEMBLY IDLER SPROCKET

1. Remove the floating pulley assembly.
2. Loosen and remove the nut and bolt securing the sprocket to the assembly (refer to Figure 31).
3. Replace the sprocket and tighten the nut and bolt.
4. Replace the floating pulley assembly.

UPPER SPRING STOP ASSEMBLY

1. Remove the top cover.

2. Use a combination wrench and an allen wrench to loosen and remove the shoulder bolt (refer to Figure 32) from the threaded shaft.

3. Examine the shoulder bolt and bronze sleeve for excessive radial play. Punch out the old sleeve and replace if necessary. Tighten the shoulder bolt all the way to the shoulder; no other adjustment is necessary.

4. Be sure to reconnect the console when reattaching the top cover and both side covers.

CHAIN TENSIONING IDLER SPROCKET ASSEMBLY

1. Remove the top cover and outside weight stack cover.

2. Remove the drive chain.

3. Remove the idler sprocket.

4. Apply downward pressure on the spring assembly cap and remove the snap ring from the top of the assembly shaft (refer to Figure 33).

⚠ WARNING

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

⚠ WARNING

TO REDUCE THE RISK OF FINGER INJURY, DUE TO CONSIDERABLE PRESSURE THE PARTS IN THIS ASSEMBLY ARE UNDER, MAKE SURE THAT YOUR FINGERS ARE OUT OF THE WAY WHEN REMOVING THE SNAP RING.

5. Remove the spring cap washer and the spring from the shaft. Replace worn parts.

6. The guide bolt on the idler sprocket bracket should be loosely secured.

7. Support the bottom of the assembly shaft with your fingers and reattach the snap ring. Reverse these procedures to complete the reassembly.

8. Be sure to reconnect the console when reattaching the top cover and both side covers.

DRIVE CHAIN DAMPER STRAP

1. Remove the top cover.
2. The drive chain damper strap is located next to the alternator on the right frame rail (refer to Figure 13).
3. Loosen and remove the mounting bolts.
4. Replace the strap and adjust the strap so it is slightly (barely) in contact with the drive chain.
5. Be sure to reconnect the console when reattaching the top cover and both side covers.

FOOT REST ASSEMBLY

1. Loosen and remove the two bolts, the nuts and the washers.
2. Remove the foot rest (refer to Figure 34).
3. The foot rest pad is replaceable. Remove the four pushnuts and wave washers and remove the pad.
4. Reinstall the hardware, being careful not to over tighten the bolts.

HAND GRIPS

1. Replacement of the hand grips requires a field installation kit that is available from StairMaster® Sports/Medical Products, Inc.
2. Refer to the Parts Key for the part number of the hand grip installation kit.

MAIN CABLE

1. Remove the top cover.
2. Note and mark (by color) the location of each wire attached to the alternator (refer to Wiring Diagram 1).
3. Detach the wires from the alternator. Disconnect the power connector from the main cable.

4. Remove the ties holding the main cable to the frame.

5. Install the cable onto the frame using new ties. Check to make sure the cable does not rub on any of the moving components.

6. Crimp a wiring lug onto each bared wire end and attach the wires to the proper alternator terminals (refer to Wiring Diagram 1). Attach the wires to the alternator case or adjusting bracket with a wire tie to protect them from being damaged by moving parts.

7. Reconnect the power connector junction box.

8. Attach the connector at the upper end of the main cable to the console and take a test run.

9. If the machine operates properly, these steps complete the replacement procedure. If the console does not power up, check your wiring against Wiring Diagram 1.

10. Be sure to reconnect the console when reattaching the top cover and both side covers.

ALTERNATOR

1. Two people are required to remove the alternator.

2. Remove the top cover.

3. Note the origin and color of each wire at the alternator terminals (refer to Wiring Diagram 1). Remove the wires.

4. Remove the alternator reduction belt.

5. The machine must be tipped forward to remove the bottom cover. This operation needs two people. One person lifts the machine by the frame rail under the seat, tipping the machine forward on the front casters. The other person, standing in front of the weight stack, can easily support the machine by the weight stack frame tower.

6. Remove the nut at the frame pivot and the bolt at the bracket (refer to Figure 35).

7. Remove the alternator.

8. To install the new alternator, reverse these procedures. The alternator belt is tensioned properly when the center of either side of the belt can be deflected 1/4" (0.6 cm) from its center line with fingertip pressure (refer to Figure 16).

9. Connect the main cable to the console and take a test run. If the console does not power up, check your wiring against the Wiring Diagram 1.

10. If the console powers up, reattach the bottom cover.

11. Be sure to reconnect the console when reattaching the top cover and both side covers.

LOAD RESISTOR

1. Remove the top cover.

2. The load resistor is located on the left side of the machine (refer to Figure 13).

3. Label the load resistor wires and remove them from the studs on the ends of the resistor (refer to Wiring Diagram 1).

4. Loosen and remove the resistor mounting screws.

5. Reinstall the resistor reversing the removal procedures.

6. Be sure to reconnect the console when reattaching the top cover and both side covers.

GROUNDING INSTRUCTIONS

The machine must be grounded. If it should malfunction or break down, grounding provides the path of least resistance for the electric current, thereby reducing the risk of electric shock. This machine is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug 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 CONDUCTOR 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 machine is designed for use on a nominal 120-volt circuit, and has a grounding plug that looks like the plug illustrated in sketch A in Figure 12 below*. A temporary adapter that looks like the adapter illustrated in sketches B and C may be used to connect this plug to a two-pole receptacle as shown in sketch B if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet (sketch A) can be installed by a qualified electrician. The green colored lug extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever an adapter is used, it must be held in place by a metal screw.

* This may vary for International power supplies.

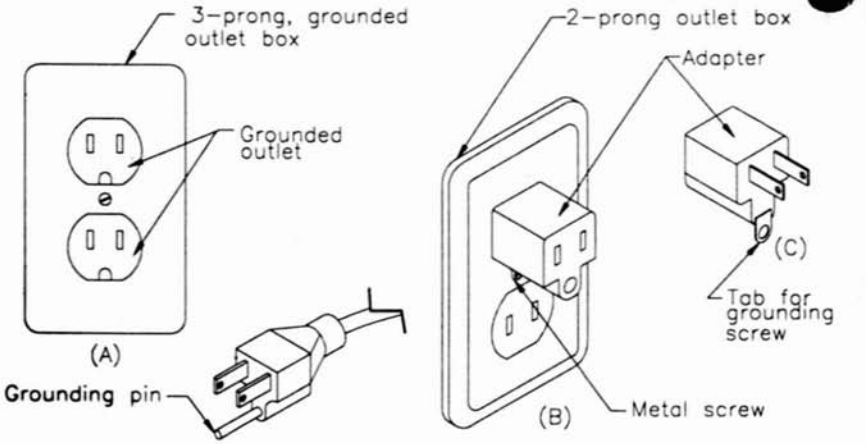

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Figure 12. Grounding System

NOTICE OF FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

⚠ 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 A COMPLIANCE

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

Le présent appareil numérique ne dépasse pas les limites etablies pour les bruits radioélectriques applicables aux appareils numériques de la Class A prescrites dans les règlements sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

APPENDICES

- How To Obtain Troubleshooting Help and Order Parts
- Figures 13 - 35
- Wiring Diagram 1
- Key to Figures 13 - 35 and Wiring Diagram 1

HOW TO ORDER PARTS

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 (206) 823-1825
FAX: (206) 823-9490

CUSTOMER SERVICE
12421 Willows Road NE, Suite 100
Kirkland, WA 98034
(800) 331-3578
FAX: (206) 814-0601
International customers:
(206) 823-1825

INTERNATIONAL OFFICES AND DISTRIBUTORS

INTERNATIONAL DIVISION
(206) 823-1825
FAX: (206) 820-7505

CANADA: HEADQUARTERS
(800) 668-4857
(416) 798-2670
FAX: (416) 798-2679

EUROPE: HEADQUARTERS
41-92-823801
FAX: 41-92-823802

JAPAN: SENOH CORPORATION
81-03-5479-6711
FAX: 81-03-5479-6703

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

AUSTRALIA: THE FITNESS GENERATION PTY LTD
61-3/800-2122
FAX: 61-3/800-2722

U.K.: HEADQUARTERS
44-908/221-323
FAX: 44-908/223-162

ITALY: NEW FIT S.R.L.
39-35/31-66-81
FAX: 39-35/31-88-91

FRANCE/BELGIUM/HOLLAND: S.P.R.L. MONDIAL 32-82/226775
FAX: 32-82/226854

SWEDEN/NORWAY: NORDIC GYM PRODUCTION
46-278/242-10
FAX: 46-278/159/66

COUNTRIES NOT LISTED
(918) 831-0100
FAX: (918) 831-0165

Figure 13: Top View

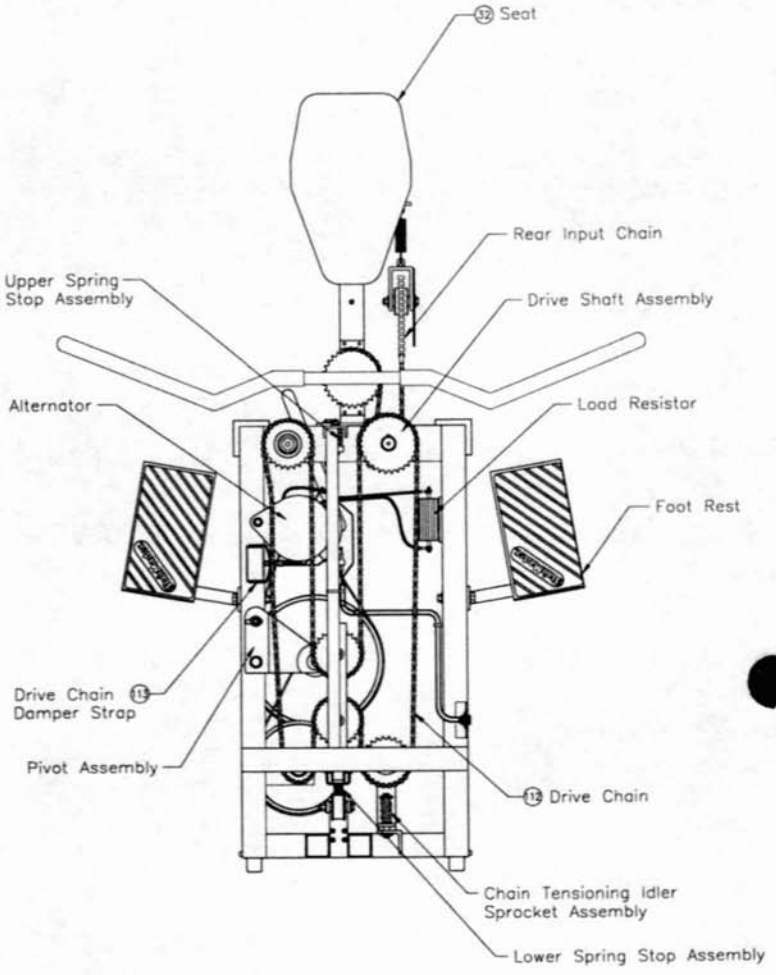

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Figure 14: Right Side View

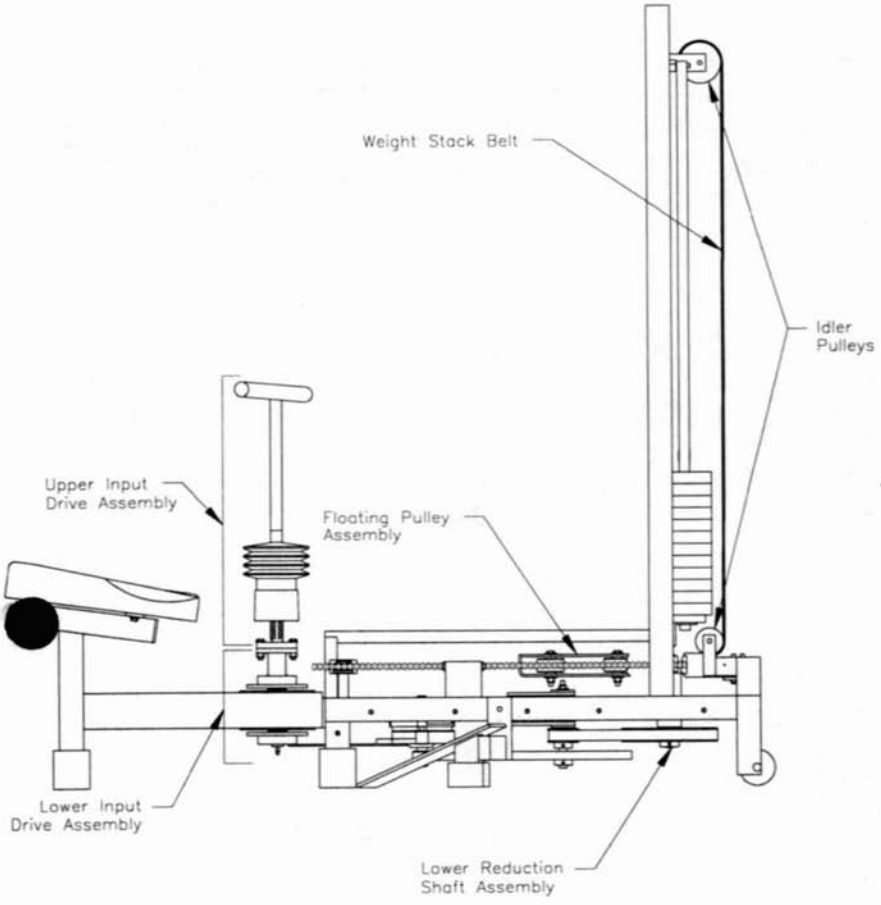

Figure 15: Parts Needing Periodic Lubrication

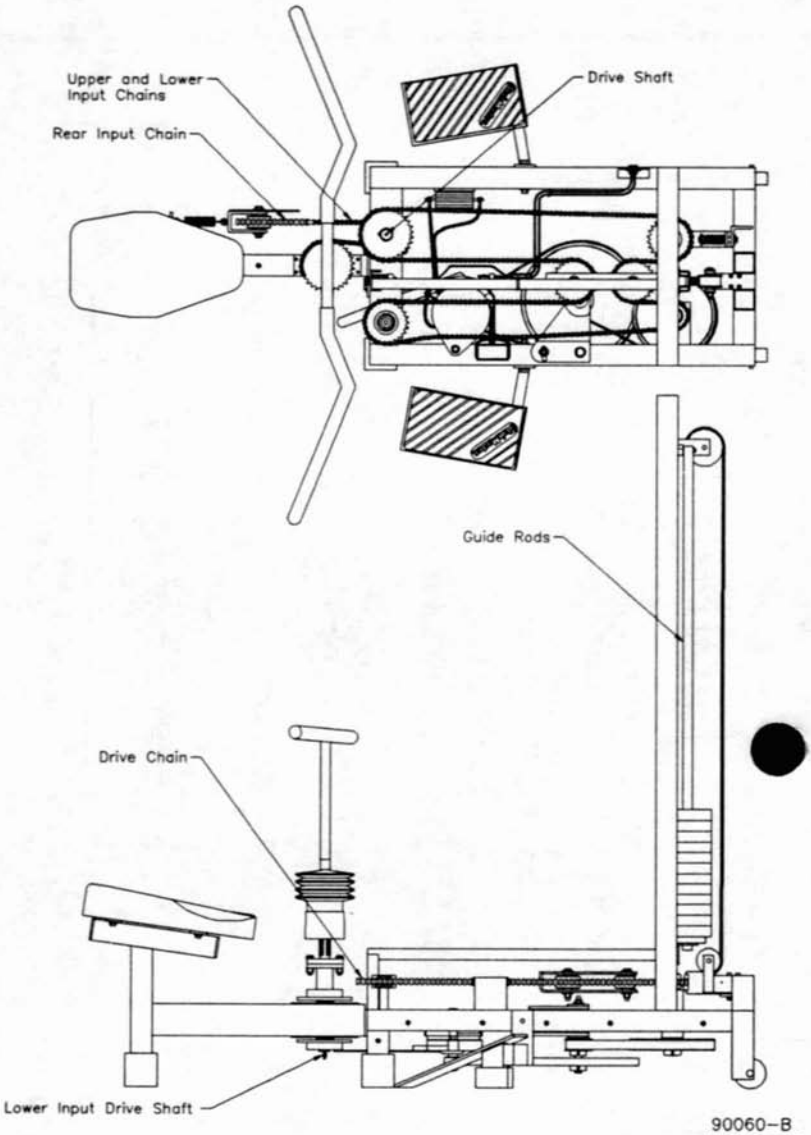

Figure 16: Reduction Belt Tension

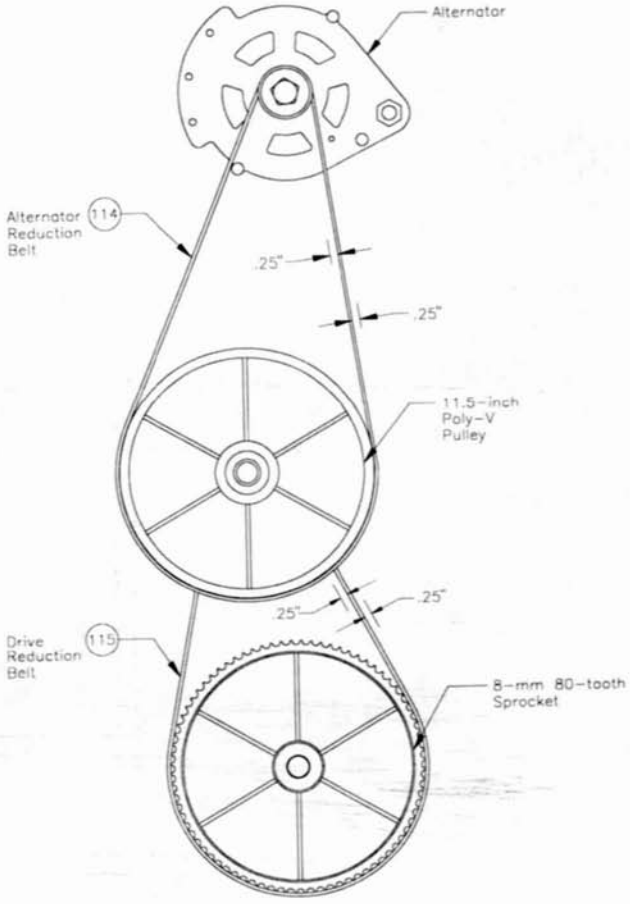

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Figure 17: Cover Fastener Location

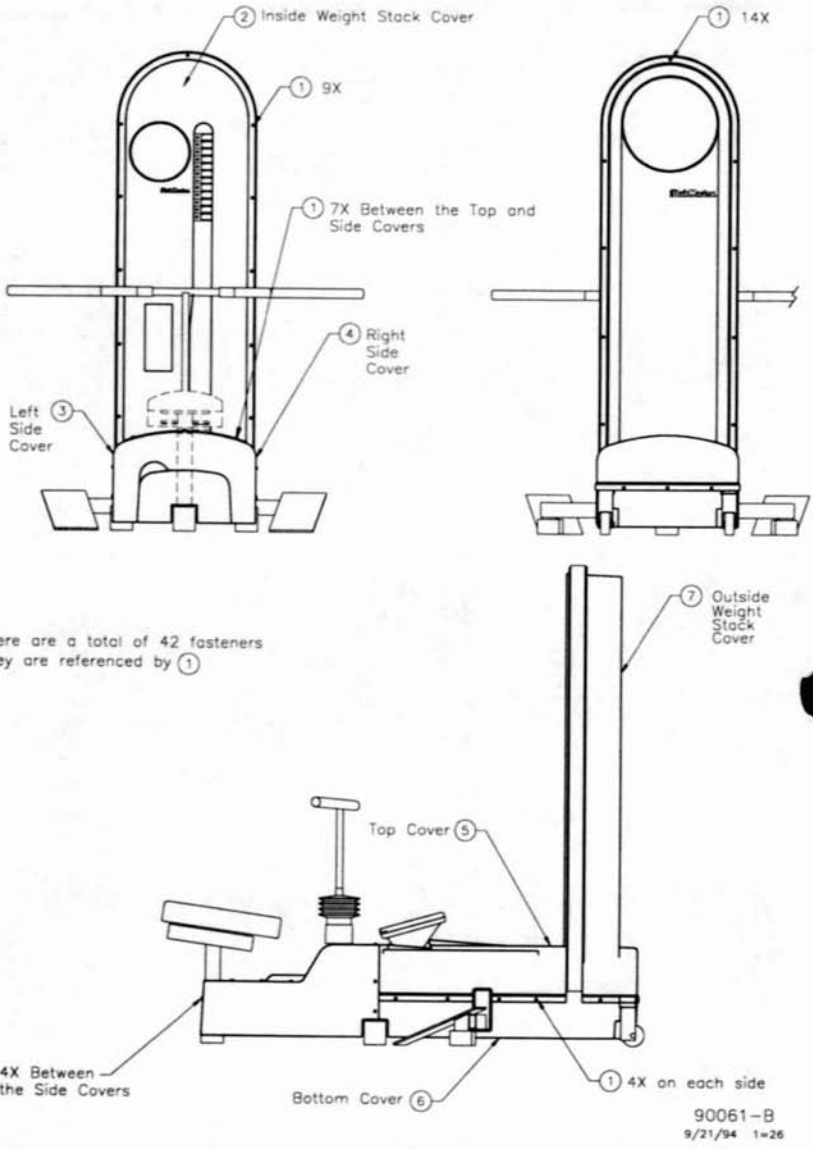

Figure 18: Cover Fasteners

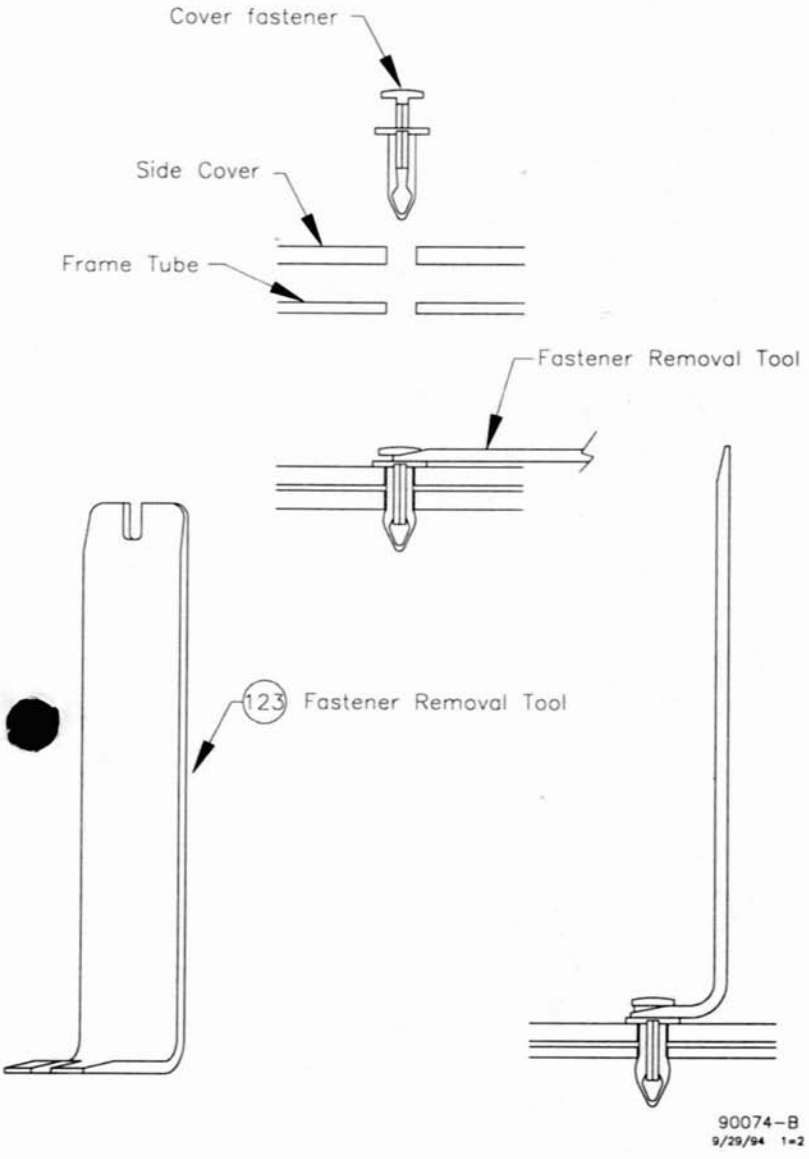

Figure 18A: Cover Fasteners

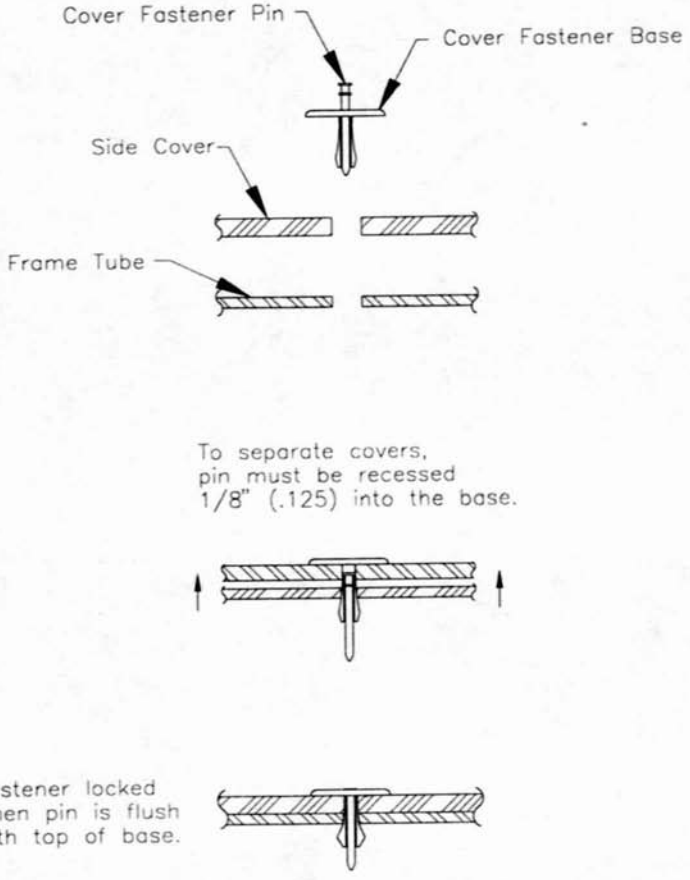

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Figure 19: Upper Input Drive Assembly

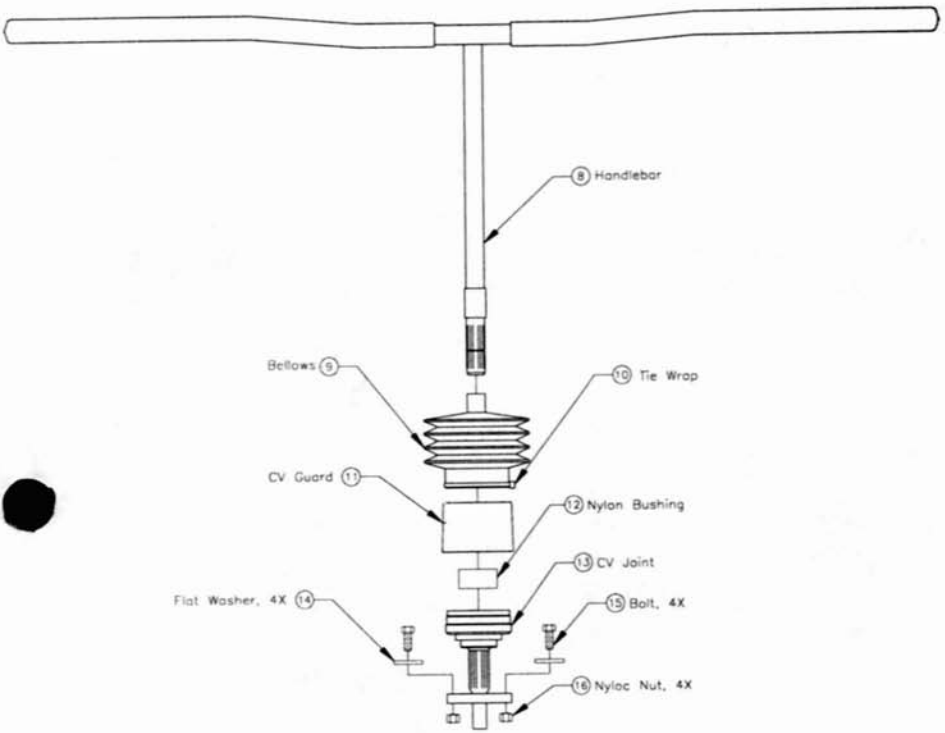

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Figure 20: Top View of CV Joint

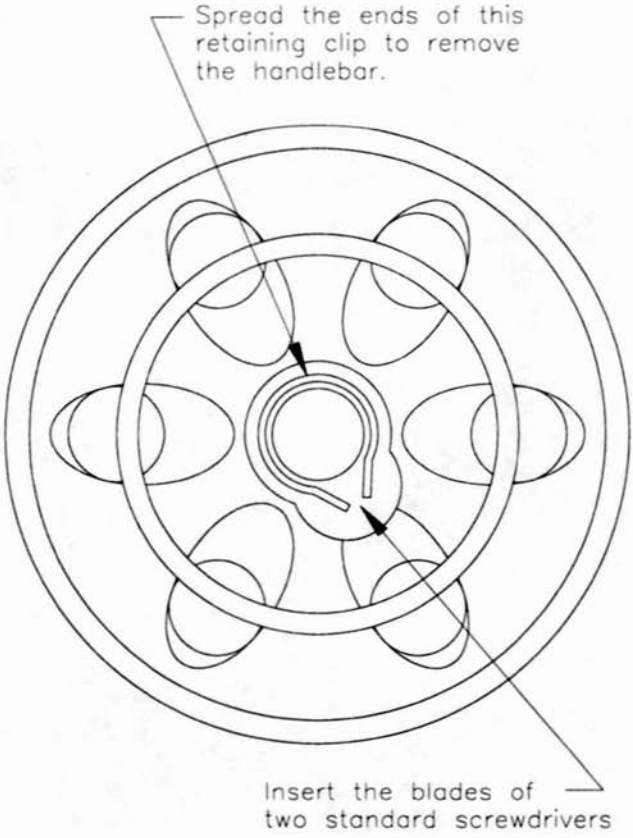

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Figure 21: Weight Stack Belt Assembly

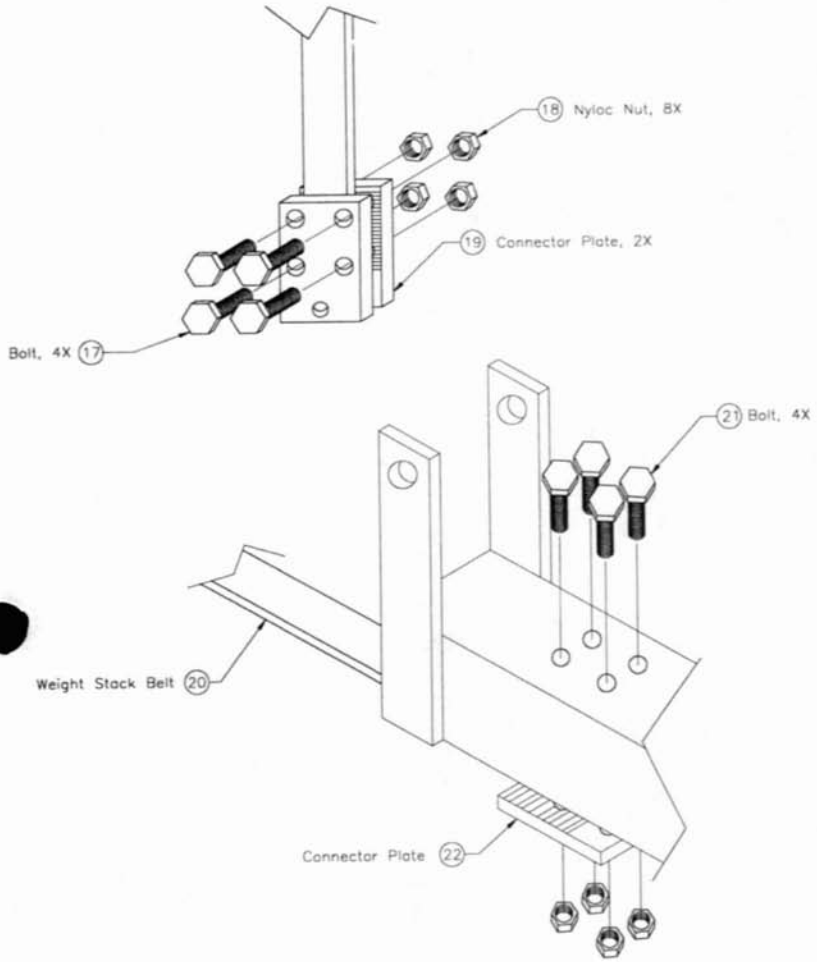

Figure 22: Weight Stack Assembly

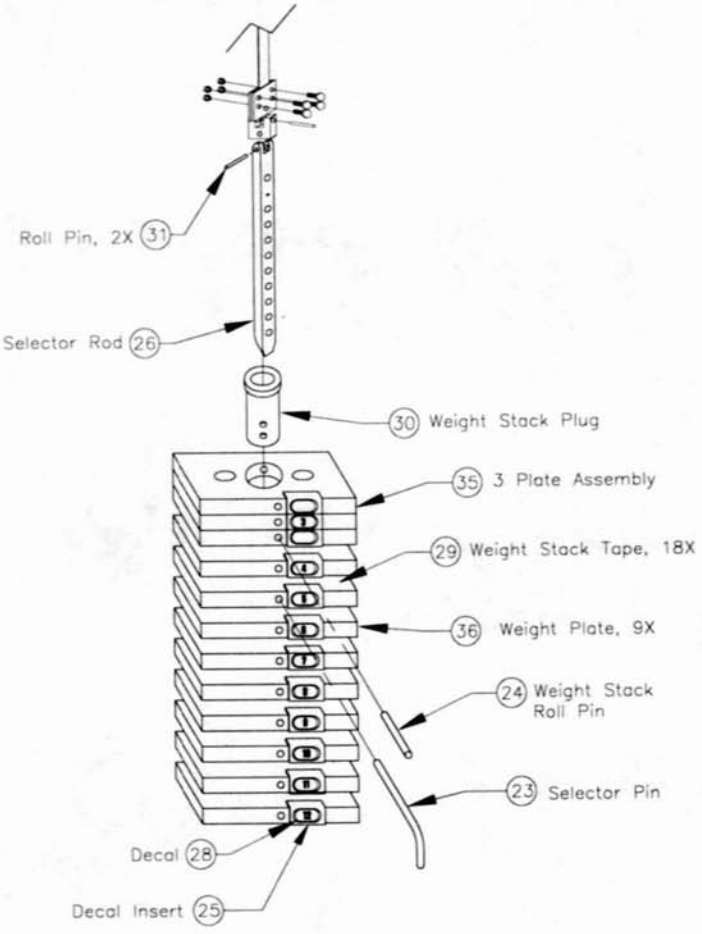

Figure 23: Guide Rod Assembly

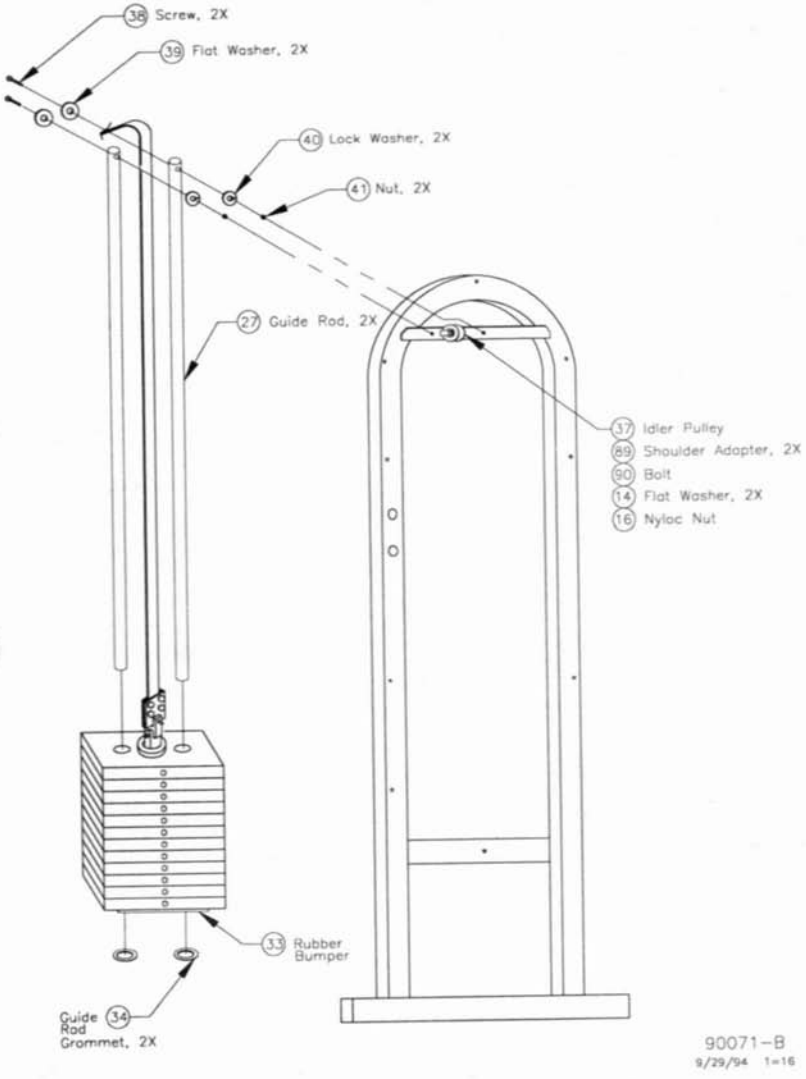

Figure 24: Input Chain Assembly, Side View

NOTE: The input chain adapters should line up when the handle is at right angles to the seat frame.

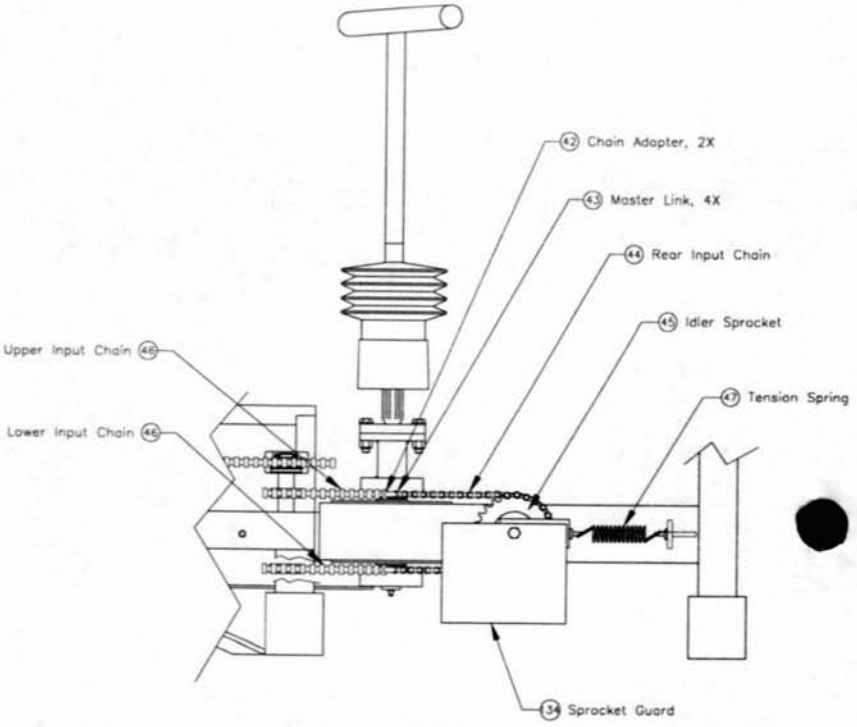

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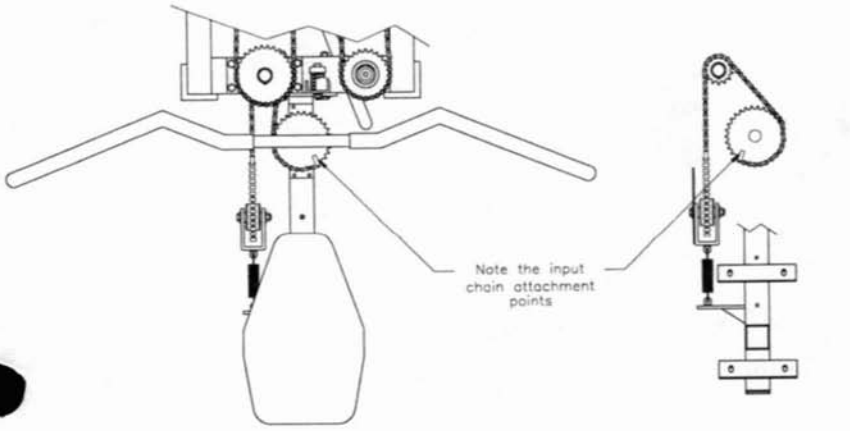
Figure 25: Input Chain Assembly, Top Views



1. Top view of the upper input chain assembly

2. Top view of the lower input chain assembly

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Figure 26: Lower Spring Stop Assembly

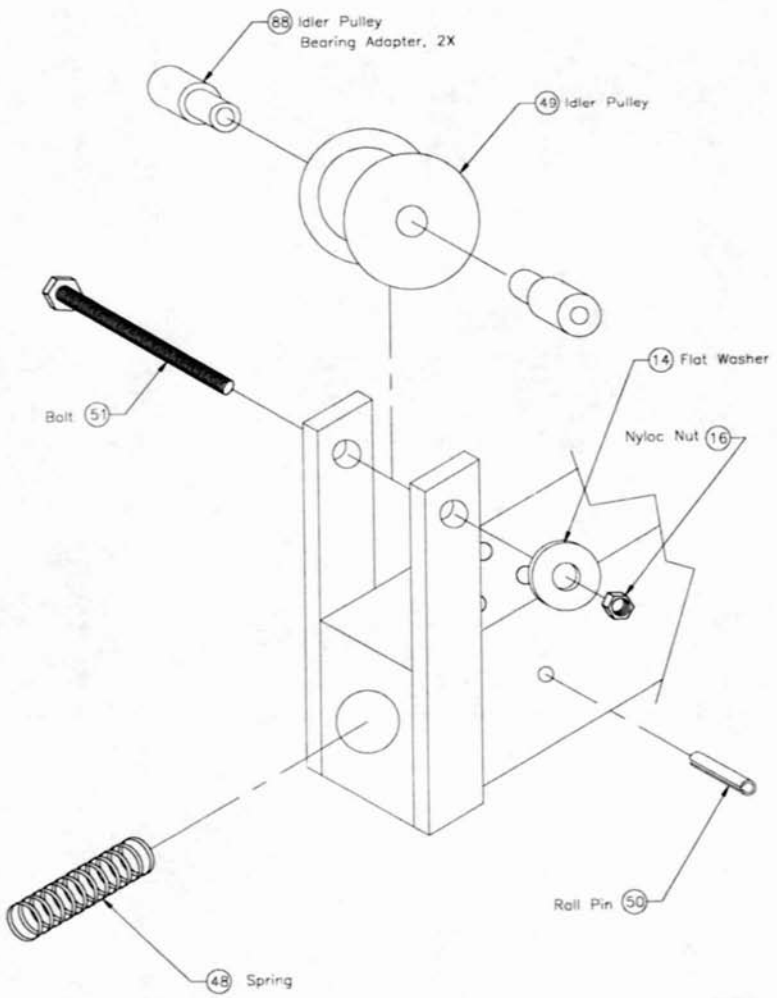

Figure 27: Drive Shaft Assembly

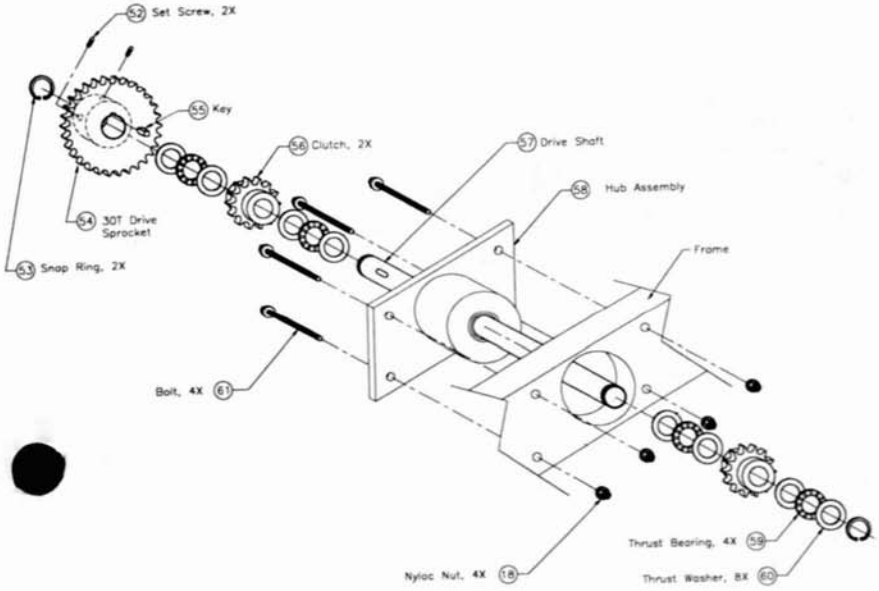

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Figure 28: Lower Input Drive Assembly

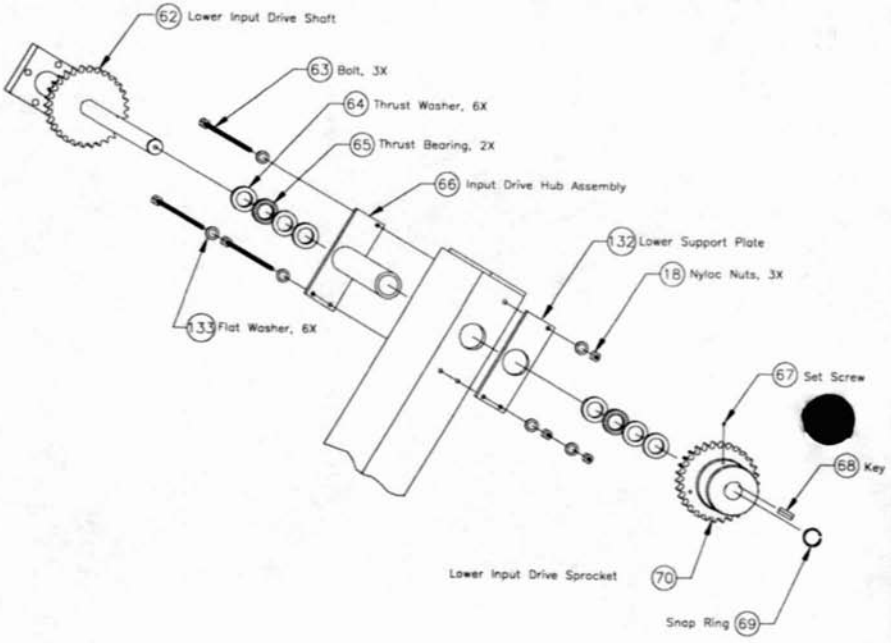

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Figure 29: Pivot Assembly

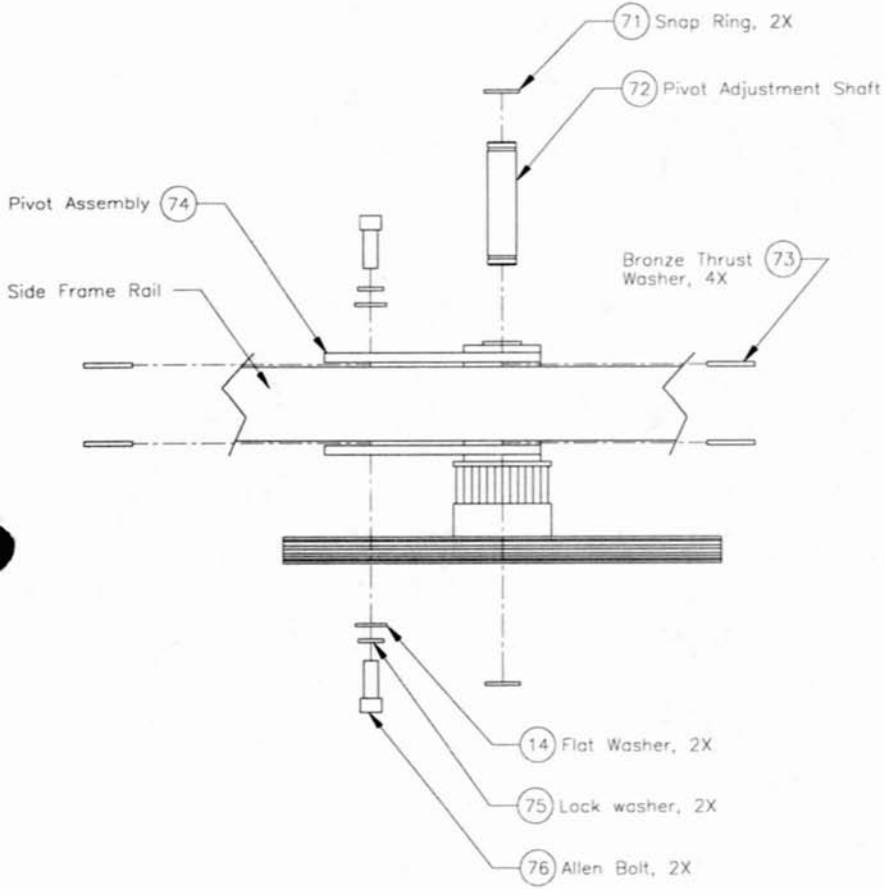

Figure 30: Lower Reduction Shaft Assembly

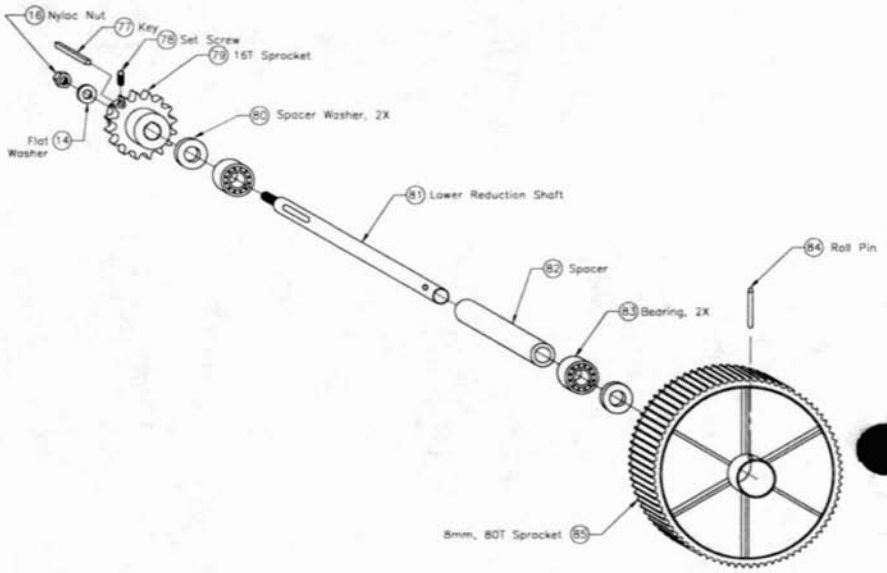

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Figure 31: Floating Pulley Assembly

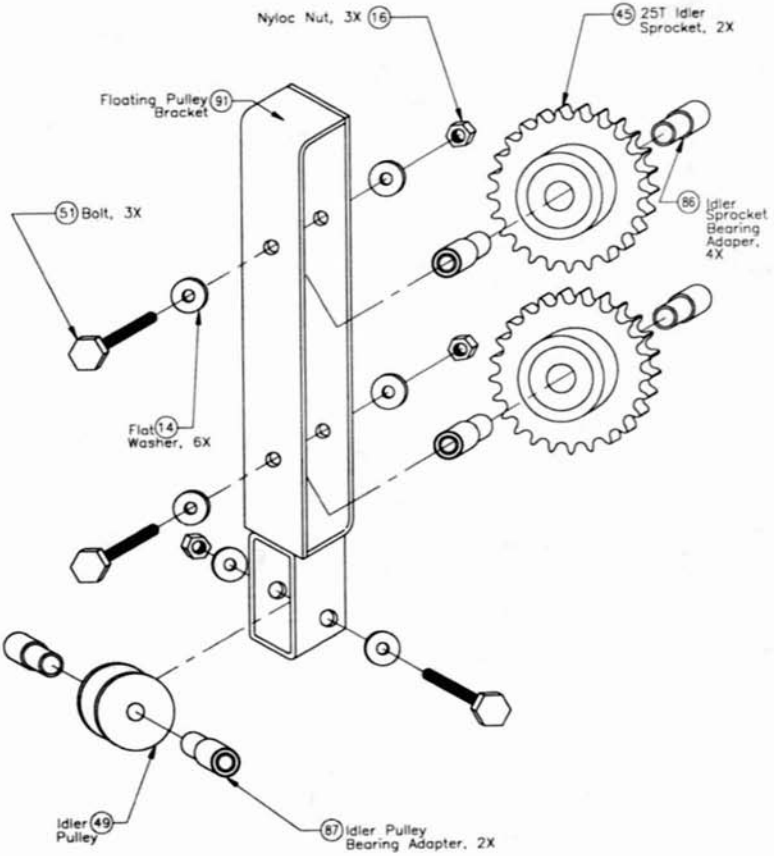

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Figure 32: Upper Spring Stop Assembly

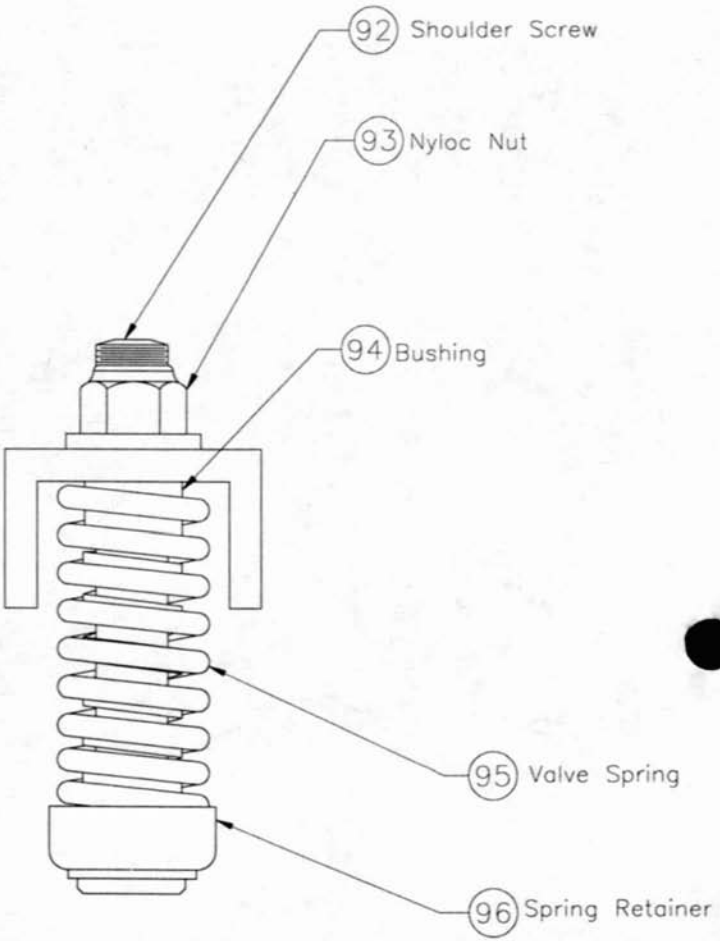


Figure 33: Chain Tensioning Idler Sprocket Assembly

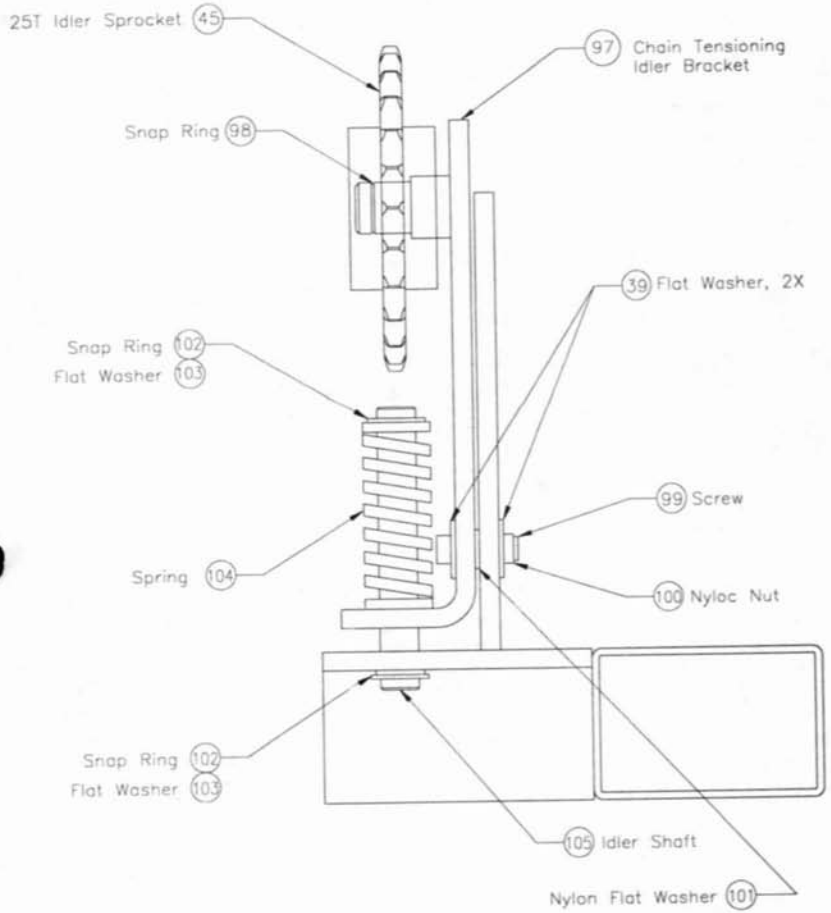


Figure 34: Foot Rest Assembly

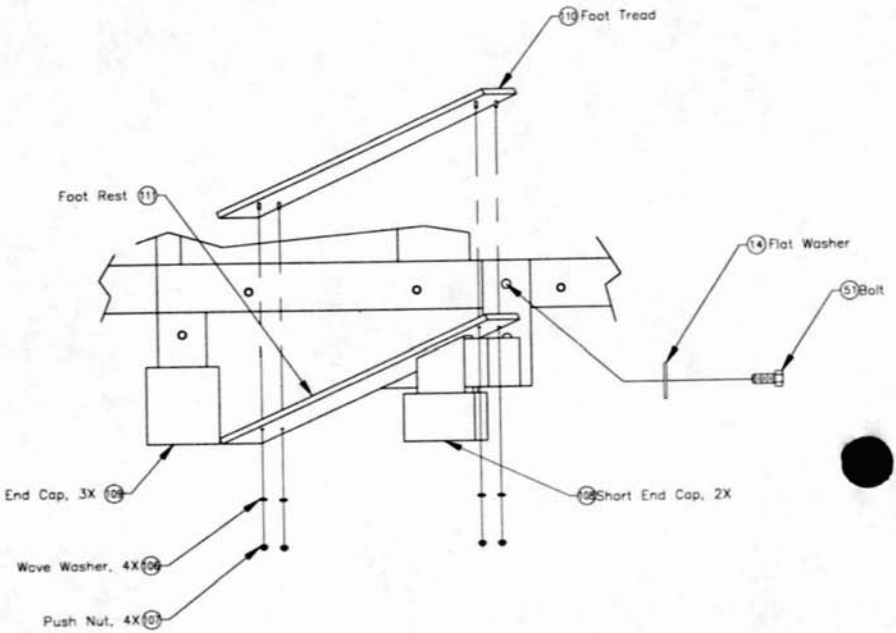
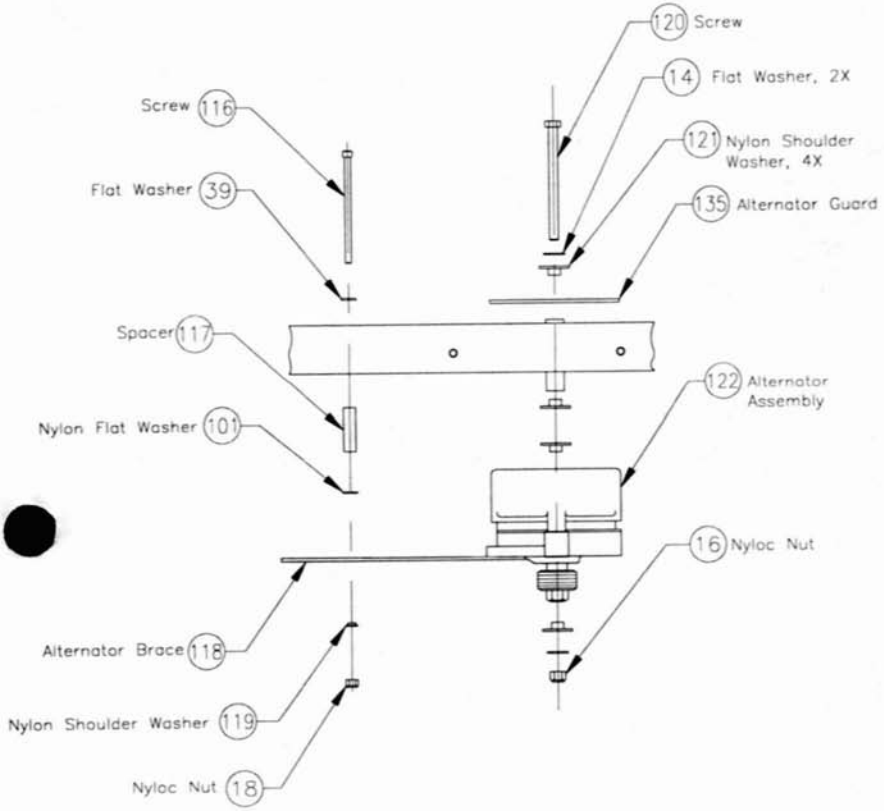
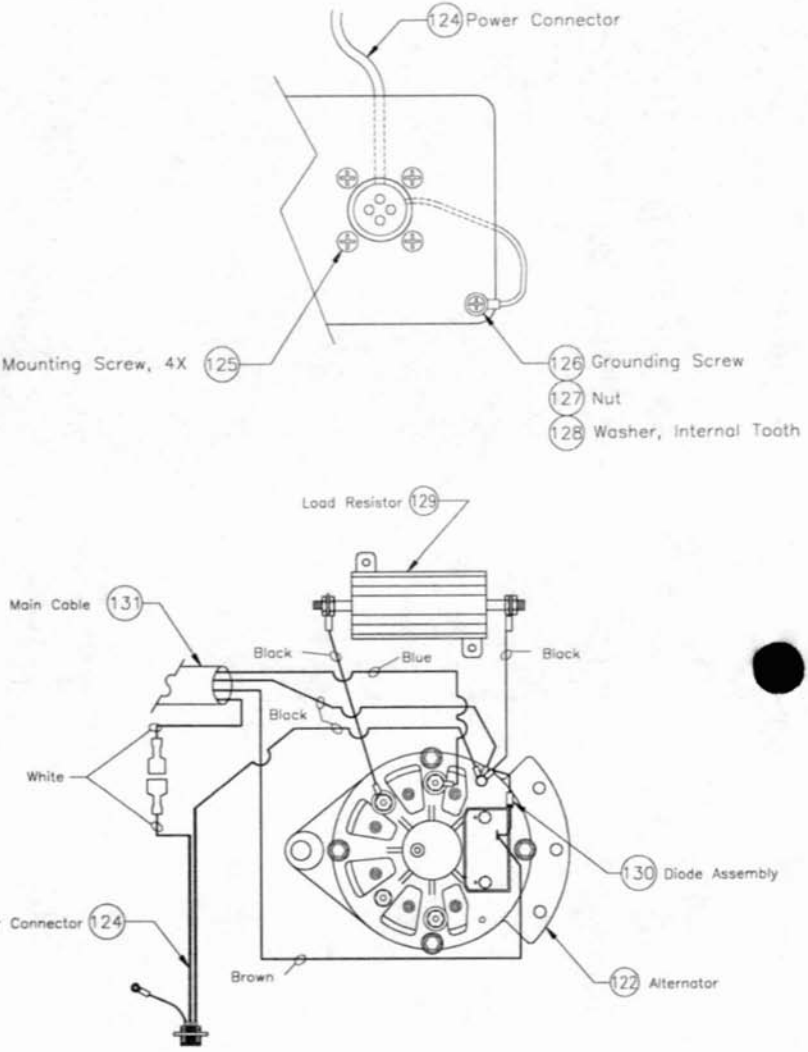


Figure 35: Alternator Mounting



Wiring Diagram 1: Main Cable Assembly Connections



ID Number	Description	Part Number
1	Cover fastener	22086
2	Inside weight stack cover, with decal	24215
3	Left side cover	23909
4	Right side cover	23908
5	Top cover	23907
6	Bottom cover	23904
7	Outside weight stack cover, with decal	24216
8	Handlebar	24163
9	CV bellows	24306
10	Tie wrap	24175
11	CV guard	24250
12	Nylon bushing	24305
13	CV joint	24171
14	Flat washer, 3/8"	22030
15	Bolt, 3/8 - 16 x 1 1/2"	22257
16	Nyloc nut, 3/8 - 16	22029
17	Bolt, 1/4 - 20 x 1"	22026
18	Nyloc nut, 1/4 - 20	22036
19	Weight stack belt connector plate	23367
20	Weight stack belt	23979
21	Bolt, hex head 1/4 - 20 x 12 1/4"	23803
22	Weight stack belt connector plate, 1 3/8"	24308
23	Weight stack selector pin	23070
24	Weight stack roll pin 7/16 x 3"	23094
25	Decal insert	23911
26	Selector rod	23368
27	Guide rod	23364
28	Weight stack decal numbers	23762
29	Weight stack tape	23764
30	Weight stack plug	23912
31	Roll pin 3/16 x 1.0"	24110
32	Seat	23976
33	Rubber bumper	23069
34	Grommet	21146
35	Weight stack plate assembly	23910-03
36	Weight stack plate w/bushing	23870-03
37	Idler pulley, 3" diameter	24103
38	Screw, 1/4 - 20 x 2 1/4"	23803
39	Flat washer, 1/4"	22038
40	Lock washer, 1/4"	22027

KEY TO FIGURES AND DIAGRAMS

ID Number	Description	Part Number
41	Nyloc nut, 1/4 - 20	22022
42	Chain adapter	23962
43	Master link, #40	20157
44	Rear input chain, #40, 41 pitches	24100
45	25T idler sprocket	23875
46	Input chain, #40, 41 pitches	24101
47	Tension spring	24117
48	Floating stop spring	23726
49	Idler pulley, 2" diameter	23337
50	Roll pin, 1/8 x 1 1/2"	20466
51	Bolt, hex head, 3/8 - 16 x 2 3/4"	22196
52	Set screw, 5/16 - 18 x 3/8"	22066
53	Snap ring, 30mm	23713
54	30T drive sprocket	23315
55	Key, 1/4 x 1/4 x .40"	23833
56	Clutch assembly	23302
57	Drive shaft	23977
58	Drive hub assembly	23941
59	Thrust bearing, 30mm	23712
60	Thrust washer, 30mm	23711
61	Screw, 1/4 - 20 x 2 3/4"	22119
62	Lower input drive shaft	23983
63	Bolt, 1/4 - 20 x 4"	22087
64	Thrust washer	20197
65	Thrust bearing	20198
66	Input drive hub assembly	23998
67	Set screw	
68	Key, 1/4 x 1"	24167
69	Snap ring	20206
70	Lower input drive sprocket	23984
71	Snap ring, 1/2"	20213
72	Pivot adjustment shaft	23641
73	Thrust washer, bronze 3/8"	23728
74	Pivot assembly	23990
75	Lock washer, 3/8"	23729
76	Allen bolt, 3/8 - 16 x 1"	23710
77	Key, 3/16 x 1"	20833
78	Set screw, 1/4 - 20 x 3/8"	22037
79	16T sprocket	23316
80	Spacer washer	23638

ID Number	Description	Part Number
81	Lower reduction shaft	23636
82	Spacer	23854
83	Bearing, 17mm x 40mm	23322
84	Roll pin, 3/16 x 1 1/2"	23719
85	8mm, 80- tooth sprocket	23842
86	Idler sprocket bearing adapter	23716
87	Floating pulley idler pulley bearing adapter	23852
88	Lower spring stop idler pulley bearing adapter	23176
89	Shoulder adapter	24109
90	Bolt, 3/8 - 16 x 3 1/4"	22097
91	Floating pulley bracket	23980
92	Shoulder screw, 3/8 x 2 1/4"	23847
93	Nyloc nut, 5/16 - 18	22032
94	Flanged bushing	23849
95	Spring	23758
96	Spring Retainer	23760
97	Idler bracket	23391
98	Snap ring, 17mm	23354
99	Screw, 1/4 x 3/4"	22024
100	Nyloc nut, 10 - 24	22023
101	Nyon flat washer, 1/4"	22114
102	Snap ring, 1/2"	23718
103	Flat washer, 1/2"	22046
104	Spring	23707
105	Idler shaft	23706
106	Wave washer	20528
107	Push nut	20508
108	Short end cap	23989
109	End cap	21166
110	Foot tread	23992
111	Foot rest, right	23965
	Foot rest, left	23974
112	Drive chain #40, 127"	24108
	Master link, #40	20157
113	Drive chain damper strap	23770
114	Belt, alternator reduction (Poly-V)	24107
115	Belt, drive reduction (HTD)	23326
116	Screw, 1/4 - 20 x 4 1/2"	24104
117	Spacer	23991
118	Alternator brace	20572

KEY TO FIGURES AND DIAGRAMS

ID Number	Description	Part Number
119	Nylon shoulder washer, 1/4"	22983
120	Screw, 3/8 - 16 x 4 3/4"	24203
121	Nylon shoulder washer, 3/8"	22191
122	Alternator assembly	23830B
123	Fastener removal tool	23853
124	Power connector	24307
125	Screw, Phillips, #6 x 3/8"	24208
126	Screw, Phillips, #8 - 32"	22134
127	Nut, #8 - 32	22110
128	Washer, #8, internal tooth	22109
129	Load resistor	23987
130	Diode assembly	21204
131	Main cable assembly	24289
132	Lower Support Plate	23591
133	Flat Washer, Aluminum	22296
134	Sprocket Guard	24312
135	Alternator Guard	24311
	Console assembly	22311
	Cable, DC power - 8 ft.	10841
	Cord, AC power	20761
	Power supply, PS-6	23873
	Touch-up paint kit	21211
	Handgrip installation kit	