

Strong. Smart. Beautiful.

C7XE-03 CLIMB MILL
SERVICE MANUAL

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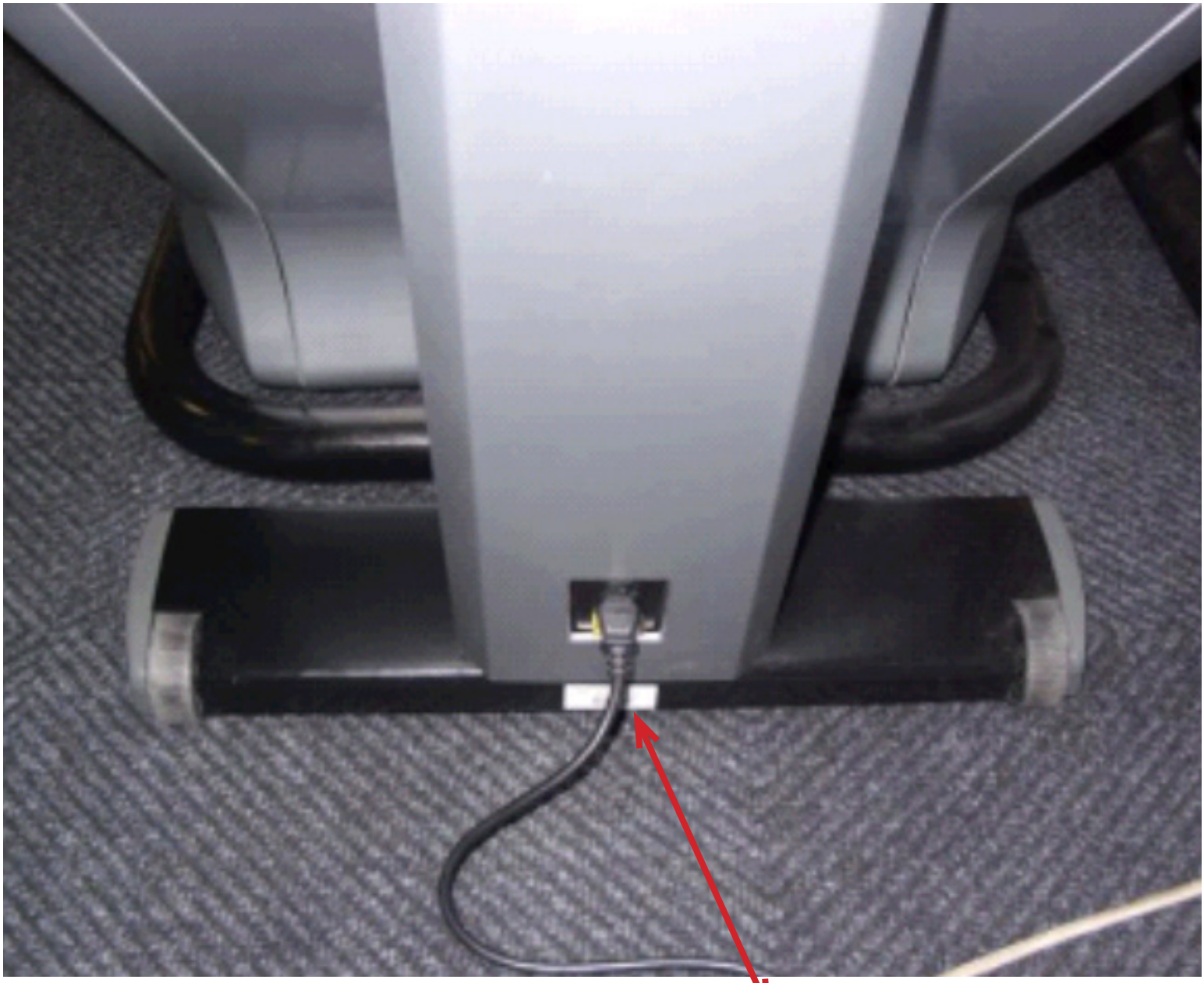
CHAPTER 1: SERIAL NUMBER LOCATION

1.1 SERIAL NUMBER LOCATION



1.1 SERIAL NUMBER LOCATION - CONTINUED

UNIVERSAL CONSOLE SERIAL NUMBER LOCATION



CONSOLE SERIAL NUMBER LOCATION

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.1 READ AND SAVE THESE INSTRUCTIONS

This Climb Mill is intended for commercial use. To ensure your safety and protect the equipment, read all instructions before operating the MATRIX Climb Mill.

When using an electrical product, basic precautions should always be followed including the following:

- ***An appliance should never be left unattended when plugged in. Unplug the unit from the outlet when not in use and before putting on or taking off any parts.***
- ***This product must be used for its intended purpose described in this service manual. Do not use other attachments that are not recommend by the manufacturer. Attachments may cause injury.***
- ***To prevent electrical shock, never drop or insert any object into any opening.***
- ***Do not remove the side covers. Service should only be done by an authorized service technician.***
- ***Never operate the unit with the air opening blocked. Keep the air opening clean, free of lint and hair.***
- ***Never operate the unit if it has a damaged cord or plug, if it is not working properly, if it has been damaged, or immersed in water.***
- ***Close supervision is necessary when the unit is used by or near children or disable persons.***
- ***Do not use outdoors.***
- ***Do not operate where aerosol (spray) products are being used or when oxygen is being administered.***
- ***Do not use the equipment in any way other than designed or intended by the manufacturer. It is imperative that all Matrix Fitness Systems equipment is used properly to avoid injury.***
- ***Keep hands and feet clear of moving parts at all times to avoid injury.***
- ***Unsupervised children must be kept away from this equip ment.***
- ***Do not wear loose clothing while on the equipment.***

* ***At NO time should pets or children under the age of 13 be closer to the unit than 10 feet.***

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

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

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.2 ELECTRICAL REQUIREMENTS

The Matrix Climb Mill must be AC powered. The Climb Mill is capable of being daisy chained together (up to 3 units per dedicated 15 amp circuit) using a Matrix provided daisy chain (sold separately). Any alterations to the standard Matrix power cord will void all warranties.

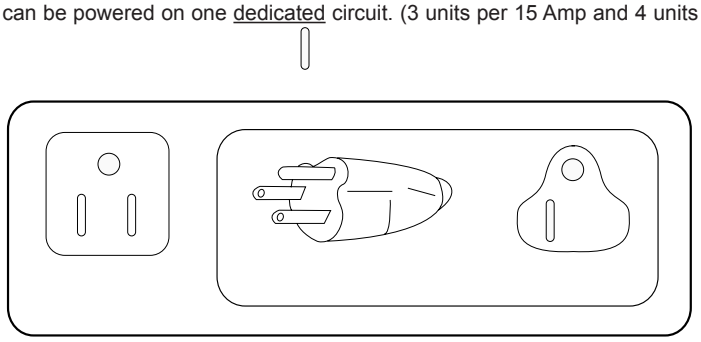
MATRIX DEDICATED CIRCUIT/ELECTRICAL REQUIREMENT INFO

All Matrix Climb Mills require the use of a 15 amp or 20 amp "dedicated circuit," with a non-looped (isolated) neutral/ground, for the power requirement. Quite simply this means that each outlet you plug Climb Mills into should not have anything else running on that same circuit besides other Climb Mills (up to 3 per 15 amp circuit and 4 per 20 amp circuit). The easiest way to verify this is to locate the main circuit breaker box, and turn off the breaker(s) one at a time. Once a breaker has been turned off, the only thing that should not have power to it are the Climb Mills in question. No lamps, vending machines, fans, sound systems, or any other item should lose power when you perform this test.

Non-looped (isolated) neutral/grounding means that each circuit must have an individual neutral/ground connection coming from it, and terminating at an approved earth ground. You cannot "jumper" a single neutral/ground from one circuit to the next.

In addition to the dedicated circuit requirement, the proper gauge wire must be used from the circuit breaker box, to each outlet that will have the maximum number of units running off of it. If the distance from the circuit breaker box, to each outlet, is 100 ft or less, then 12 gauge wire may be used. For any distance greater than 100 ft from the circuit breaker box to the outlet, 10 gauge wire must be used.

For your safety and Climb Mill performance, the ground on this circuit must be non-looped. Please refer to NEC article 210-21 and 210-23. Your Climb Mill is provided with a power cord with a plug listed below and requires the listed outlet. Any alterations of this power cord could void all warranties for this product. Multiple Climb Mills can be powered on one dedicated circuit. (3 units per 15 Amp and 4 units per 20 Amp dedicated circuit.)



GROUNDING INSTRUCTIONS:

The Matrix Climb Mill must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. The Climb Mill 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. If the user does not follow these grounding instructions, the user could void the Matrix limited warranty.

DANGER: Improper connection of the equipment grounding conductor can result in the risk of electric shock. Check with a qualified electrician if the user is in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product if it will not fit the outlet, have a proper outlet installed by an electrician

CONSOLE POWER

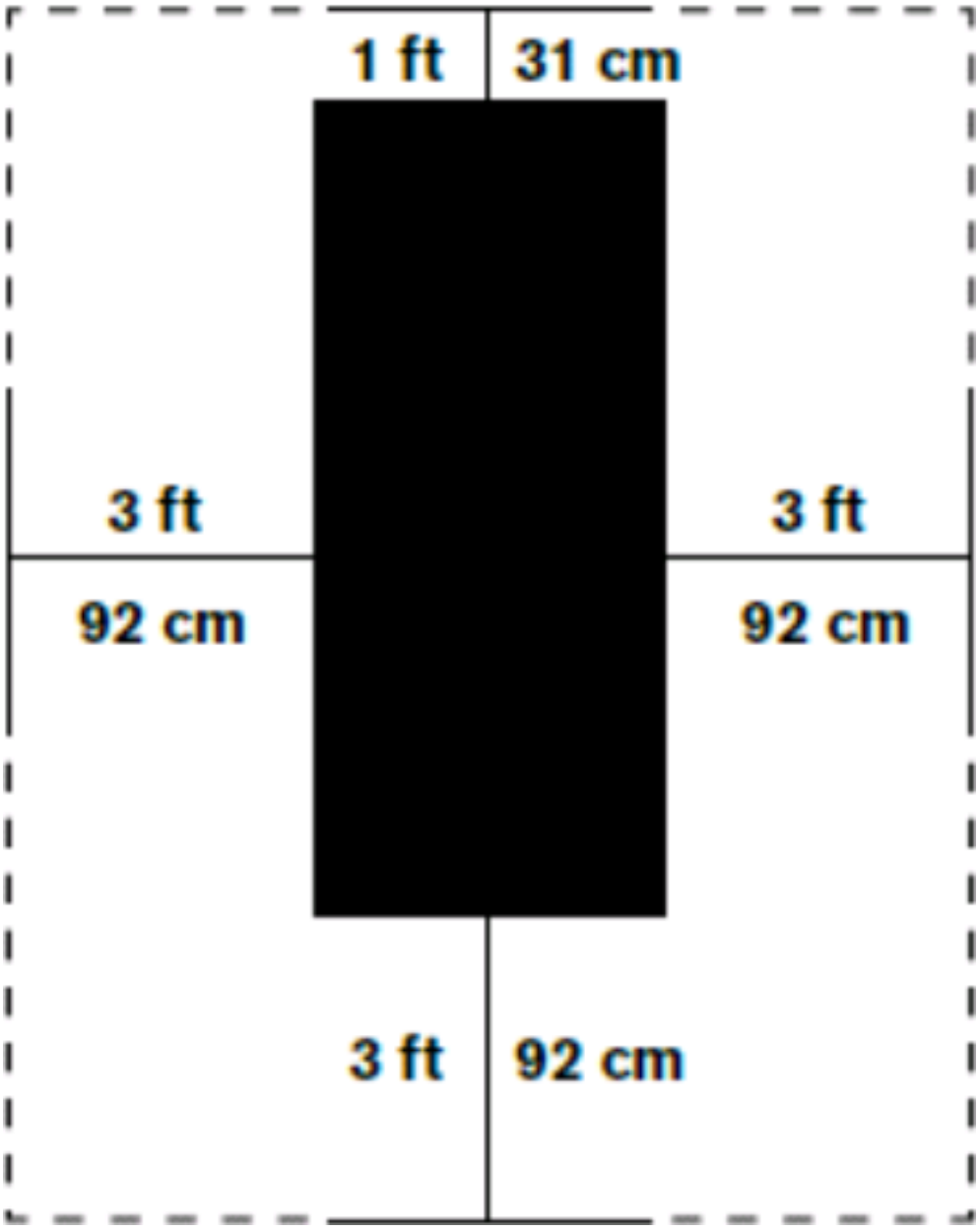
The Matrix Climb Mill console has a battery that makes it self powered. This means that even if the unit is not plugged in, the console may still have power for up to 12 hours. If the console power needs to be reset or turned off, press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds until the console turns off. The console power will also need to be reset if settings are changed in Manager, Engineering, or Service Modes.

2.3 LOCATING THE UNIT

LOCATION OF THE UNIT:

Place the unit on a level surface. There should be 3 feet of clearance behind the unit and one foot in front of the unit for the power cord. Do not place the unit in any area that will block any vent or air openings. These products should not be located in a garage, covered patio, near water, or outdoors.

Height Requirements - The Climb Mill adds 30" - 38" (76 - 96cm) to a user's height. For example, a 6' (183cm) tall user will be 7'8" (234.4cm - 254.4cm) off the floor. Total height of the user on the Climb Mill should not exceed 9'10" (300 cm), which means that users taller than 6'8" (204cm) should not use this equipment.



CHAPTER 3: PREVENTATIVE MAINTENANCE

3.1 RECOMMENDED CLEANING TIPS

Preventative maintenance and daily cleaning will prolong the life and look of your MATRIX Climb Mill.

Please read and follow these tips.

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

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

MAINTAIN LABELS AND NAMEPLATES. Do not remove labels for any reason. They contain important information. If unreadable or missing, contact Matrix Fitness Systems for a replacement. 1-866-693-4863, www.matrixfitness.com

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

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.2 CARE AND MAINTENANCE INSTRUCTION

In order to maximize life span, and minimize down time, all MATRIX equipment requires regular cleaning, and maintenance items performed on a scheduled basis. This section contains detailed instructions on how to perform these items, the frequency of which they should be done, and a check list to sign off each time service is completed for a specific machine. Some basic tools and supplies will be necessary to perform these tasks which include (but may not be limited to):

* Metric Allen wrenches
* #2 Phillips head screwdriver
* Adjustable wrench
* Torque wrench (capability to read foot lbs, and inch lbs)
* Lint free cleaning cloths
* Teflon based spray lubricant
* Mild, water soluble, detergent – such as “Simple Green”, or other Matrix approved product
* Teflon based spray lubricant such as “Super Lube”, or other Matrix approved product
* Vacuum cleaner with an extendable hose and crevasse tool attachment

You may periodically see addendums to this document, as the Matrix Technical Support Team identifies items that require specific attention, the latest version will always be available on the Matrix website, www.matrixfitness.com

DAILY MAINTENANCE ITEMS

1) Clean the entire machine using water and mild detergent such as “Simple Green”, or other Matrix approved solutions (cleaning agents should be alcohol and ammonia free). ***NOTE:*** Never spray cleaner directly onto the equipment, spray cleaner onto a cloth and then wipe the equipment.

QUARTERLY MAINTENANCE ITEMS

1) Check all connecting joint areas for tightness of bolt assemblies.

2) Remove the maintenance cover and check the fans for function.

3) Remove the maintenance cover and check the chain for damage, alignment and proper tension.

YEARLY MAINTENANCE ITEMS

1) Remove the maintenance covers and check the belts for damage, alignment, and proper tension.

2) Remove the maintenance covers and check the brake for function.

TOUCH SCREEN CARE AND CLEANING

* The touch screen requires very little maintenance. We recommend that you periodically clean the touch screen surface with a dry soft cloth. If necessary, we recommend the usage of Alcohol or Isopropyl Alcohol for difficult stains or sanitary purposes.

* It is very important to avoid using any other chemical on the touch screen.

* Always dampen the cloth and clean the screen. Do not spray the cleaning agent on the screen itself, the drips can seep into the display or stain the bezel.

* After cleaning, make sure the surface is dry. There should not be any left over solvent to seep into the display.

* It is very important to handle the touch screen with care. Do not use excessive force when cleaning.

* Do not use any sharp materials to clean the touch screen surfaces.

* Do not use high pressure air, water, or steam to clean the touch screen surface.

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 CONSOLE DESCRIPTION



The C7xe has a fully integrated touch screen display. All information required for workouts is explained on screen. Exploration of the interface is high encouraged. The information explaining how to program for various workouts will give an explanation about the contents of each screen on the machine.

C7XE ENTERTAINMENT ZONE

IPOD®: Will take the user directly to the iPod screen to allow for iPod control and play list selection.

VOLUME UP / DOWN: Adjusts the volume output through the headphone jack of either the integrated console TV or the iPod output.

NUMBER KEYPAD: Allows for easy TV channel selections.

CHANNEL UP / DOWN: Allows for channel selection.

DISPLAY MODE: Allows user to cycle through console display options, iPod, TV, or profile display.

LAST CHANNEL: Allows the user to cycle between the current channel and the previous channel they were viewing.

4.2 WORKOUT SETUP STEPS

To set up a workout, press the touch screen over the program you would like to use and then follow the prompts to begin your workout.

GO - Press to immediately begin a workout. Workout, resistance level, and time will automatically go to default settings. All energy expenditure values will be calculated using the default weight measurement.

MANUAL - Manual allows the user to input more information while defining their own workout. Calorie expenditure will be more accurate when inputting information in Manual than by pressing GO.

ROLLING HILLS - The Rolling Hills program is a level based program that automatically adjusts the resistance level to simulate real terrain.

INTERVALS - The Intervals program is a level based program that automatically adjusts the resistance of the machine from low to high intensity settings at regular intervals to burn calories.

GOAL TRAINING - The Goal Training program is designed to help users burn a target number of calories.

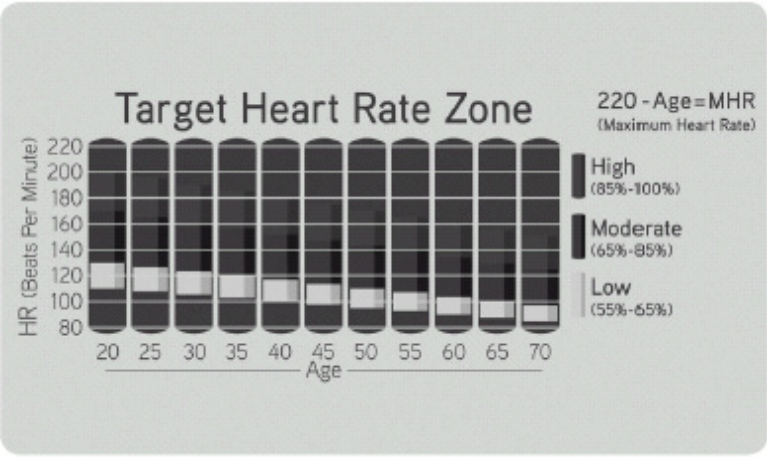
CALORIE TRAINING - The Calorie Training program is designed to help users burn a target number of calories.

CONSTANT WATTS - The Constant Watts program allows you to vary your cadence or SPM and the machine's resistance will adjust according to your selected goal. The quicker you step, the less resistance for the goal selected.

FAT BURN - The Fat Burn program is a level based workout that is designed to help users burn fat through various resistance changes.

TARGET HEART RATE - The Matrix Climb Mill comes with standard digital contact heart rate sensors and are POLAR telemetry compatible. The heart rate control workout mode allows the user to program their desired heart rate zone, and the Climb Mill will automatically adjust the level based upon the user's heart rate. The heart rate zone is calculated using the following equation: (220-Age)*% = target heart rate zone. The user must wear a POLAR telemetric strap or continually hold onto the contact heart rate grips for this workout.

Locate the metal sensors on the handlebars of the Climb Mill. Notice that there are two separate pieces of metal on each grip. You must be making contact with both pieces of each grip to get an accurate heart rate reading. You can grab these sensors in any program to view your current heart rate.



FITNESS TEST (WFI) - The WFI (Wellness Fitness Initiative) protocol is a test used by firefighters in a series of intervals lasting a maximum of 16 minutes, where the speed is increased every minute until the Target Heart Rate is exceeded for 15 seconds. When the test is complete, the display provides a summary of V)2max, Highest SPM, Elapsed Time, and Target Heart Rate. The test requires constant monitoring of the user's heart rate, so the use of a telemetric heart rate strap is highly recommended.

FITNESS TEST (SUBMAXIMAL) - The Submaximal test measures cardiovascular fitness and provides an estimated Sub-maximal VO2 max result. This assessment is a 4 stage test lasting 3-5 minutes where the speed is increased until your Heart Rate is between 115 - 150 bpm for 2 of the stages. When the test is complete, a Fitness Rating is displayed as High, Good, Average, Fair, or Low along with your age and VO2 max. The test requires constant monitoring of the user's heart rate, so the use of a telemetric heart rate strap is highly recommended.

FITNESS RATING NORMS (V02 MAX)						
	AGE	**20-29**	**30-39**	**40-49**	**50-59**	**60+**
MEN						
	HIGH	51.4+	50.4+	48.2+	45.3	42.5+
	GOOD	51.3-46.8	50.3-44.6	48.1-41.8	45.2-38.5	42.4-35.3
	AVERAGE	46.7-42.5	44.5-41.0	41.7-38.1	38.4-35.2	35.2-31.8
	FAIR	42.4-39.5	40.9-37.4	38.0-35.1	35.1-32.3	31.7-28.7
	LOW	39.4 OR LESS	37.3 OR LESS	35.0 OR LESS	32.2 OR LESS	28.6 OR LESS
WOMEN						
	HIGH	44.2+	41.0+	39.5+	35.2+	35.2
	GOOD	44.1-38.1	40.9-36.7	39.4-33.8	35.1-30.9	35.1-29.4
	AVERAGE	38.0-35.2	36.6-33.8	33.7-30.9	30.8-28.2	29.3-25.8
	FAIR	35.1-32.3	33.7-30.5	30.8-28.3	28.1-25.5	25.7-23.8
	LOW	32.2 OR LESS	30.4 OR LESS	28.2 OR LESS	25.4 OR LESS	23.7 OR LESS

CHAPTER 5: MANAGER MODE

5.1 MANAGER MODE OVERVIEW

The Manager's Custom Mode allows the club owner to customize the Climb Mill for the club.

1) To enter Manager Mode, press ENTER, 1, 0, 0, 1, ENTER on the lower keypad. Manager Mode will appear on the display (Figure A).

2) Follow the prompts to change the desired setting.

3) Press the ENTER key once the desired setting is correct to save.

4) Press HOME to return to normal operation. ***NOTE:*** If a setting has been changed, the unit and console power should be reset. Cycle the power switch, and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.



FIGURE A

5.2 MANAGER MODE - ABOUT TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
About	Serial Number	This option displays the serial number of the platform and console. See Service Mode to edit the serial numbers.	Cannot be modified.
	Accumulated Distance	Total distance on the unit since production.	Cannot be modified.
	Accumulated Time	Total time on the unit since production.	Cannot be modified.
	Software Versions	Software version.	Cannot be modified.
	Out of Order Default: Off	This option allows the club to show the unit "out of order" if an error is present.	On / Off
	CSafe Model Default: On	This option controls whether the console is Fitlinxx compatible.	On / Off

5.3 MANAGER MODE - TIME TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Time	Maximum Time Default: 60 Minutes	This option allows the club to set the maximum workout duration limits during peak and non peak hours.	Maximum: 99 Minutes Minimum: 5 Minutes
	Default Time Default: 30 Minutes	This option controls the default program time.	Maxi: Max Time Min: 5 Minutes
	Pause Time Default: 5 Minutes	This option controls the default pause time.	Max: 10 Min Min: 1 Minute

5.4 MANAGER MODE - CLIMB MILL TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Climb Mill	Adjust Resistance Offset Default: 0	This option allows the engineer to set the resistance offset of SPM adjustment.	Maximum: -10 Min: 10
	Default Demand Floor Default: 20	This option controls the default floor.	Maximum: 200 Min: 15
	Default Target Calories Default: 100	This option controls the default calories.	Maximum: 5000 Min: 150

5.5 MANAGER MODE - DEFAULTS TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTION	MODIFIED
Defaults	Default Level Default: 1	This option controls the default program level.	Max: 1 Min: 20
	Default Age Default: 30	This option controls the default user's age used in the target HR calculations.	Max: 100 Min: 10
	Default Weight Default: 150 lbs / 68 kg	This option controls the default weight used in the calorie calculations. Displayed in pounds or kilograms.	Max: 400 lbs / 182 kg Min: 50 lbs / 22 kg
	Default Height Default: 68" / 173cm	This option controls the default height.	Max: 49" / 101cm Min: 90" / 228cm
	Gender Default: Male	Setting the user as Male or Female.	Male or Female
	Key Sound Default: Yes	This option allows different sounds to be chosen for the keypad.	Yes or No

5.6 MANAGER MODE - TV TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
TV	Default Channel Default: 3	This option controls the default TV channel on start up.	Channels 1-999
	Default Volume Default: 5	This option controls the default TV volume on start up.	Maximum: 17 Minimum: 1
	Tuner Available Default: Yes	This option controls the default TV function.	Yes or No
	Setup	This option is used to set the TV tuner function. Press the "-: key to enter this function.	N/A

5.7 MANAGER MODE - LANGUAGE TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Language	Select default language.	This option allows the user to select a flag for a specific language.	N/A

5.8 MANAGER MODE - OTHER TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Other	Asset Management Default: Off	This option allows fitness clubs to collect workout data to a PC.	On or Off
	Virtual Active Default: Off	This option controls the Virtual Active function. ***NOTE:*** Virtual Active only works in AC Plug In Mode.	On or Off
	E-Stop Default: On	This option controls the E-Stop function.	On or Off.

CHAPTER 6: ENGINEERING MODE

6.1 ENGINEERING MODE OVERVIEW

The Engineering Mode allows the club owner to keep track of the technical settings and error history for the Climb Mill.

1) To enter Engineering Mode, press ENTER, 2, 0, 0, 1, ENTER on the lower keypad. Engineering Mode will appear on the display (Figure A).

2) Follow the prompts to change the desired setting.

3) Press the ENTER key once the desired setting is correct to save.

4) Press HOME to return to normal operation. ***NOTE:*** If a setting has been changed, the unit and console power should be reset. Cycle the power switch, and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.

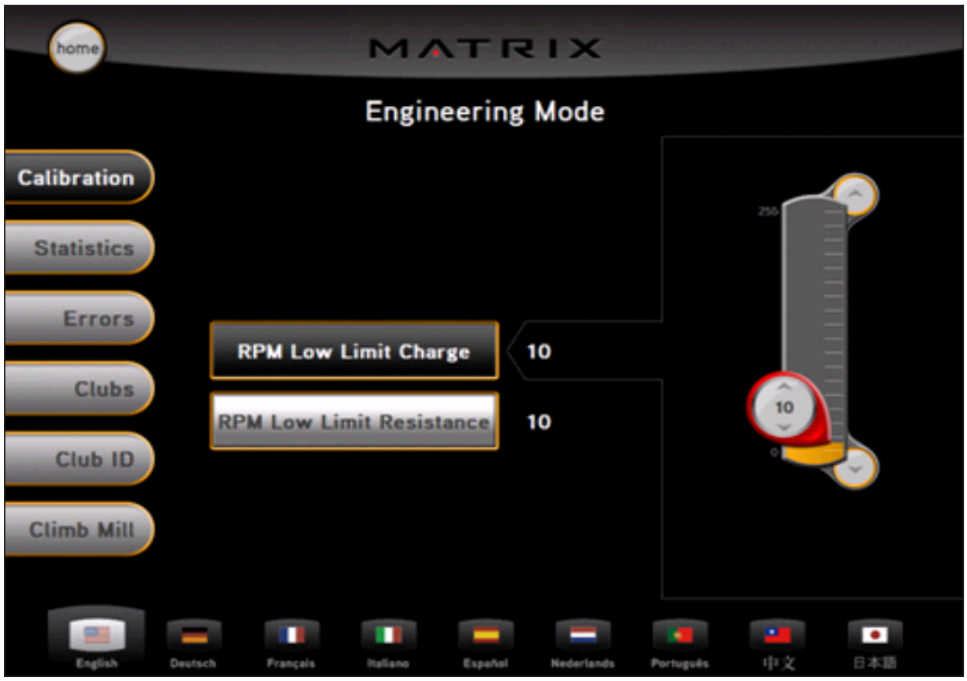
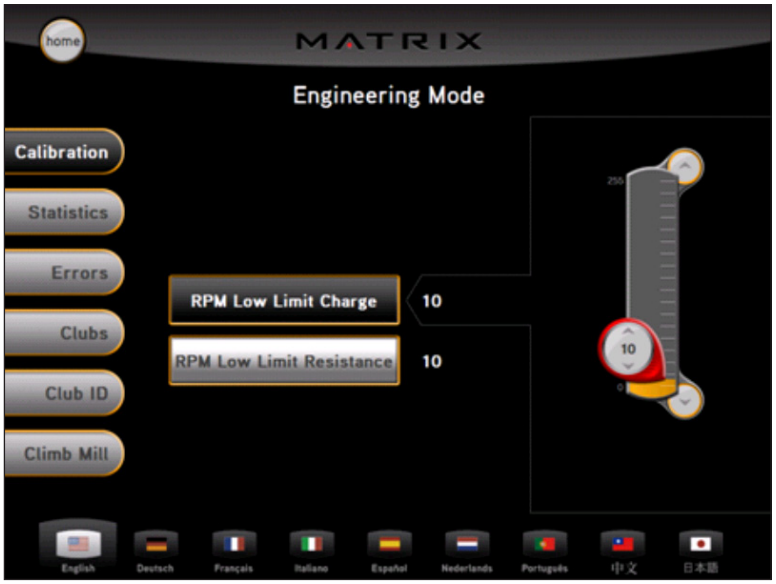


FIGURE A

6.2 ENGINEERING MODE - CALIBRATION TAB



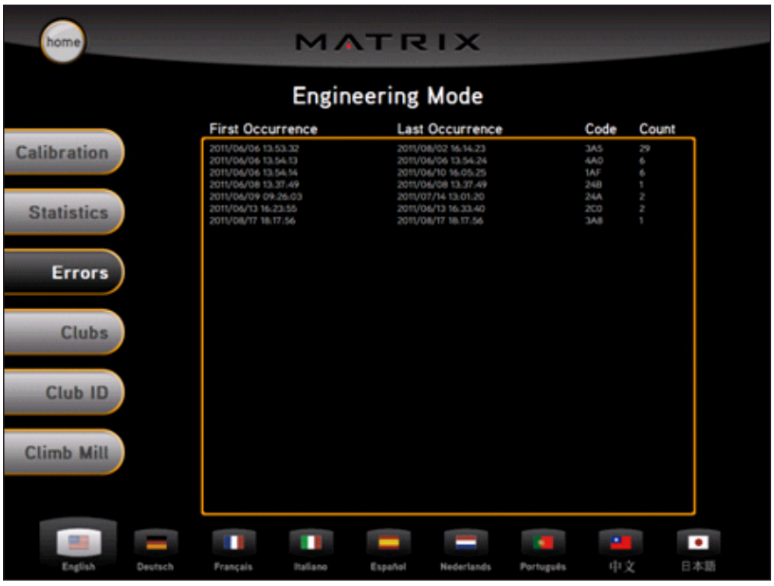
ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Calibration	RPM Low Limit Charge: Default: 10	This option controls the RPM low limit to iPod charge.	Range: 0 - 255
	RPM Low Limit Resistance Default: 10	This option control the RPM low limit to show resistance.	Range: 0 - 255

6.3 ENGINEERING MODE - STATISTICS TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Statistics		This option displays the workout history.	N/A

6.4 ENGINEERING MODE - ERRORS TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Errors		This option displays the error code history.	N/A

6.5 ENGINEERING MODE - CLUBS TAB



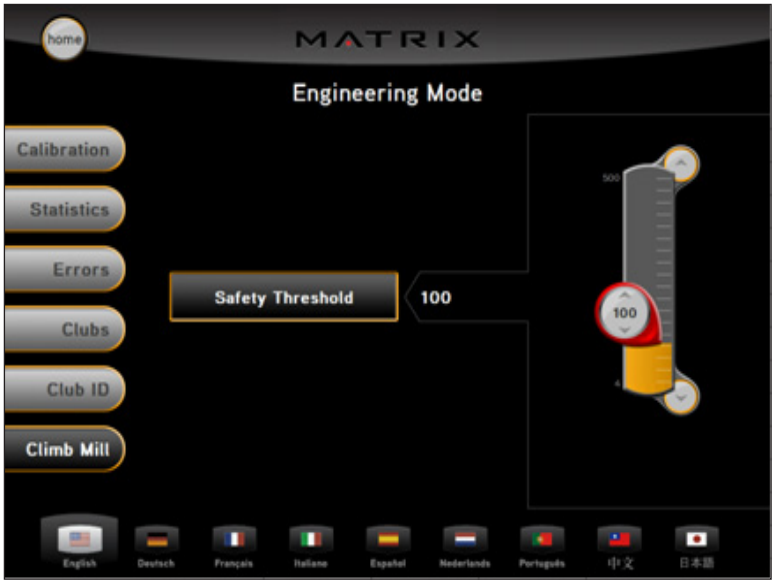
ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Clubs Default: MATRIX	This option allows the club to select a screen header from a list.	N/A

6.6 ENGINEERING MODE - CLUB ID TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Club ID	This option records the Club ID of the fitness facility.	N/A

6.7 ENGINEERING MODE - CLIMB MILL TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Climb Mill	Safety Threshold Default: 100	This option controls the safety threshold for the E-Stop function.	Maximum: 500 Minimum: 4

CHAPTER 7: SERVICE MODE

7.1 SERVICE MODE OVERVIEW

The Service Mode allows an authorized service provider to test and store information on the Climb Mill.

1) To enter Service Mode, press ENTER, 3, 0, 0, 1, ENTER on the lower keypad. Service Mode will appear on the display (Figure A).

2) Follow the prompts to change the desired setting.

3) Press the ENTER key once the desired setting is correct to save.

4) Press HOME to return to normal operation. ***NOTE:*** If a setting has been changed, the unit and console power should be reset. Cycle the power switch, and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.



FIGURE A

7.2 SERVICE MODE - SETUP TAB



SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
Setup	Machine Type: Climb Mill	This option selects the current model.
	Serial Number	This option displays the serial number of the console and frame.
	Accumulated Distance	This option displays the accumulated workout distance since production.
	Accumulated Time	This option displays the accumulated workout time since production.
	Show Service on Boot	Factory Setting Only.

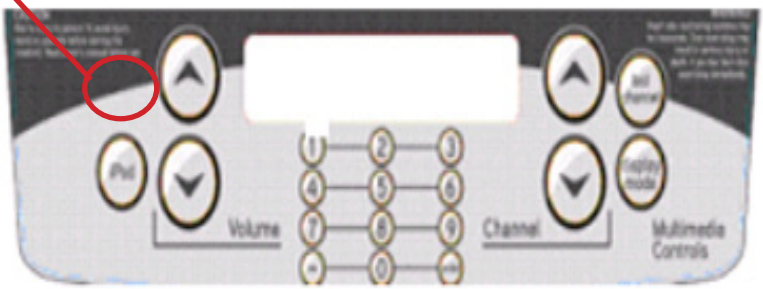
7.3 SERVICE MODE - TEST TAB



7xe-02 Keypad - Old keypad - Includes Quick Start Key



7xe-03 Keypad - New keypad - Does NOT Include Quick Start Key



SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
Test	Keypad	This option is for a keypad test.
	Touch Calibration	This option starts a touch calibration. Follow the cross mark moving across the screen and touch. After testing 5 positions, touch the center to exit the test.
	Keypad Type Default: No Quick Start	This option sets the keypad type for the console.
	Radio Test	This option will test the radio signal.

7.4 SERVICE MODE - LOG TAB



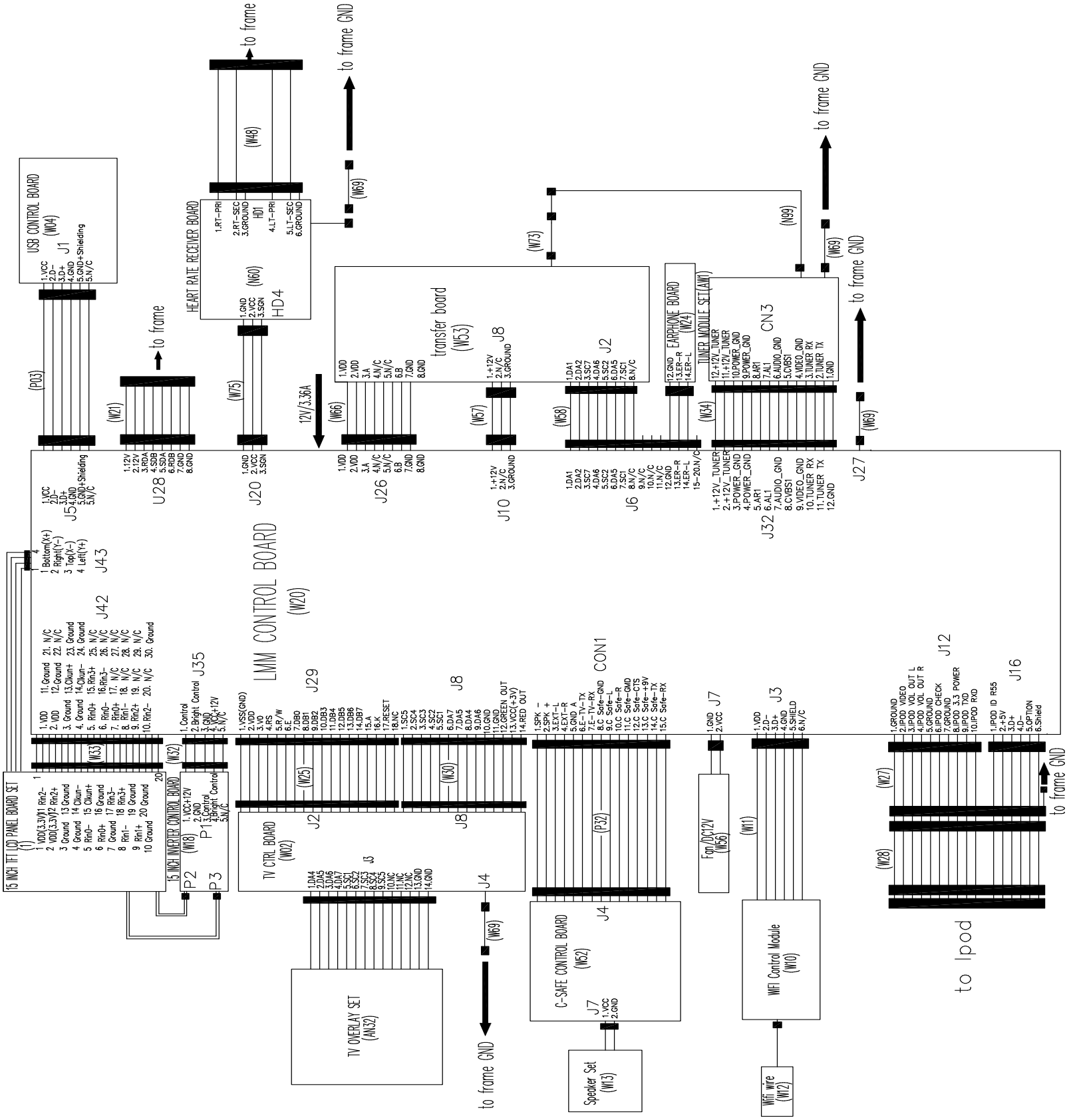
SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
	Log	This option allows the club to record key components replacement history.

7.5 SERVICE MODE - DATE & TIME TAB

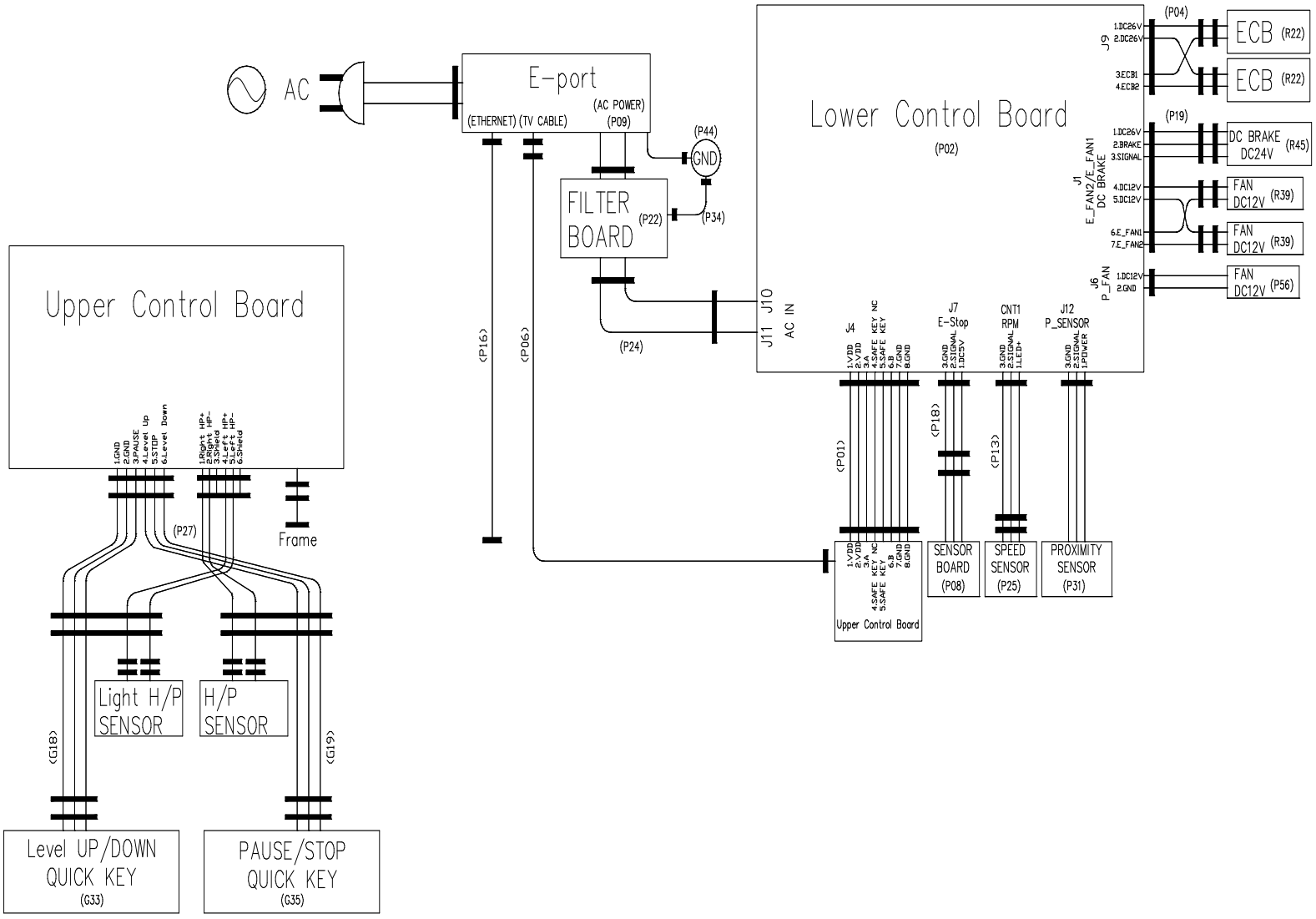


SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
	Date & Time	This option sets the current date and time of the machine.

8.1 ELECTRICAL DIAGRAMS



8.1 ELECTRICAL DIAGRAMS - CONTINUED



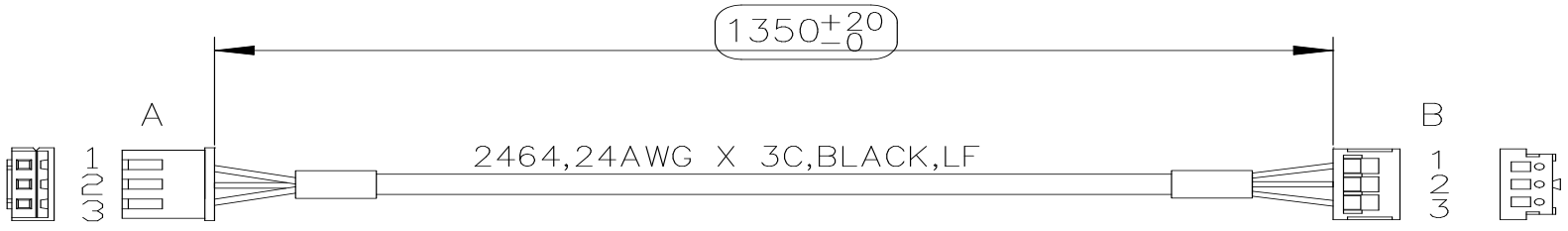
8.1 ELECTRICAL DIAGRAMS - CONTINUED

P01 - DIGITAL COMMUNICATION WIRE



A.HOLE	B.HOLE	FUNCTION	COLOR
1	1	12V	red
2	2	12V	
3	3	RDA	
4	4	SAFE KEY	
5	5	SAFE KEY	
6	6	RDB	
7	7	GND	black
8	8	GND	

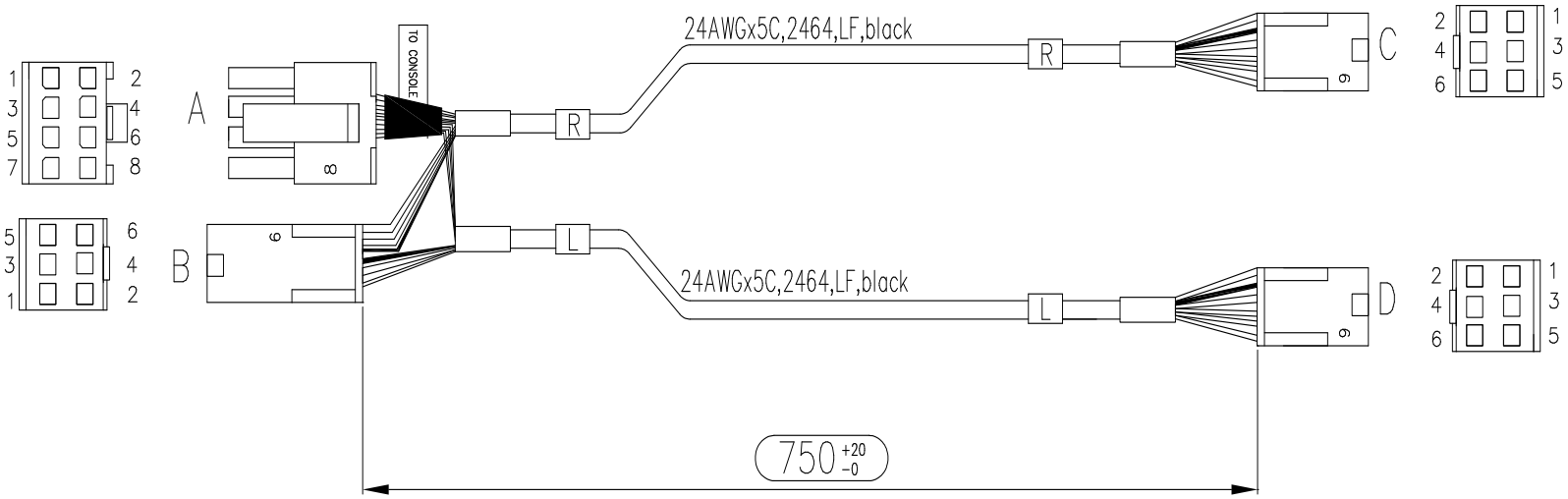
P13- SPEED SENSOR EXTENSION WIRE



A: HOLD	B: HOLD	COLOR	FUNCTION
1	1	RED	LED+
2	2	WHITE	SIGNAL
3	3	BLACK	GND

8.1 ELECTRICAL DIAGRAMS - CONTINUED

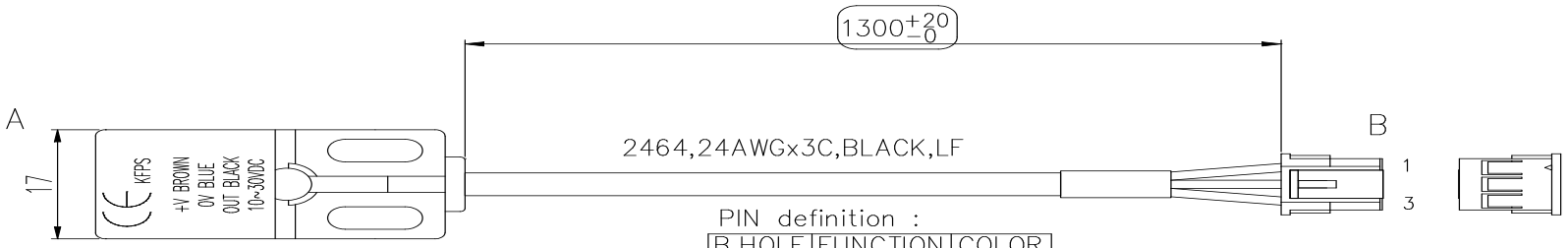
P27 - HAND PULSE WIRES



A.HOLE	B.HOLE	C.HOLE	D.HOLE	COLOR	FUNCTION
	1	4		RED	Right Hand Pulse+
	2	5		WHITE	Right Hand Pulse-
	3	6			Shield
	4		4	RED	Left Hand Pulse+
	5		5	WHITE	Left Hand Pulse-
	6		6		Shield
1		2			Gnd (Right)
2			2		Gnd (Left)
3		1			PAUSE
4			1		Level Up
5		3			Stop
6			3		Level Down
7					
8					

8.1 ELECTRICAL DIAGRAMS - CONTINUED

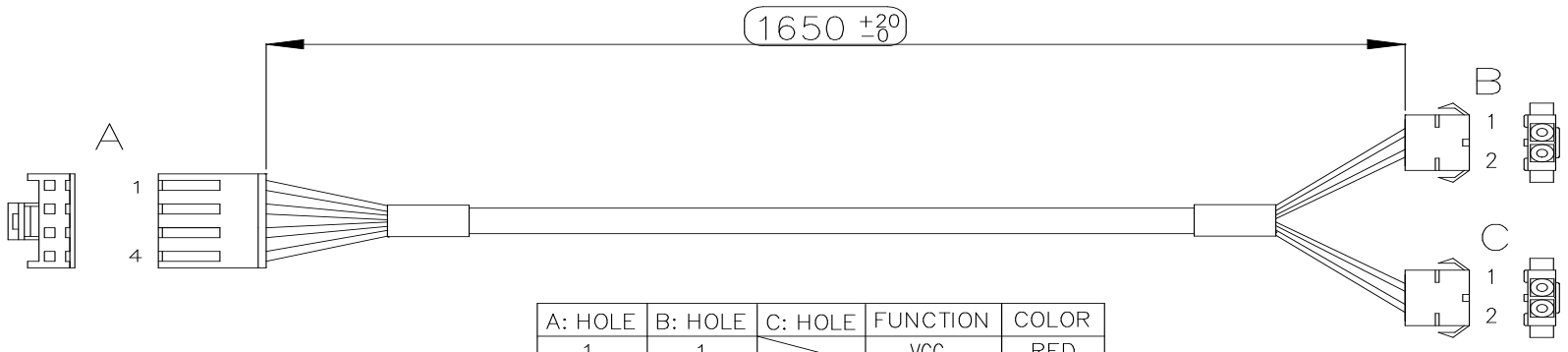
P31 - PROXIMITY SENSOR WIRE



PIN definition :

B.HOLE	FUNCTION	COLOR
1	10~30V	BROWN
2	SIGNAL	BLACK
3	GND	BLUE

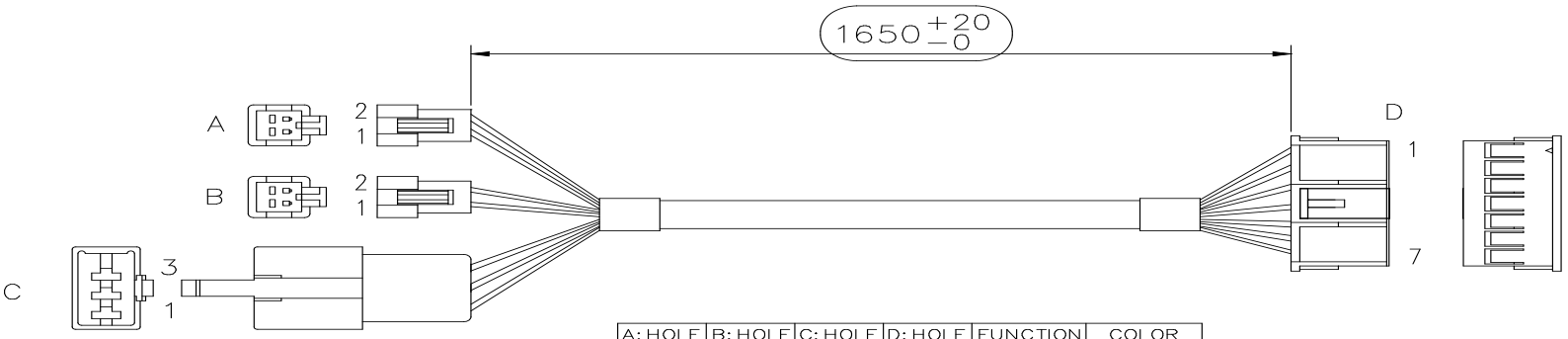
P04 - ECB LOAD WIRE



A: HOLE	B: HOLE	C: HOLE	FUNCTION	COLOR
1	1		VCC	RED
2		1	VCC	WHITE
3	2		ECB1	BLACK
4		2	ECB2	GREEN

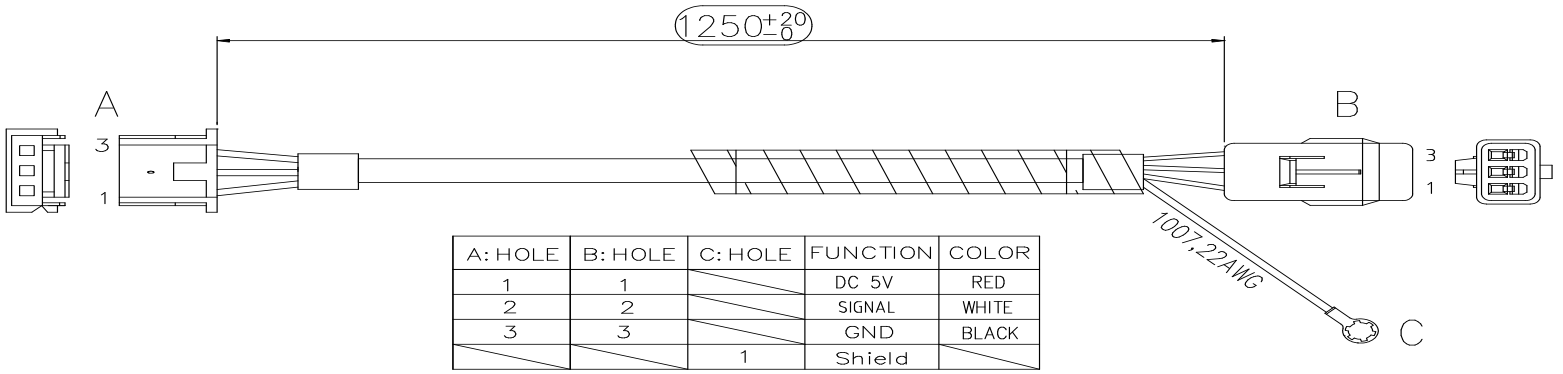
8.1 ELECTRICAL DIAGRAMS - CONTINUED

P19 - POWER SENSOR WIRE



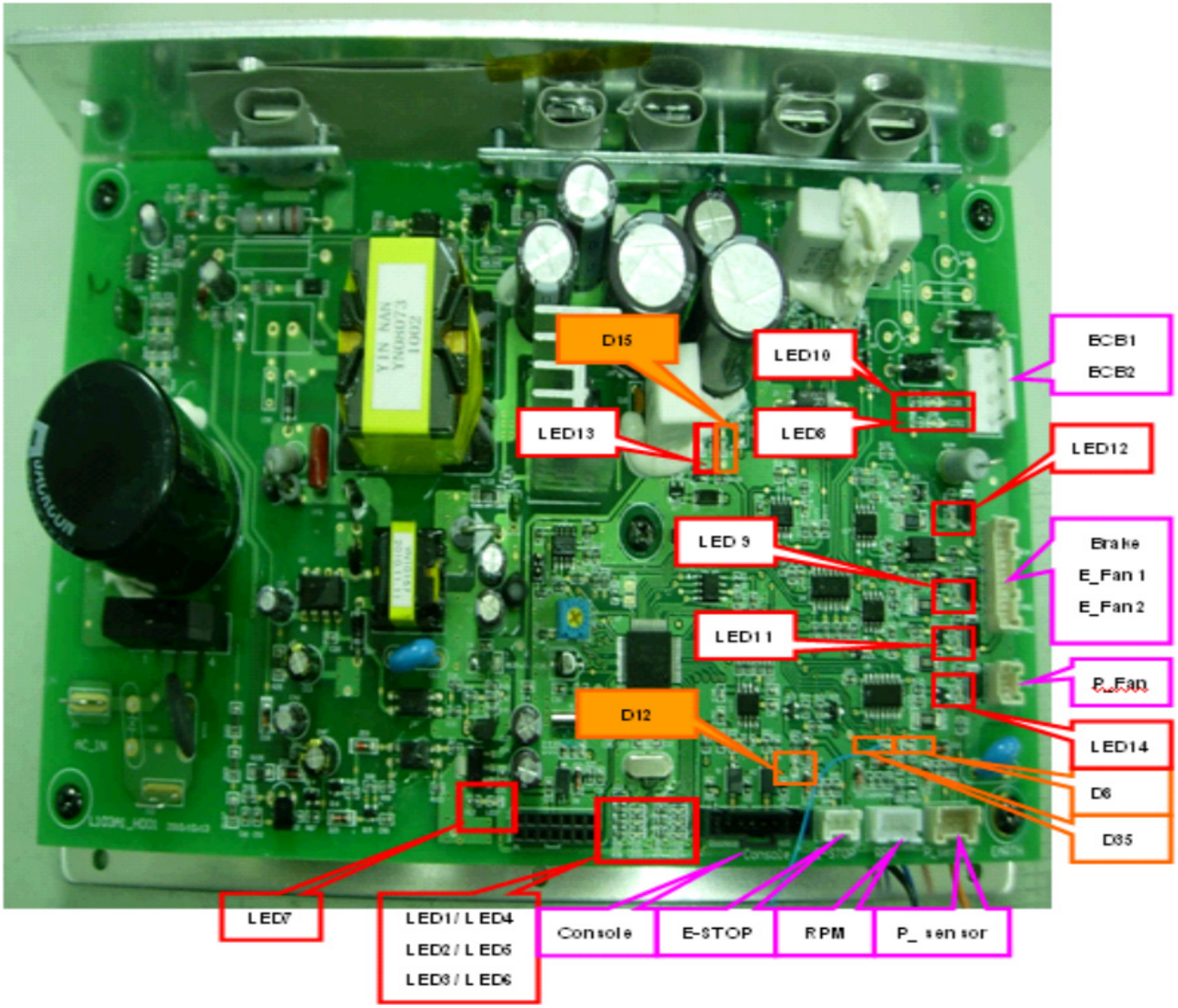
A: HOLE	B: HOLE	C: HOLE	D: HOLE	FUNCTION	COLOR
		1	1	DC24V	WHITE
		2	2	COMMON	GRAY
		3	3	SIGNAL	YELLOW
1			4	DC12V	RED
	1		5	DC12V	BLUE
2			6	E_FAN1	BLACK
	2		7	E_FAN2	GREEN

P18 - CONTROL ZONE SENSOR WIRE



A: HOLE	B: HOLE	C: HOLE	FUNCTION	COLOR
1	1		DC 5V	RED
2	2		SIGNAL	WHITE
3	3		GND	BLACK
		1	Shield	

8.2 LCB ERROR INDICATORS



8.2 LCB ERROR INDICATORS - CONTINUED

LED	DESCRIPTION	DISPLAY STATUS
LED1	LCB Status	Flashing - Normal OFF - Default
LED2	Start or Stop	Flashing - Workout Start Off - Workout Stop
LED3	Safety Stop (E-Stop)	Light - E-Stop Active Off - E-Stop Not Active
LED4	Safety Key action status (Brake)	Light - The brake is triggered. Off - The brake is not triggered.
LED5	LCB Error Status	Light - LCB with error. Off - LCB without error.
LED6	UCB and LCB Communication Status	Indicates if the digital communication is working normally between the console and the MCB. Flashing - Normal. Off - Abnormal
LED7	MCU Power Lamp	Light - MCU working Off - MCU not working
LED8	Electro Magnet Device 2 PWM Lamp.	Light - ECB2 active. Off - ECB2 not active.
LED9	Electro Magnet Device 2 Fan Lamp.	Light - Fan 2 of ECB2 active. Off - Fan 2 of ECB2 not active.
LED10	Electro Magnet Device 1 PWM Lamp.	Light - ECB1 active. Off - ECB1 not active.
LED11	Electro Magnet Device 1 Fan Lamp.	Light - Fan1 of ECB1 active. Off - Fan1 of ECB1 not active.
LED12	DC Brake Release Lamp	Light - The brake is active (release position). Off - The brake is not active (lock position).
LED13	DC 26V Lamp	Indicates if the voltage supply is present. Light - Normal Off - 26V not supplied by LCB.
LED14	Fan of LCB	Light - Fan active on LCB. Off - Fan on LCB has no action.
D8	Safety Switch Power Lamp (E-Stop)	Light - E-Stop function. Off - No E-Stop function.
D12	RPM Lamp	Flashing - Detecting RPM from speed sensor. Light - No RPM from speed sensor detected.
D15	Proximity Sensor Lamp	Light - No signal from proximity sensor detected. Off - Signal from proximity sensor detected.
D35	DC 12V Lamp	Indicates if the voltage supply is present. Light - Normal Off - 12V are not provided by the LCB.

8.3 CONSOLE ERROR CODES

CODE	DESCRIPTION	CONDITION	SOLUTION
01AC	Electro magnet over current.	The electro magnet current is between 1.6 - 2.0 amps for a continuous 60 seconds or over 2.0 amps for 1 second.	1. Check the connection of the electro magnet wire. 2. Check that the resistance on the electro magnet. It should be 13.5 (+/- 5%) ohms under normal conditions.
01AF	The electro magnet is disconnected.	The electro magnet current <200mA for over 2 seconds.	1. Check the connection of the electro magnet wire. 2. Check that the resistance on the electro magnet. It should be 13.5 (+/- 5%) ohms under normal conditions.
02A0	Encoder error.	In the workout, the speed is not detected by the proximity sensor for 5 continuous seconds.	1. Check the connection of the sensor. 2. Turn the pedal and check if LED D35 on the LCB flashes.
02BE	DC brake error.	The brakes in the lock position, but speed is not zero for 5 continuous seconds.	1. Check the connection of the sensor. 2. Check the brake.
02BF	DC brake over current.	The brake current is over 1 amp for 3 continuous seconds.	1. Check the connection of the sensor. 2. Check the brake impedance.
02C0	DC brake in manual mode.	The brake is in the unlocked position when in standby mode.	1. Check the position of the brake, change to the locked position. 2. Replace the brake.
02C1	Speed tracking error.	The speed tracking accuracy is off by over 10 RPMs for 20 continuous seconds.	1. Check the resistance system. 2. Check the LCB.
0440	Timeout packet received.	Over 500 messages. LCB cannot receive any more data.	1. Check the connection of the console cable at the LCB and UCB. Replace the UCB, LCB, or CC as needed.
0441	Correct packet received, but the LCB has no function.	LCB not supporting the command.	1. Check the UCB and LCB software versions are compatible.
04A0	Communication disconnected.	There is a packet gap of over 5 seconds	1. Check the connection of the console cable at the LCB and UCB. Replace the UCB, LCB, or CC as needed.
04B0	UCB no communication response.	LCB has no message to return to the UCB for over 5 seconds.	1. Check LED6 on the LCB. If LED6 is blinking, replace the UCB or console cable. If LED6 is not blinking, replace the LCB.
0249	Fan over current.	The fan control current >..14 amps for 5 continuous seconds.	1. Check to see if the fan is running.
024A	Safety switch error.	No data received for over 5 seconds.	Check the safety switch communication wire.
024B	One step sensor error.	The speed is not zero, and the system cannot detect a signal from the step sensor for 10 seconds.	1. Check the connection of the step. 2. Use metal to touch the sensor wire and check if LCB LED D8 is lit. It is normally off.

8.4 ERROR CODE TROUBLESHOOTING - 01AC

ERROR CODE 01AC

1) SYMPTOM:

a. 01AC - Electro magnet over current.

2) SOLUTION:

a. On standby mode, measure the resistance on ECB1 and ECB2 (Figure A). There should be 13.5 (+/- 5%) ohms.
- If the ECB resistance is over the range, replace the ECB.
- If the ECB resistance is under the range, replace the LCB.

b. On workout mode, check the gapping of ECB1 and ECB2 (Figure B). There should be a gap of under .5mm between the ECB and flywheel.
- Try to adjust the gap if possible.
- If the gap is over the range, replace the ECB.
- If the gap is under the range, replace the LCB.



FIGURE A

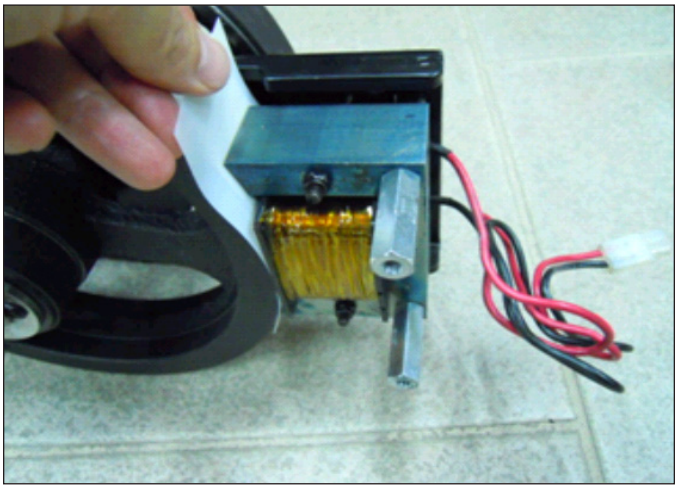


FIGURE B

8.5 ERROR CODE TROUBLESHOOTING - 01AF

ERROR CODE 01AF

1) SYMPTOM:

a. 01AF - Electro magnet disconnected.

2) SOLUTION:

a. Check the connection of the ECB extension cable from the LCB to the ECB (Figure A).
b. Check to see if LED8 and LED10 on the LCB have a brief light when you power on the machine.
- If LED8 and LED10 do not have a brief light, replace the LCB.
- If LED8 and LED10 do have a brief light, check the ECB extension cable connection at the LCB (pins 1 & 3 for ECB1, pins 2 & 4 for ECB2).

c. Check the resistance at the ECB extension cable and at the ECB (Figure B).
- If the ECB resistance has an ohm value but does not when checking after the extension cable, replace the ECB extension cable.
- If the ECB resistance does not have an ohm value at any time, replace the ECB.

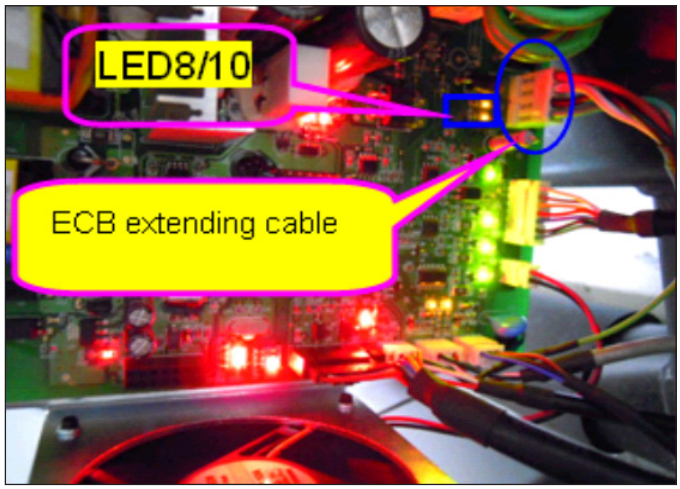


FIGURE A



FIGURE B

ERROR CODE 02A0

1) SYMPTOM:

a. 02A0 - Encoder error.

2) SOLUTION:

a. Check the connection of the speed sensor cable from the LCB to the speed sensor (Figures A & B).
b. Check the 3 pins of the speed sensor connection for broken or bent pins. Replace the speed sensor if needed.
c. In standby mode, turn the brake to the left release position.
d. Check to see if LED D35 on the LCB is lit when the machine is on standby (Figure A).
- If LED D35 is off, check the LCB. Remove the speed sensor cable from the RPM socket on the LCB, set your multi-meter to DC voltage and place both terminals on pins 1 & 3 and 2 & 3 of the RPM socket. There should be a reading of about 5V (Figure C).
- If LED D35 is lit, re-install the speed sensor wire. Set your multi-meter to DC voltage, and place the terminals on pins 1 & 3 and 2 & 4 on the back side of the speed sensor cable. There should be a reading of about 5V (Figure D). if the reading is incorrect, replace the speed sensor.
e. Check to see if LED D35 on the LCB is flashing while in the unit is in use.
- If LED D35 is not flashing while the unit is in use, replace the speed sensor.

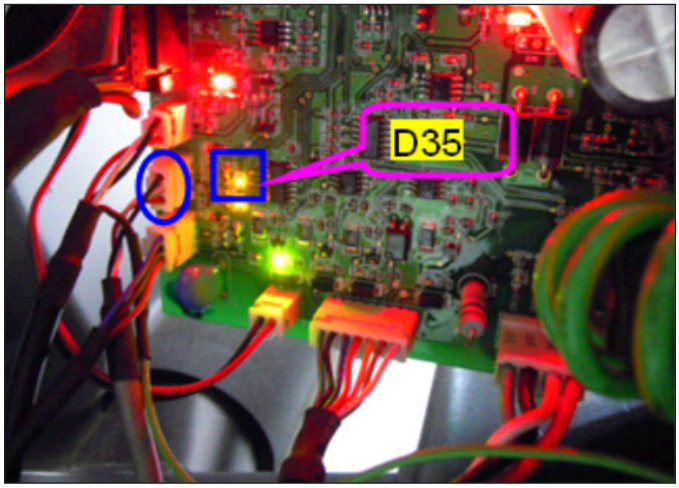


FIGURE A

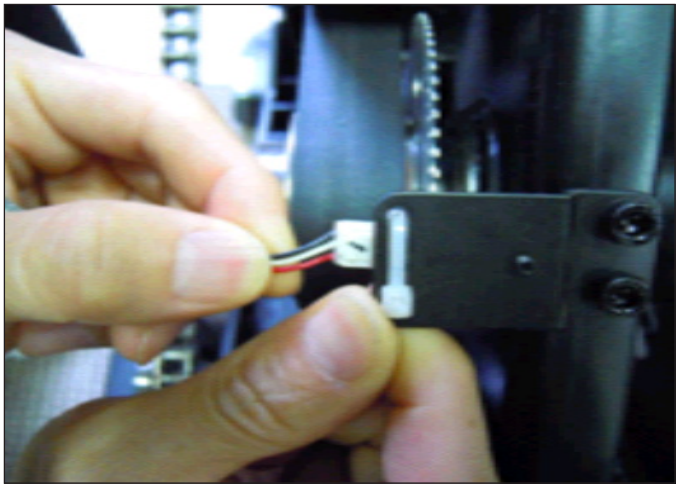


FIGURE B

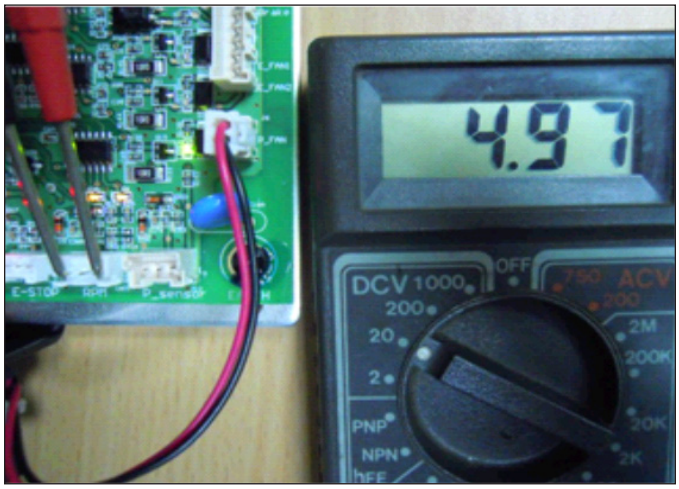


FIGURE C



FIGURE D

ERROR CODE 02BE

1) SYMPTOM:

a. 02BE - DC brake error.

2) SOLUTION:

a. Check to see if the steps are slipping when you move them during standby mode.
- If the brake is slipping, replace it.

8.8 ERROR CODE TROUBLESHOOTING - 02BF

ERROR CODE 02BF

1) SYMPTOM:

a. 02BF - The DC brake is over current or no current.

2) SOLUTION:

a. Check the connection of the brake at the brake extension wire (Figure A) and LCB (Figure B).

b. Check to see if LED12 on the LCB is lit when you run the machine.

- If LED12 is not lit, remove the brake extension wire from the J1 socket on the LCB. Measure the voltage across pin 1 and pin 2 of the brake cable. If no voltage is present, replace the LCB. If voltage is present, continue to Step C.

c. Take a resistance reading on pin 1 and pin 2 of the DC brake connector (Figure C). The reading should be approximately 52 ohms.

- If the resistance is lower than 52 (or there is no resistance), replace the brake.
- If the brake does not resolve the issue, replace the brake cable.

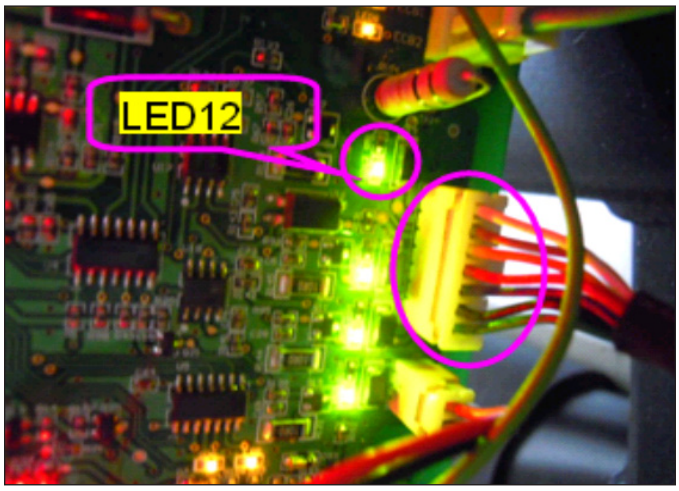


FIGURE A

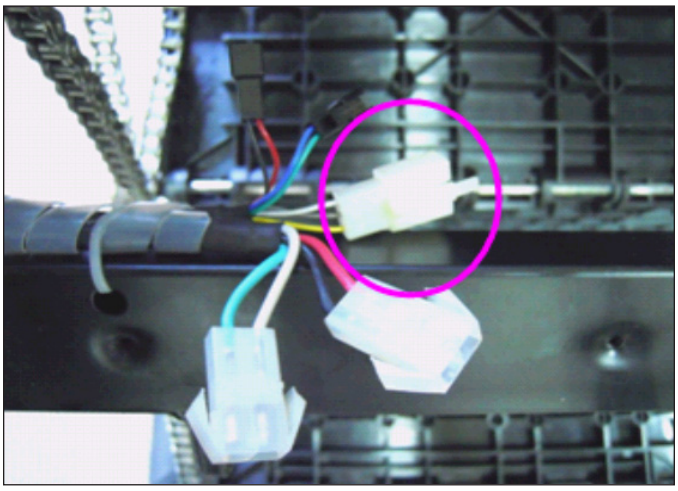


FIGURE B

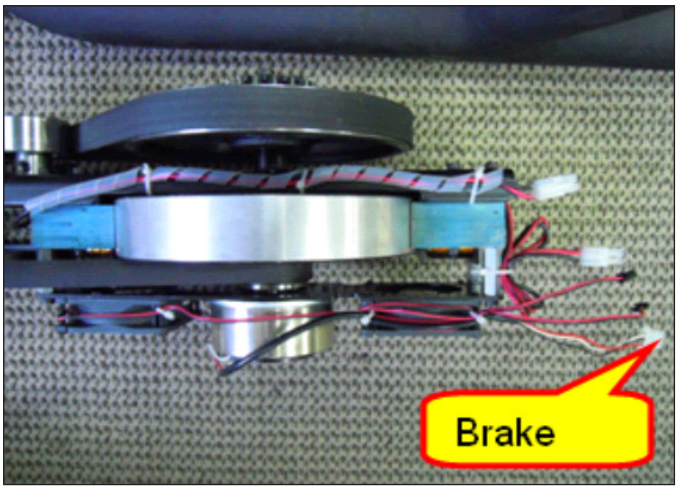


FIGURE C

ERROR CODE 02C0

1) SYMPTOM:

a. 02C0 - DC brake in manual mode.

2) SOLUTION:

a. Check if the DC brake is in the lock position when the unit is on standby (Figure A).
- If the brake is not in the lock position, turn the brake to the right as shown in Figure A.
- If the brake is in the lock position, remove the brake extension wire from the J1 socket on the LCB, then continue to Step b.

b. Measure the resistance across pin 2 and pin 3 on the brake extension wire (Figure B).
- If a resistance reading is shown, replace the brake.
- If no resistance reading is shown, replace the LCB.



FIGURE A

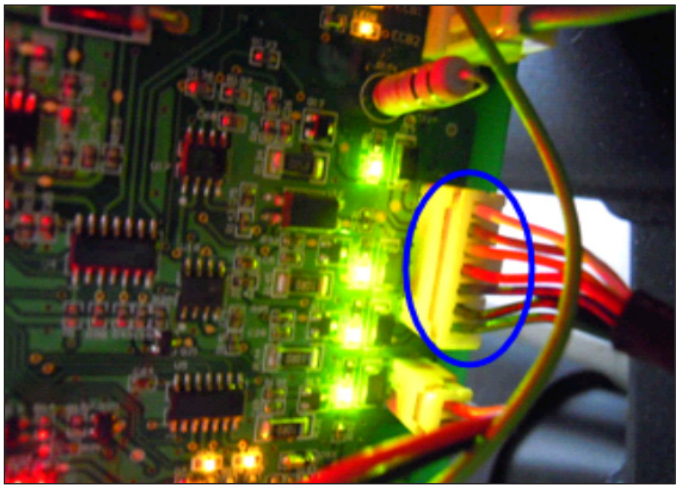


FIGURE B

8.10 ERROR CODE TROUBLESHOOTING - 02C1

ERROR CODE 02C1

1) SYMPTOM:

a. 02C1 - Speed tracking error.

2) SOLUTION:

a. On L1 level, the default RPM should be 10-12. Measure the real RPM on the bearing in front of the sprocket (Figure A). Subtract the default RPM from the real RPM.

- If the result is over 10 RPMs, you need to check the resistance on ECB1 and ECB2. The resistance should be approximately 13.6 ohms (Figure B).
- If the ECBs are outside of this range, replace the defective ECB.
- if the ECB readings are good, check the gap between the ECB and the flywheel (should be approximately .5mm).
- If none of these solutions fix the issue, replace the LCB.



FIGURE A



FIGURE B

8.11 ERROR CODE TROUBLESHOOTING - 0440 / 04A0

ERROR CODES 0440 & 04A0

1) SYMPTOM:

a. 0440 - Timeout packet received.
b. 04A0 - Communication disconnected.

2) SOLUTION:

a. If the display is giving an 04A0 error, LED6 on the LCB should be off (Figure A). If this light is not lit, and an 04A0 error is present, replace the console.
b. Check the connection of the console cable at the UCB and LCB (FIgures A & B).
c. One at a time, check for resistance through the console cable at both the LCB and UCB.
- If there is no resistance, replace the console cable.
- If the console cable does not resolve the issue, replace the LCB.



FIGURE A

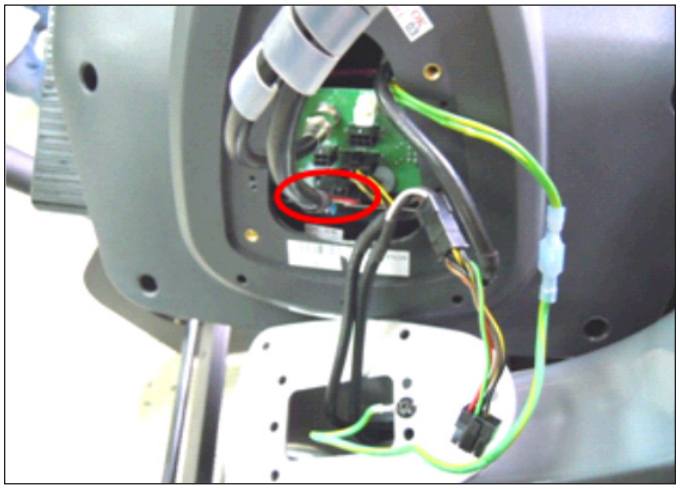


FIGURE B

8.12 TROUBLESHOOTING - NO POWER TO THE CONSOLE

NO POWER TO THE CONSOLE

1) SYMPTOM:

a. The unit is not getting power from the outlet.
b. The LCB is not getting power from the power receptacle.
c & d. The LCB LEDs are lit, but there is no power to the console.

2) SOLUTION:

a. Remove the front cover and check to see if LED D15 is lit on the LCB (Figure A). If it is not, verify power at the outlet. If the outlet is not outputting 120V, check the fitness room power.
- If LED D15 is still not lit after checking fitness room power, replace the power cord.

b. Check if LED D15 on the LCB is lit. If it is not lit, check for incoming AC voltage at the LCB.
- Replace the power components as needed if voltage is not present.
- Replace the LCB if all power components are ok and there is AC voltage to the LCB.

c. Check to see if LED D18 is lit on the UCB (Figure B).
- If LED D18 is lit, check the switch on the back of the IO Board. It should be pointed towards the right side (Figure B).
- If LED D18 is not lit, check the console cable connection at the LCB and console. If this does not resolve the issue, replace the console cable. If LED D18 is still not lit, replace the console.

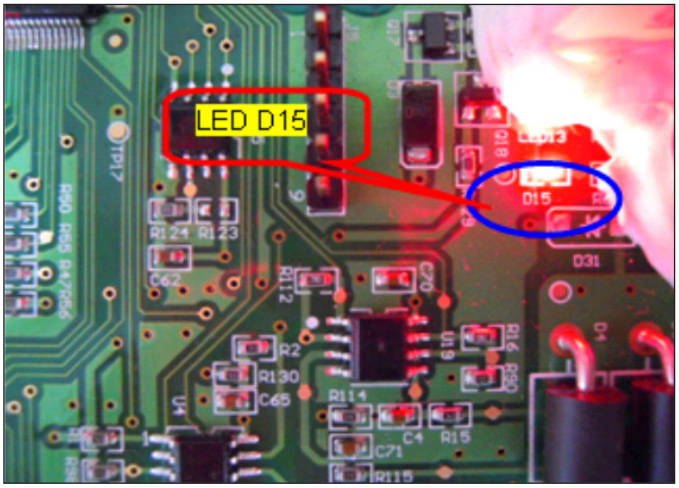


FIGURE A

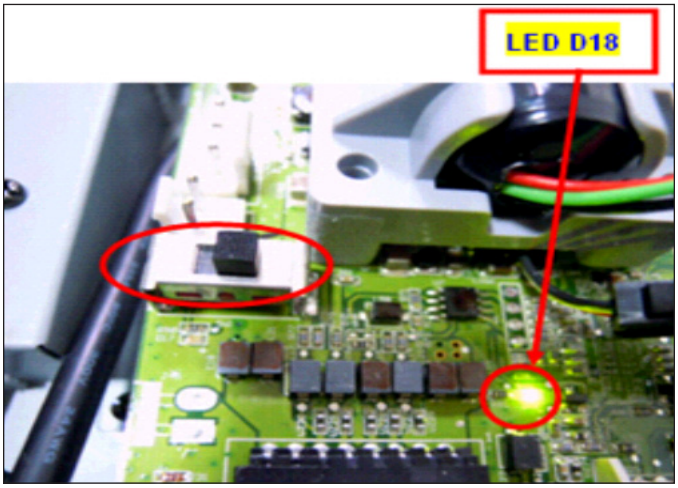


FIGURE B

8.13 TV TROUBLESHOOTING - OVERVIEW

Sections 8.13 - 8.16 will assist with diagnosing problems with TV and entertainment related equipment sold by Matrix FItness Equipment.

The Matrix Climb Mill includes an integrated TV that shows in the large display window. The TV is capable of being shown as a 7" or 15" screen (Figures A & B). The console should be equipped with an entertainment keypad similar to Figure C.



FIGURE A



FIGURE B



FIGURE C

8.14 TV TROUBLESHOOTING - PICTURE FUZZY OR UNCLEAR

1) For a fuzzy or unclear picture, see the TV programming instructions in Section 10. If the TV is still fuzzy or unclear after programming:
   a) Check the coax connection at the entertainment port (Figure A).
   b) Remove the 5 screws holding the console to the console mast and check the coax connection at the console (Figure B).



FIGURE A

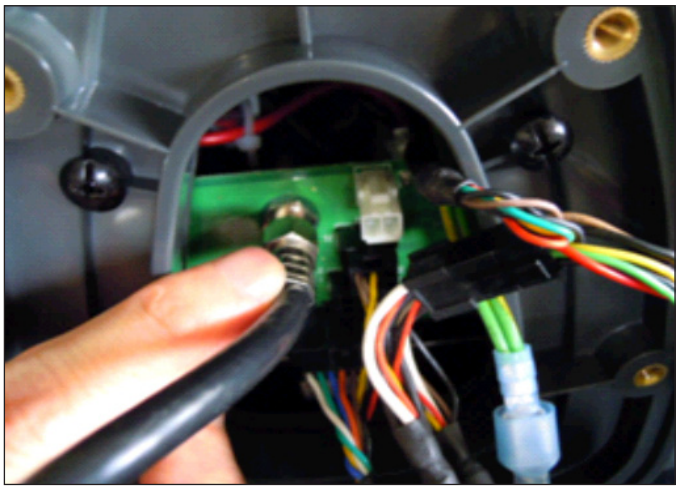


FIGURE B

c) Use a verified good piece of coax cable (a good coax cable will have a signal strength of 10hz or greater) to plug directly into the back of the console bypassing the entertainment port. If this resolves the issue, replace the internal coax cable.

d) If plugging the coax cable into the back of the console does not resolve the issue, remove the console back and check the console cable connection at the tuner (Figure C).

e) Check the internal cables and fitting inside your machine at the console and below the front shroud (Figure D). Make sure you have no kinks, cuts, or poor connectors at the end of the cable. Fittings should have a clean flush connector with no stray aluminum strands touching the center conductor. Replace any suspect cables.

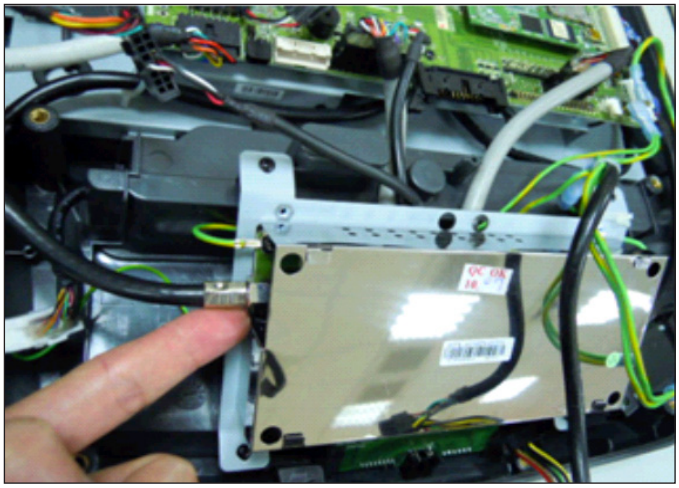


FIGURE C

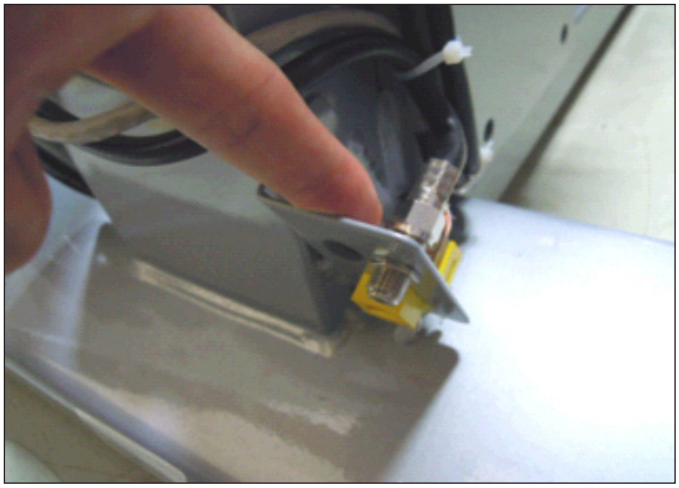


FIGURE D

f) If no damage can be found on the cables, fittings, or connectors, and hooking the coax directly to the back of the console does not resolve the issue, replace the TV tuner.

8.15 TV TROUBLESHOOTING - TV WILL NOT TURN ON

1) Remove the console back and check the electrical connections for the TV (Figures A & B).

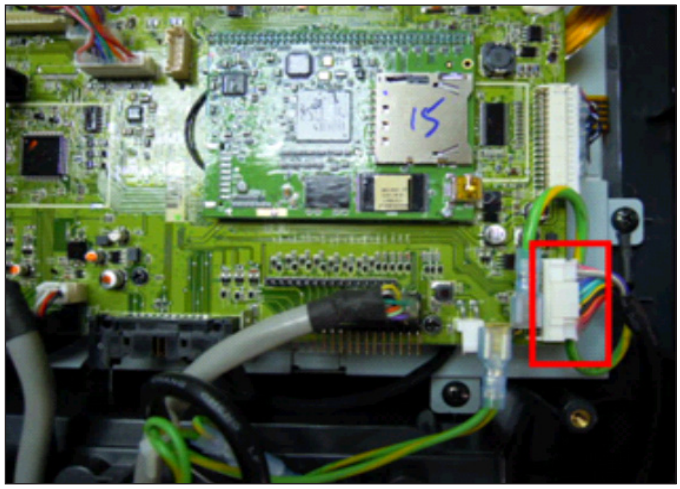


FIGURE A

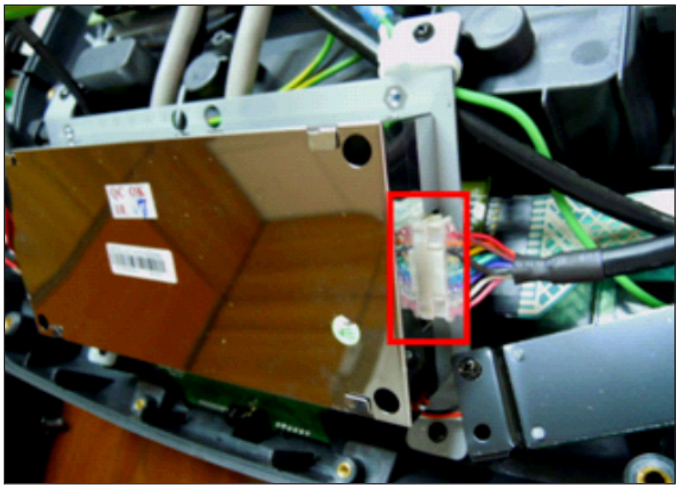


FIGURE B

2) After you have verified that all connects are secure, and the problem still persists, verify power at the outlet (Figure C). If the outlet is not outputting 120V, check the fitness room power.
3) If internal electrical connections are good, and the outlet is outputting 120V, the issue is likely with the TV. Replace the console.

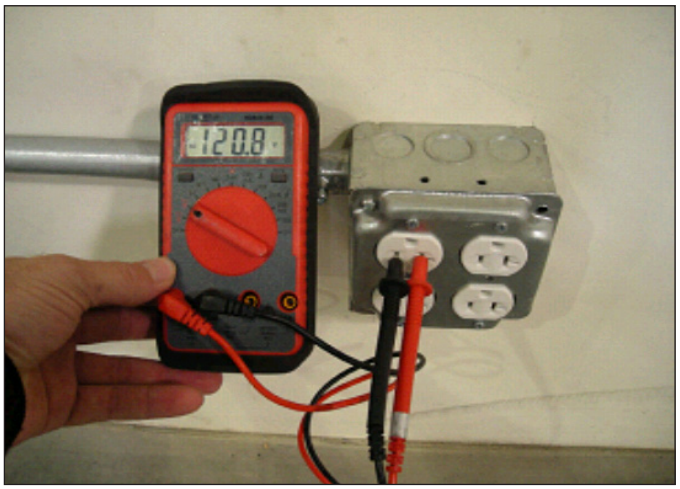


FIGURE C

8.16 TV TROUBLESHOOTING - ENTERTAINMENT KEYPAD ISSUES

ENTERTAINMENT KEYPAD IS NOT WORKING

1) SYMPTOM:

a. The entertainment keypad (Figure A) is not responding.

2) SOLUTION:

a. Remove the console and check the connection of the entertainment keypad (Figure B).
b. If the entertainment keypad cable is pinched, kinked, or cut replace the keypad.
c. If replacing the keypad does not resolve the issue, replace the console.



FIGURE A

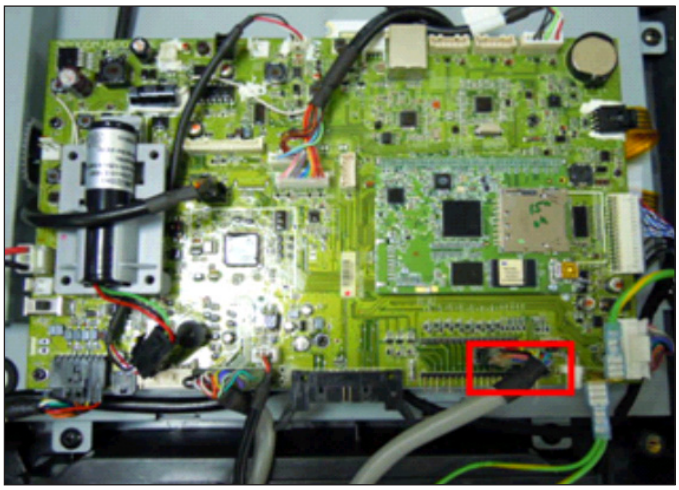


FIGURE B

9.1 SIDE COVER REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Pull up on the Control Zone carefully (Figure A).
3) Unplug the wire connector from the Control Zone and remove the Control Zone from the unit (Figure B).



FIGURE A



FIGURE B

4) Remove the 3 screws and remove the small Matrix logoed cover at the top of the stairs (Figures C & D).

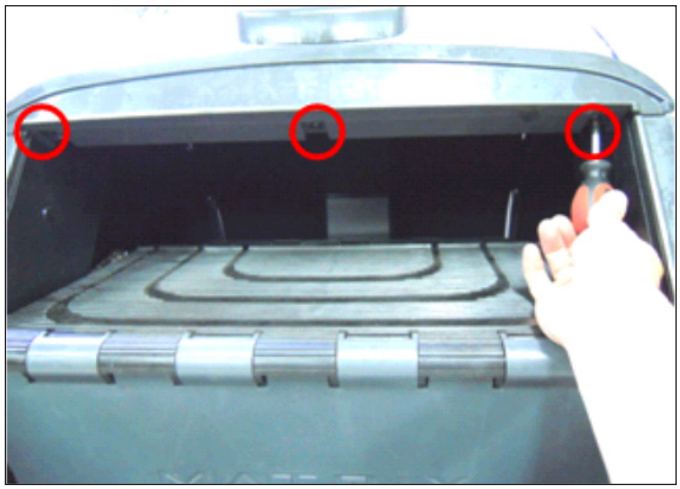


FIGURE C



FIGURE D

9.1 SIDE COVER REPLACEMENT - CONTINUED

5) Rotate the 2 plastic clips counter-clockwise to remove the Matrix logoed cover (Figures E & F).



FIGURE E



FIGURE F

6) Remove the 4 screws holding the side cover to the frame and pull up on the side cover to remove it (Figures G & H).

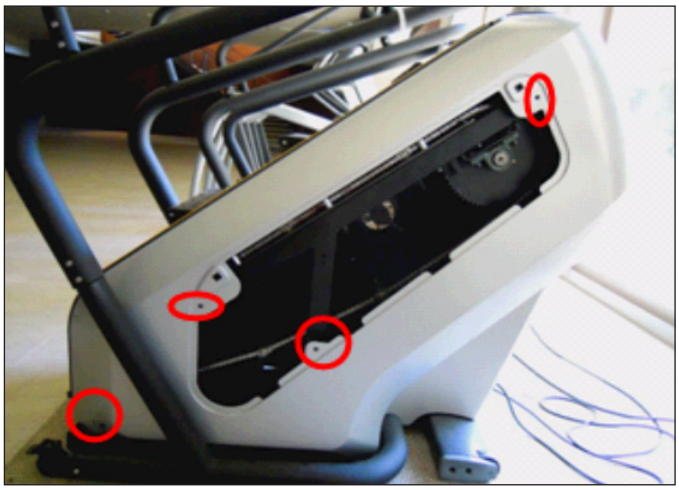


FIGURE G



FIGURE H

7) Reverse Steps 1-6 to install a new side cover.

9.2 CONSOLE REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove the 5 screws that hold the console to the console mast (Figure A).
3) Disconnect the console cable and other wiring from the console, then remove the console (Figure B).



FIGURE A

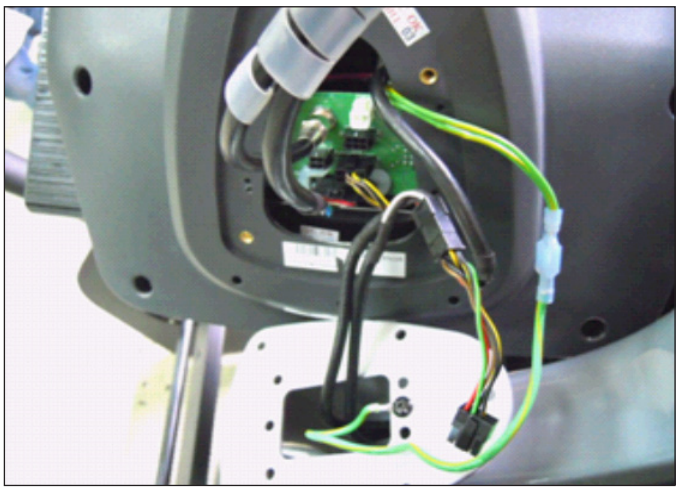


FIGURE B

4) Connect the wiring to the new console.
5) Carefully push the wires into the console and console mast until they are clear of the console / mast connection.
6) Attach the console to the console mast using the screws removed in Step 2.
7) Test the Climb Mill for function as outlined in Section 9.20.

9.3 CONSOLE OVERLAYS & KEYPADS REPLACEMENT

1) Remove the console as outlined in Section 9.2.
2) Remove the back cover of the console (Figure A).
3) Unplug and remove the faulty overlay (Figure B).



FIGURE A

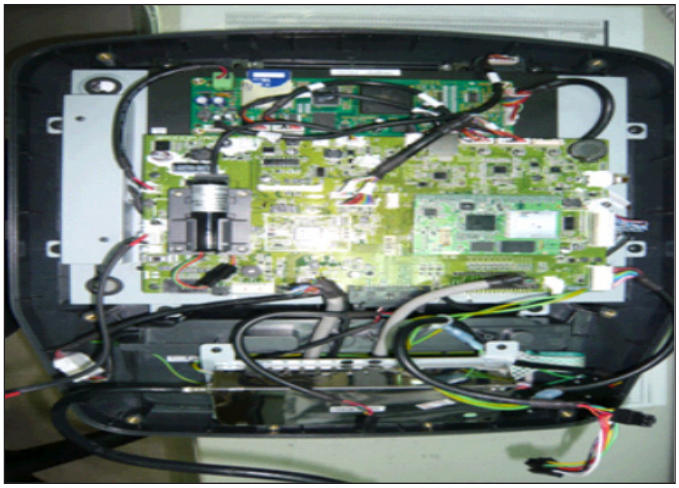


FIGURE B

4) Clean the console area with alcohol to remove any left over adhesive (Figure C).
5) Peel part of the protective film from the back of the overlay / keypad (Figure D).



FIGURE C



FIGURE D

9.3 CONSOLE KEYPAD / OVERLAY REPLACEMENT - CONTINUED

6) Push the overlay / keypad ribbon cable through the hole in the console and plug it in (Figure E).
7) Match the overlay / keypad to the cutout in the console (Figure F).



FIGURE E



FIGURE F

7) Press down on the corners of the overlay / keypad to keep it in place. Then remove the protective film (Figure G).
8) Once the overlay / keypad is in the correct position, press down on it to adhere it in positions (Figure H).



FIGURE G



FIGURE H

9) Use the same procedure to replace any additional faulty overlays / keypads. ***NOTE:*** Overlays / keypads cannot be re-used.
10) Test the Climb Mill for function as outlined in Section 9.20.

9.4 FRONT SHROUD REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove all of the cables from the front cover (Figure A).
3) Remove the 2 screws from the front cover and remove it (Figure B).



FIGURE A

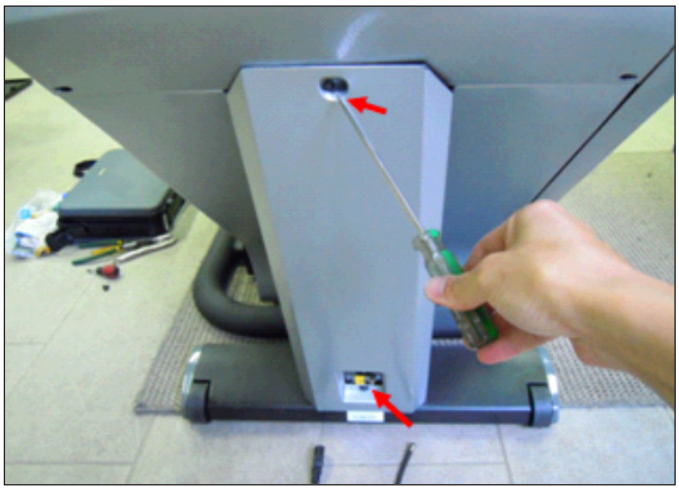


FIGURE B

4) Remove both side covers as outlined in Section 9.1.
5) Remove the console as outlined in Section 9.2.
6) Remove the 3 screws on each side that connect the front shroud to the frame (Figure C).
7) Remove the 5 screws that hold the upper handlebar set to the console mast (Figure D).



FIGURE C

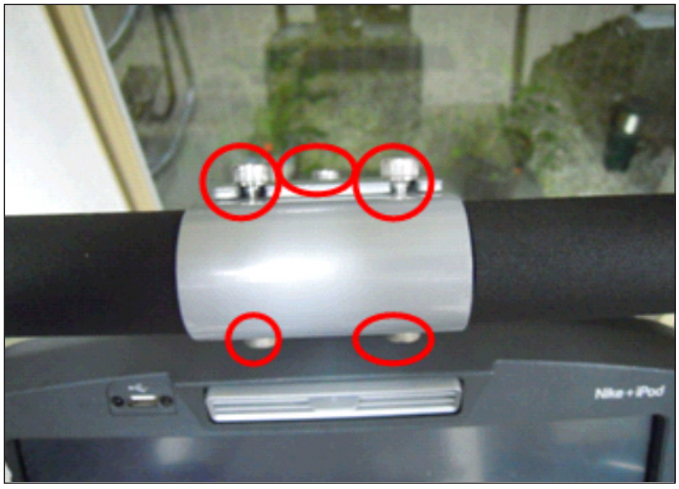


FIGURE D

9.4 FRONT SHROUD REPLACEMENT - CONTINUED

8) Disconnect the hand pulse and quick key cables on the inside of the console mast (Figure E).
9) Remove the 8 screws holding the lower handlebar set to the console mast (Figure F).

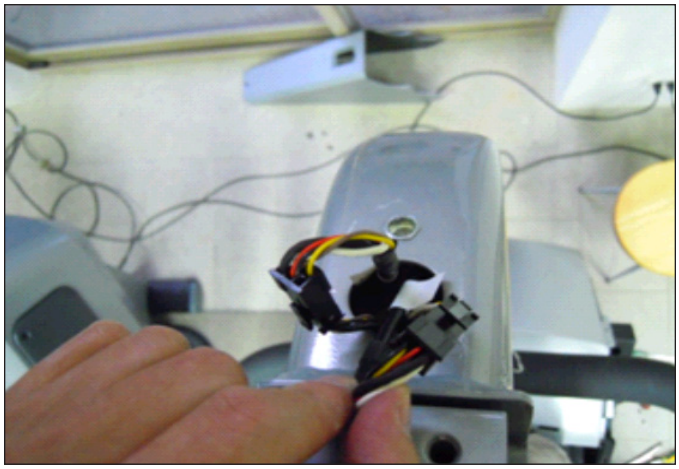


FIGURE E

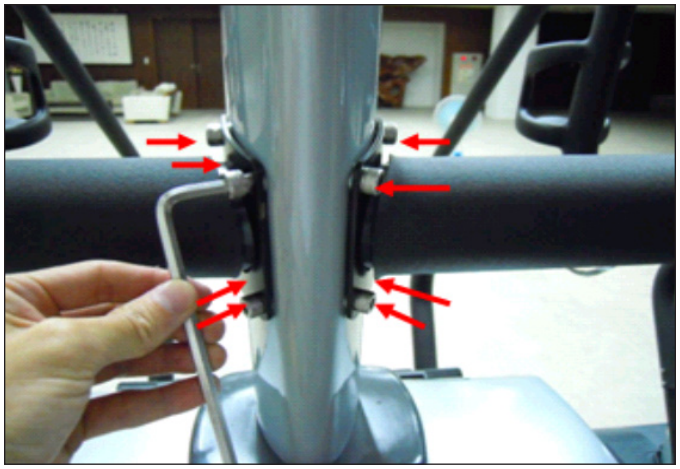


FIGURE F

10) Remove the 4 screws that attach the console mast to the frame (Figure G).
11) Pull the cables out of the console mast and remove it (Figure H).

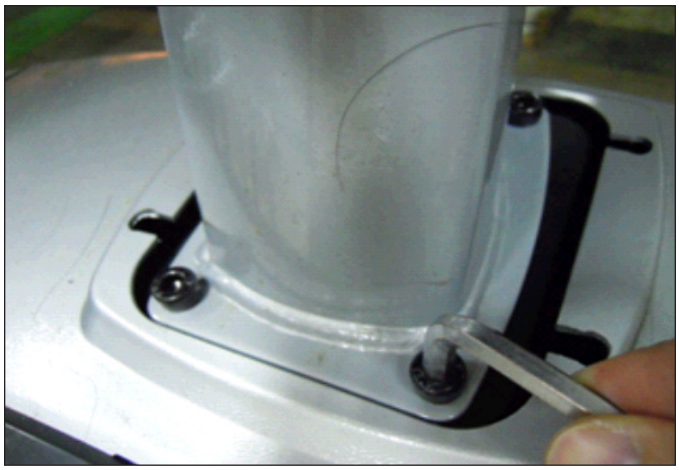


FIGURE G



FIGURE H

12) Remove the 4 screws holding the front shroud to the sides (Figure I).
13) Pull up on the front shroud and remove it (Figure J).



FIGURE I

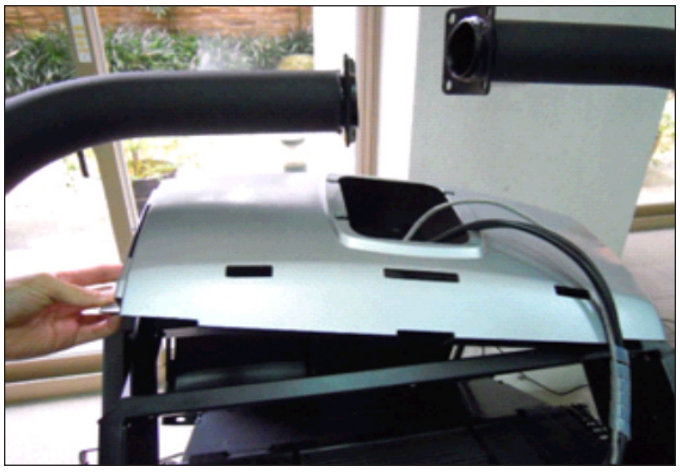


FIGURE J

14) Reverse Steps 1-13 to install a new front shroud.
15) Test the Climb Mill for function as outlined in Section 9.20.

9.5 LOWER CONTROL BOARD (LCB) REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove all wiring from the front cover and remove it from the machine as outlined in Section 9.4.
3) Disconnect all wiring from the LCB (Figure A).
4) Remove the 2 screws holding the LCB to the frame and remove the LCB (Figure B).

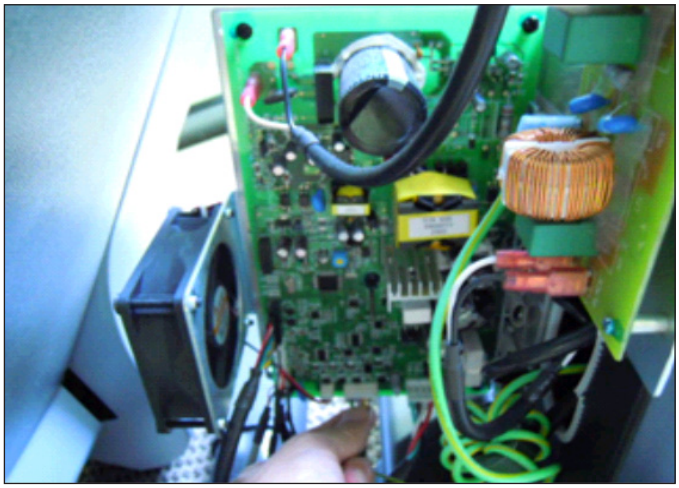


FIGURE A

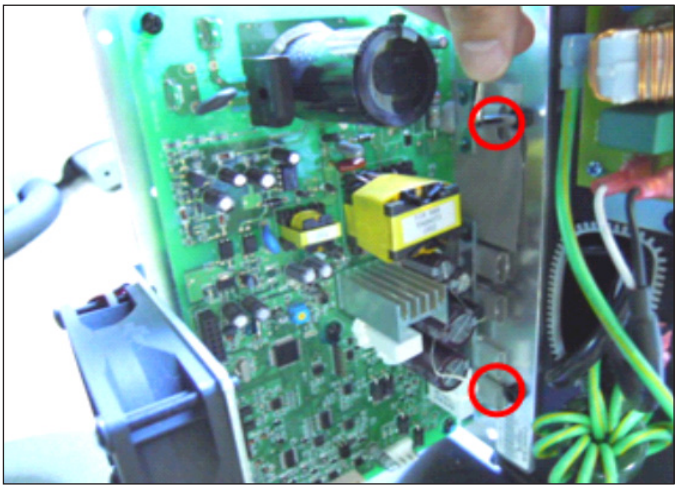


FIGURE B

5) Remove the 2 screws that hold the fan to the LCB and remove it (Figure C).

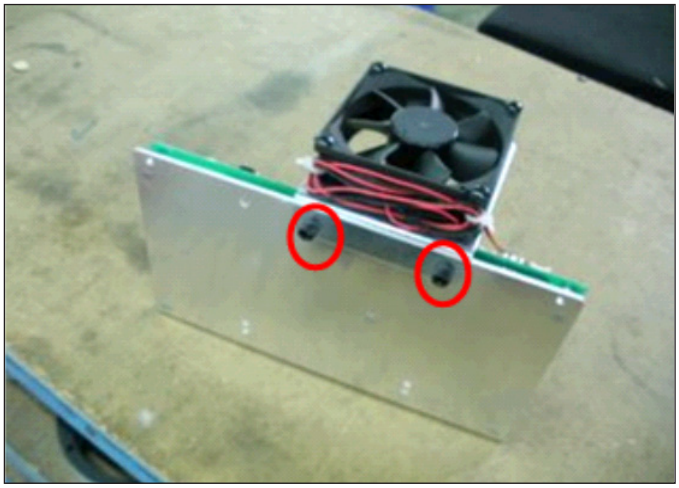


FIGURE C

6) Reverse Steps 1-5 to install a new LCB.
7) Test the Climb Mill for function as outlined in Section 9.20.

9.6 UPPER HANDLEBAR REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove the 5 screws holding the upper handlebar set to the console mast (Figure A).
3) Pull out the right handlebar and hand grip cable (Figure B).

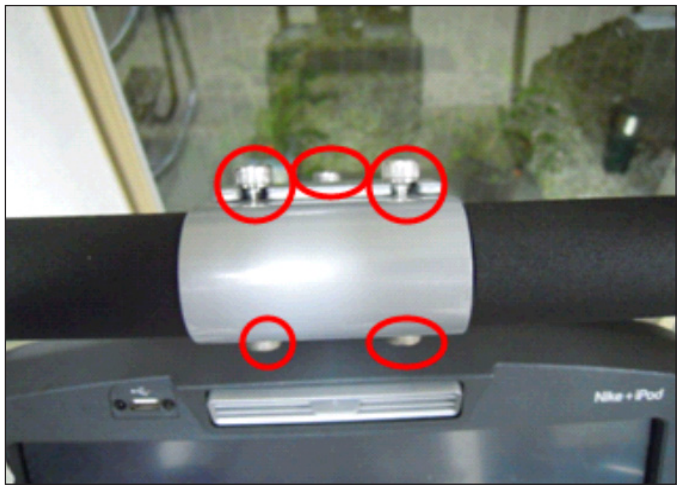


FIGURE A

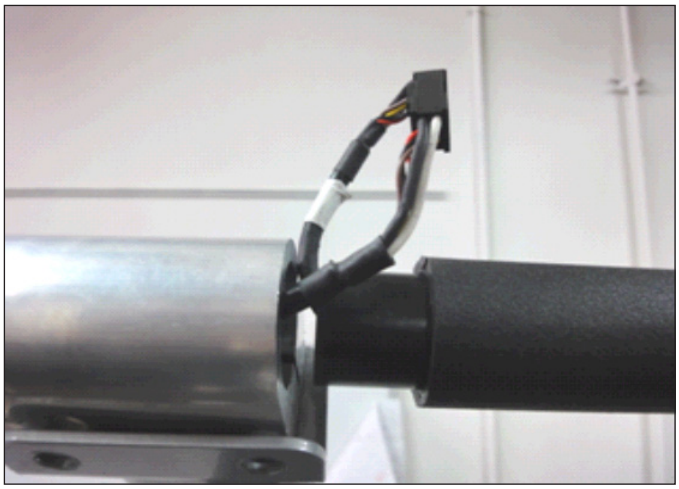


FIGURE B

4) Disconnect the wiring that connects the left hand grip cable to the hand pulse extension wire (Figure C).
5) Pull out the left handlebar and hand grip cable (Figure D).

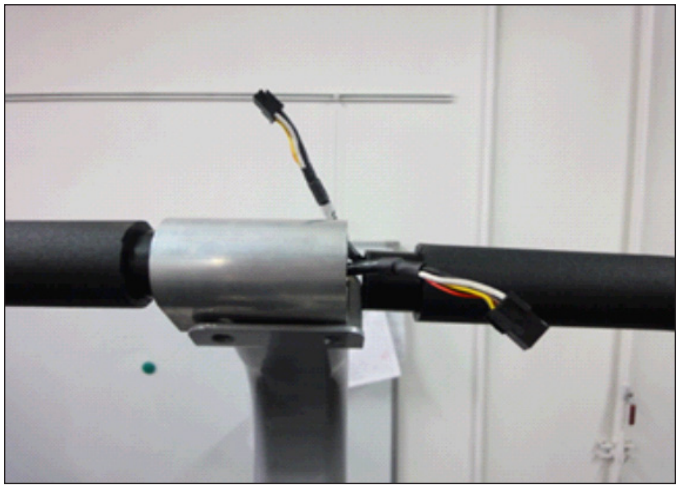


FIGURE C

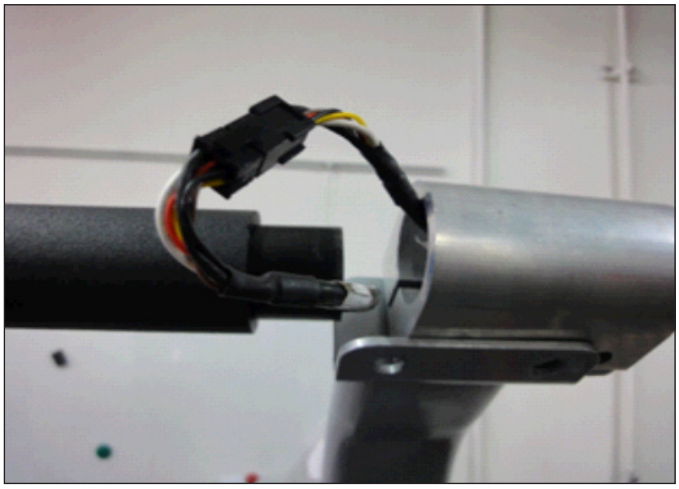


FIGURE D

9.6 UPPER HANDLEBAR REPLACEMENT SET - CONTINUED

6) Disconnect the wire that connects the left hand grip cable to the hand pulse extension wire (Figure E).
7) Remove the 2 screws on each side holding the front of the upper handlebar set to the lower handlebar set (Figure F).

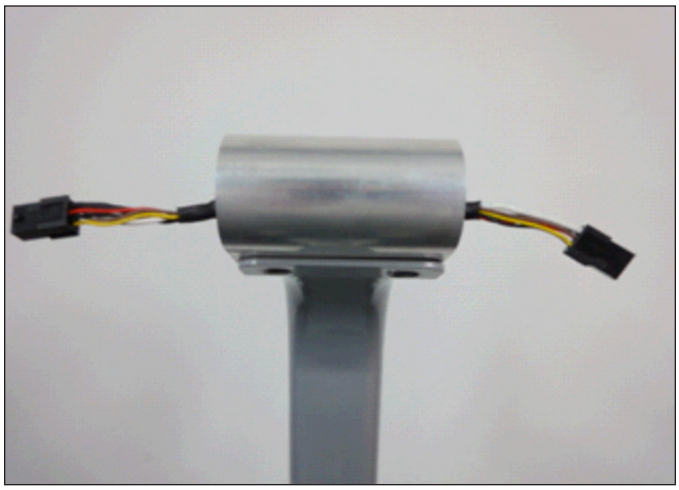


FIGURE E



FIGURE F

8) Remove the 2 screws on each side holding the rear of the upper handlebar set to the lower handlebar set (Figure G).

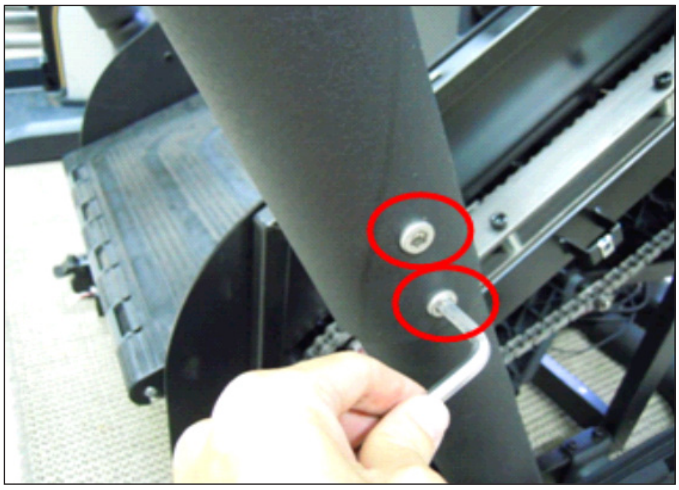


FIGURE G

9) Reverse Steps 1-8 to install a new upper handlebar set.
10) Test the Climb Mill for function as outlined in Section 9.20.

9.7 LOWER HANDLEBAR SET REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the upper handlebar set as outlined in Section 9.6.
3) Remove the 8 screws holding the lower handlebar set to the console mast (Figure A).
4) Remove the 2 screws holding the lower handlebar set to the frame handlebar set, then remove the lower handlebar (Figure B).

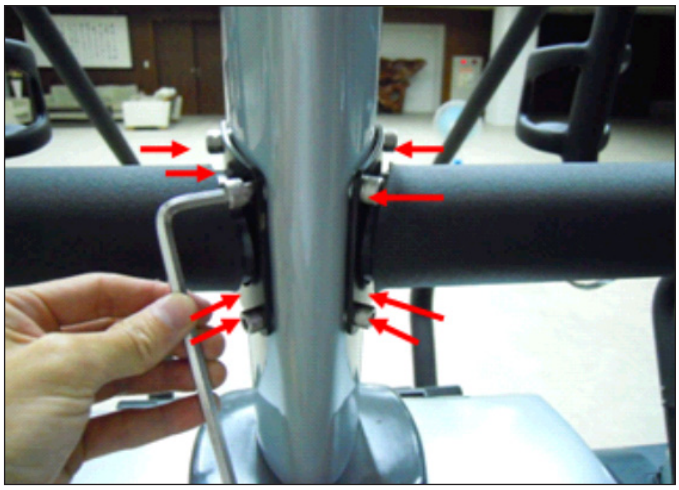


FIGURE A



FIGURE B

5) Reverse Steps 1-4 to install a new lower handlebar set.
6) Test the Climb Mill for function as outlined in Section 9.20.

9.8 HANDLEBAR SERVICE

1) Turn off the power and disconnect the cord from the machine.
2) All items on the handlebar are removed using a Phillips screwdriver from the underside of the bar.
3) Once the screws are removed, lift the part carefully then disconnect any wire connections to fully remove the part. This includes any resistance, pause / stop buttons, and the heart rate grip plates (Figures A & B).

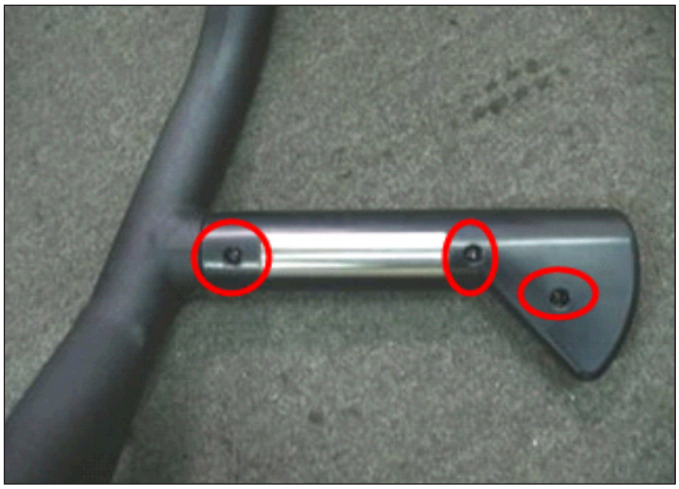


FIGURE A



FIGURE B

4) Test the Climb Mill for function as outlined in Section 9.20.

9.9 STAIR REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove the side covers as outlined in Section 9.1.
3) Remove the front shroud as outlined in Section 9.4.
4) Turn the brake bar to the left to lock the stairs in place (Figure A).
5) Remove the E shaped clip from the long axle on the upper side of the stair needing to be replaced (Figure B).



FIGURE A

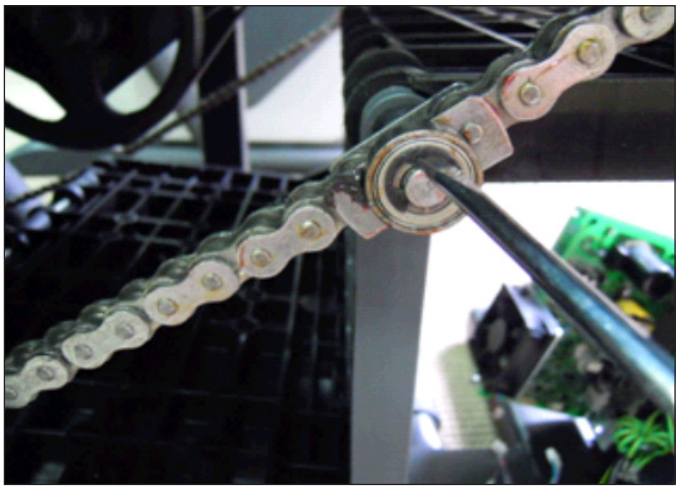


FIGURE B

6) Pull out the axle from the opposite side that you removed the E clip from (Figure C). ***NOTE:*** Pay attention to the order of the parts sequence on the axle as you remove it (Figure D). The correct parts sequence is axle > E shaped clip > bearing > washer > sealed chain > spacer > stair.



FIGURE C

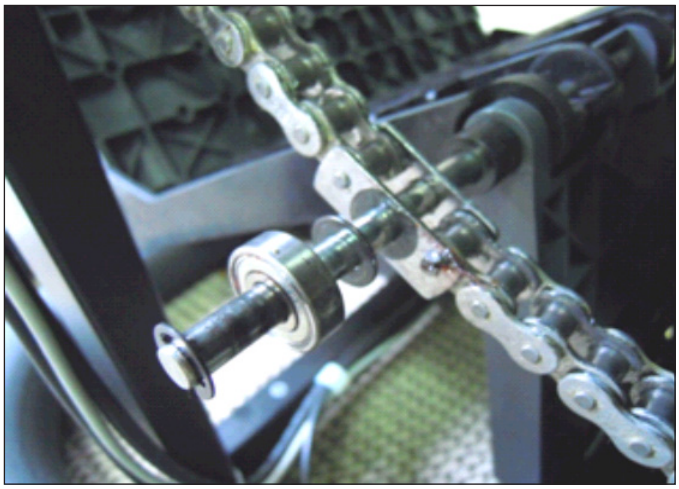


FIGURE D

9.9 STAIR REPLACEMENT - CONTINUED

7) Remove the axle from the lower side of the stairs needing to be replaced following the same procedure as Steps 5-6.
8) Remove the stair set when you have removed both axles (Figure E).
9) Remove the E-shaped clip from the short axle between the 2 portions of the stair set (Figure F). This will allow you to separate the 2 portions of the stair set.

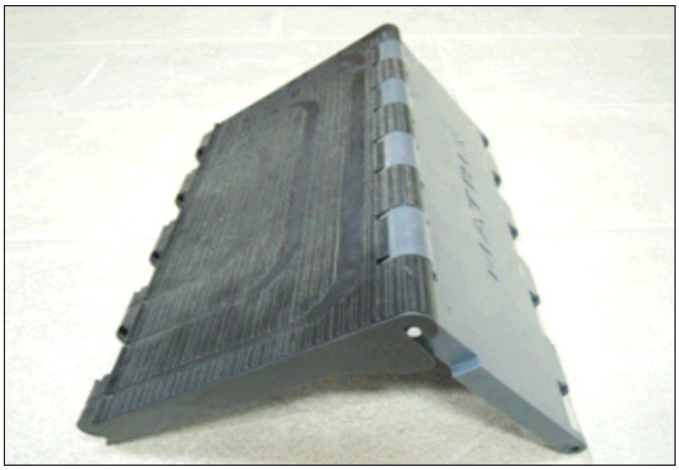


FIGURE E

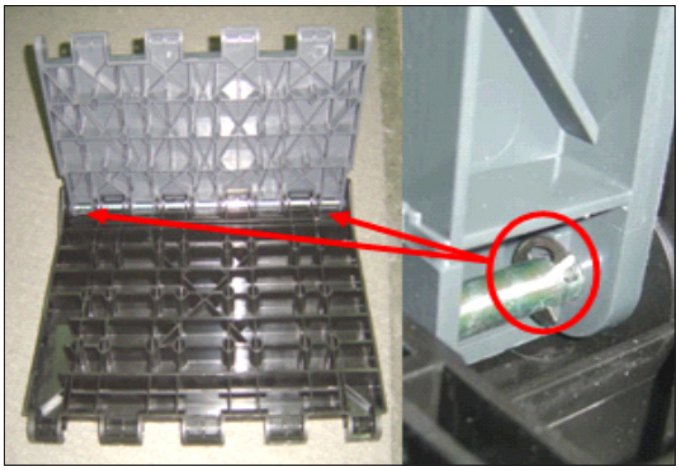


FIGURE F

10) Reverse Steps 1-9 to install a new stair set.
11) Turn the brake bar to the right to unlock the stairs once the replacement is finished.
12) Test the Climb Mill for function as outlined in Section 9.20.

9.10 DRIVE SET REPLACEMENT

NOTE: It is recommended that 2 technicians be present when replacing or removing the drive set. While it is not necessary to remove the side covers or a set of stairs, it makes it much easier to remove the drive set if these parts are removed for accessibility.

1) Turn off power and disconnect the cord from the machine.
2) Turn the 2 plastic screws counter-clockwise and remove the Matrix logoed covers on both sides of the machine.
3) Turn the brake lever to the right to lock the stairs (Figure A) to prevent movement that could cause injury.
4) Disconnect the speed sensor wire (Figure B). ***NOTE:*** Use 2 hands to disconnect the speed sensor wire. Do not pull the socket downwards to disconnect as it will damage the connector.



FIGURE A



FIGURE B

5) Loosen the screw that applies tension to the chain (Figure C).
6) Disconnect the 5 wire connectors at the top of the drive set (Figure D). These include 2 fan wires, 2 ECB wires, and a brake wire.

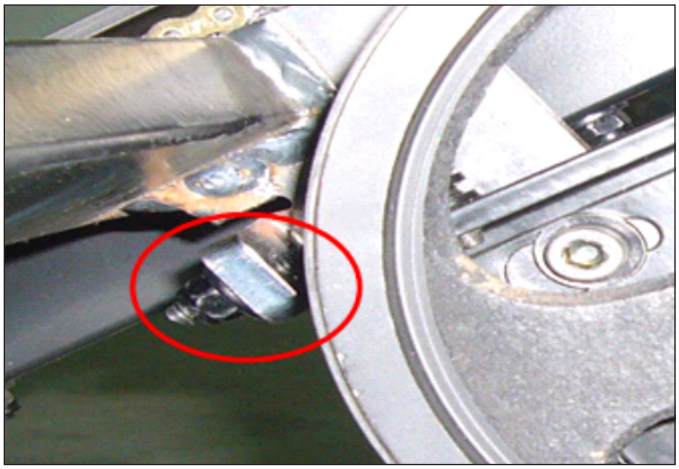


FIGURE C

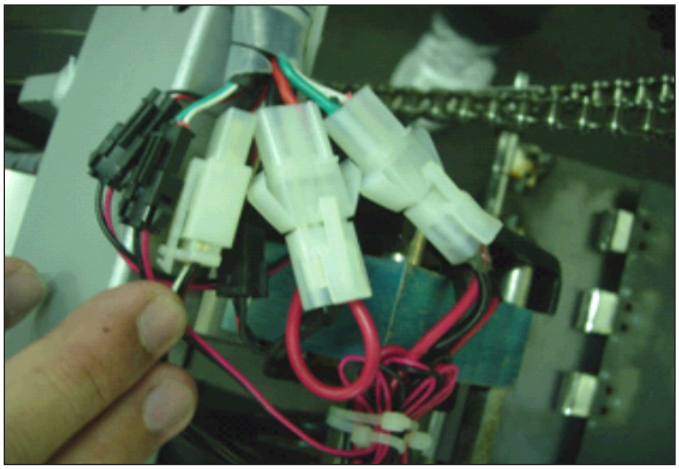


FIGURE D

7) Loosen the drive set guide screw if tight (Figure E).
8) Remove the 4 screws that hold the drive set to the frame (Figure F).

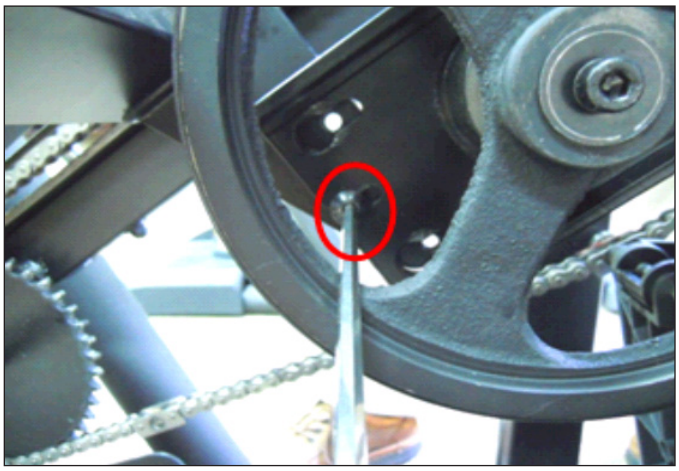


FIGURE E

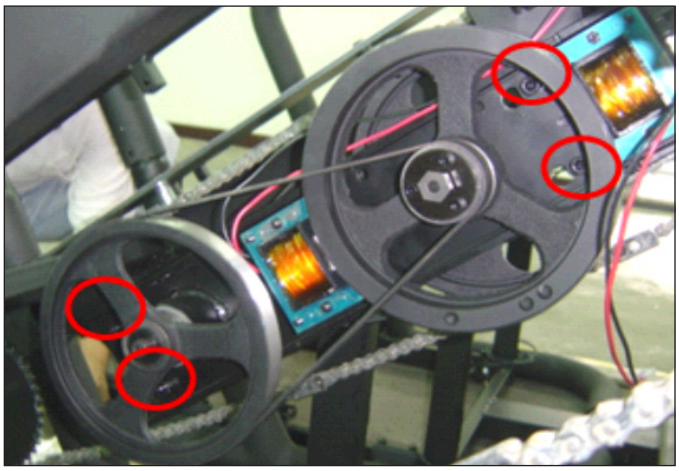


FIGURE F

9.10 DRIVE SET REPLACEMENT - CONTINUED

9) While a tech is pushing the drive set towards the front of the unit (the drive set will still be supported by the guide screw - Figure G), the other tech should remove the chain from the sprocket simultaneously (Figure H).

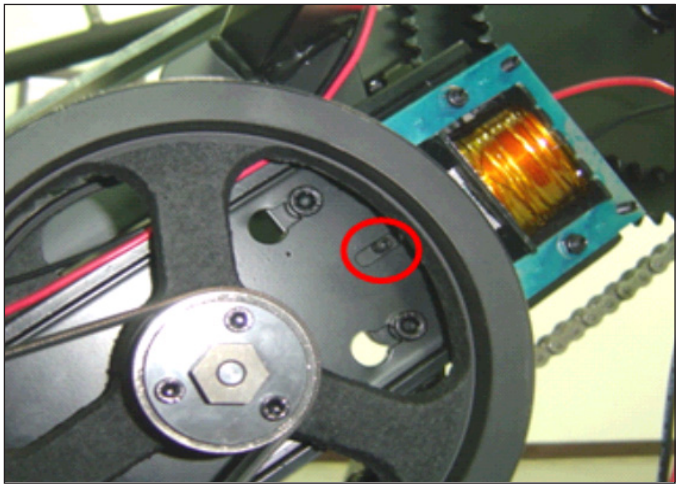


FIGURE G



FIGURE H

10) Remove the drive set from the unit (Figure I). ***NOTE:*** The drive axle will need to be rotated so that the pulleys are horizontal to fit through the side covers (Figure J).

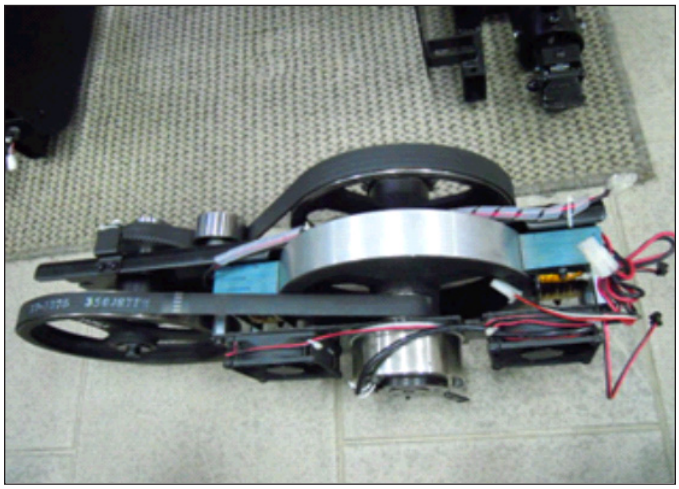


FIGURE I



FIGURE J

11) Reverse Steps 1-10 to install a new drive set. ***NOTE:*** Make sure that the wiring disconnected in Step 5 gets connected correctly. Refer to Figures K & L. ***NOTE:*** Torque the bolts removed in Step 7 to 40N-m.
12) Test the Climb Mill for function as outlined in Section 9.20.

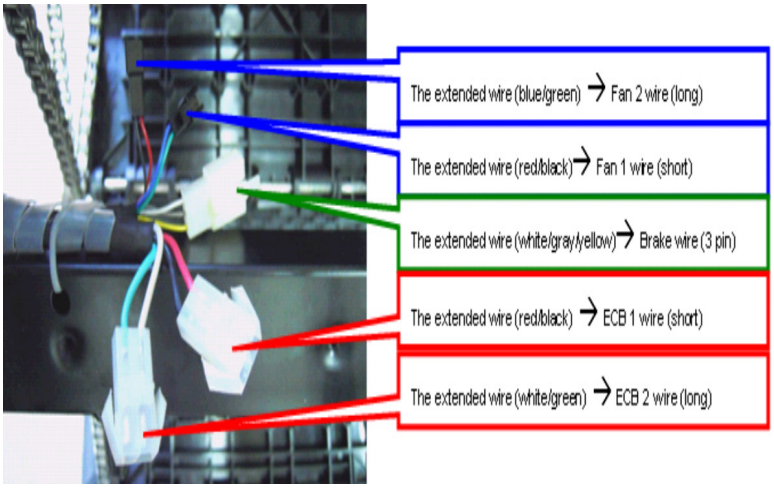


FIGURE K

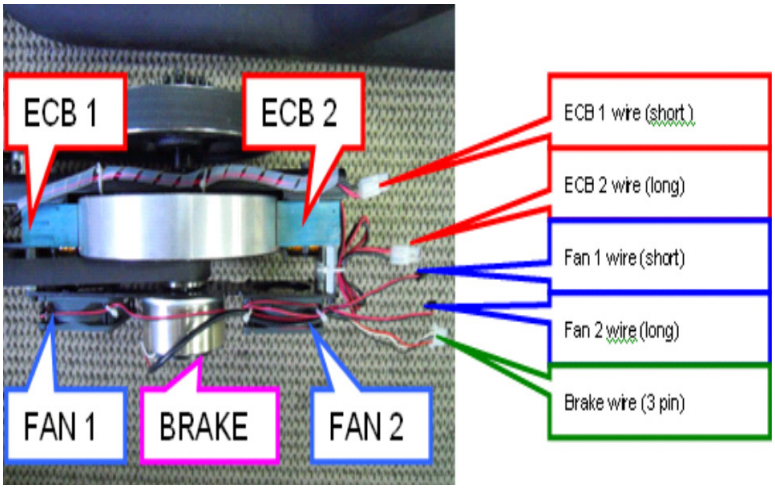


FIGURE L

9.11 CHAIN REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the side covers as outlined in Section 9.1.
3) Remove the front shroud as outlined in Section 9.2.
4) Remove at least 3 sets of stairs as outlined in Section 9.9 to expose a significant portion of the chain.
5) Before removing the chain, measure the distance of the chain run from the middle of the front bearing seat to the middle of the rear bearing seat (Figure A). This distance should be 941mm.
6) If this length is not 941mm, it needs to be adjusted. Loosen the vertical bolts on the bearing seat, then adjust the length by adjusting the horizontal screw. Tighten the vertical bolts to tighten the bearing seat in place. The vertical bolts should be torqued to 60 N-m.

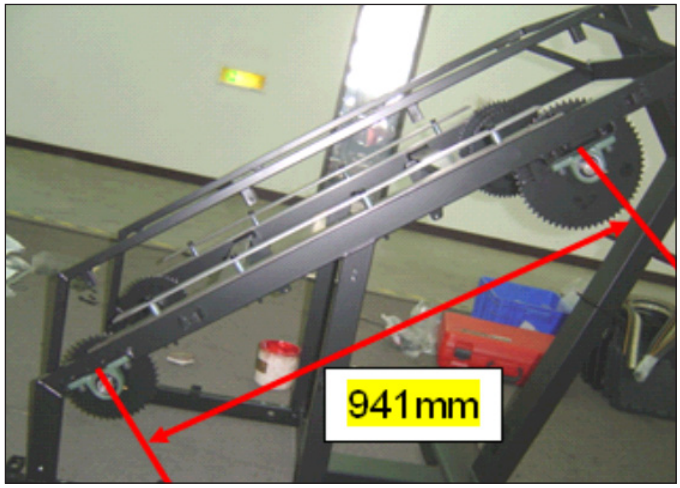


FIGURE A

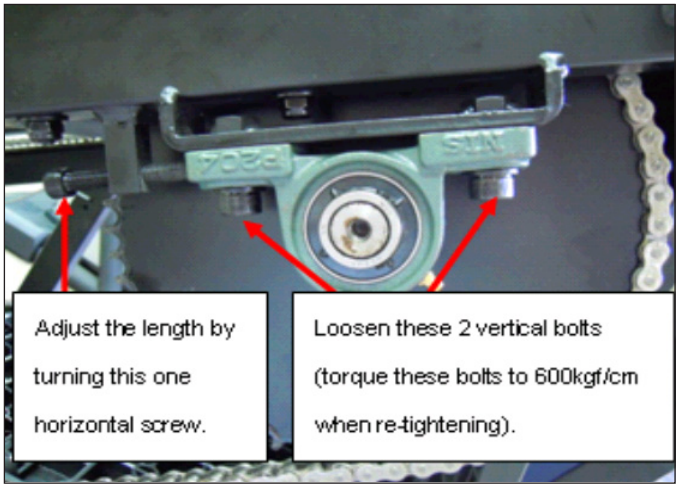


FIGURE B

7) Rotate the chain until a spring clip is in a convenient location and remove it (Figure C). ***NOTE:*** This chain link will normally be painted to make it easier to identify.
8) Remove the join plate on the chain (Figure D).

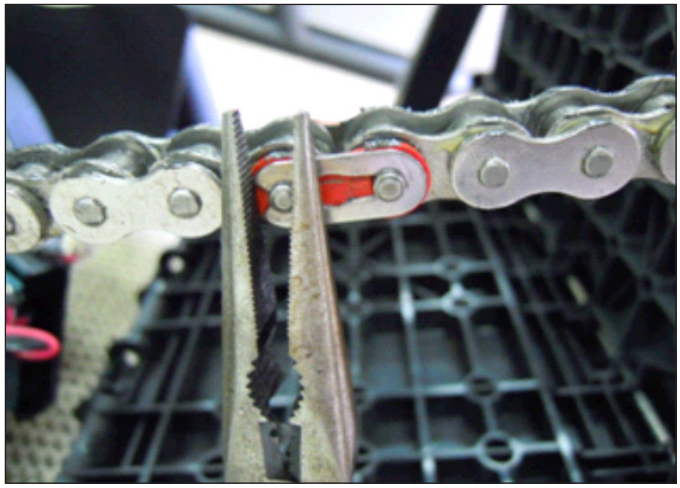


FIGURE C

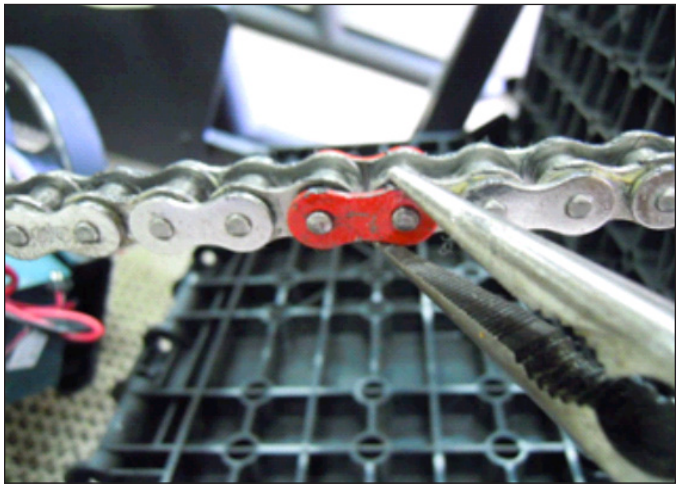


FIGURE D

9.11 CHAIN REPLACEMENT - CONTINUED

9) Remove the 2 seal rings from where the join link was just removed (Figure E).
10) The chain can now be removed.

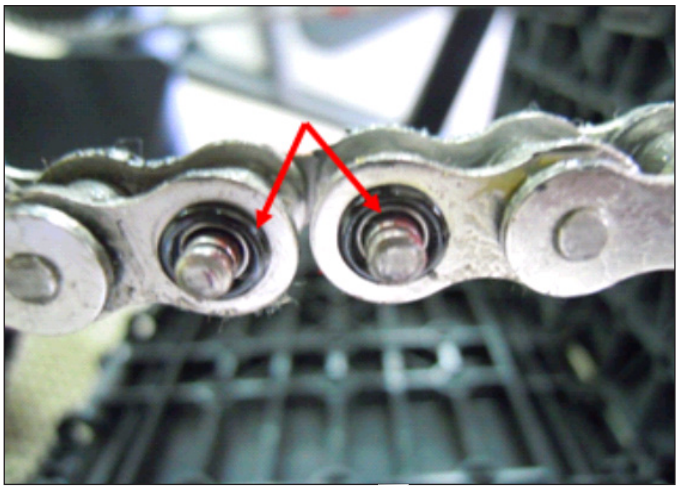


FIGURE E

11) Reverse Steps 1-10 to install a new chain. When installing a new chain, it is important to pay attention to the join plates. The join plates are wider than the chain itself. It is important that the side of the join plates that are flush with the rest of the chain get installed to the inside of the chain path (Figures F & G).

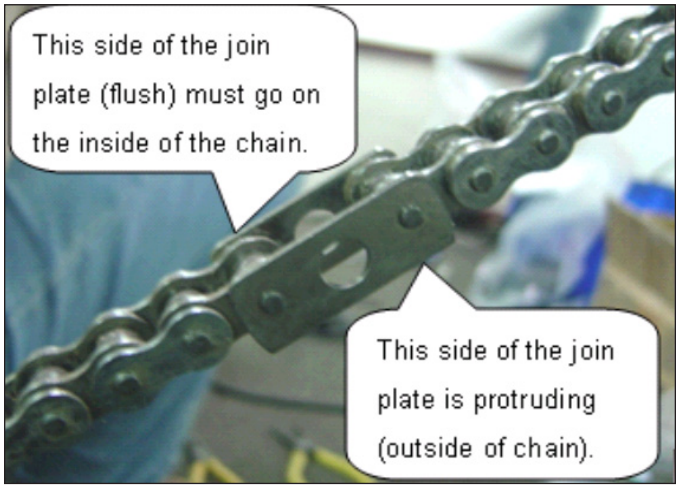


FIGURE F

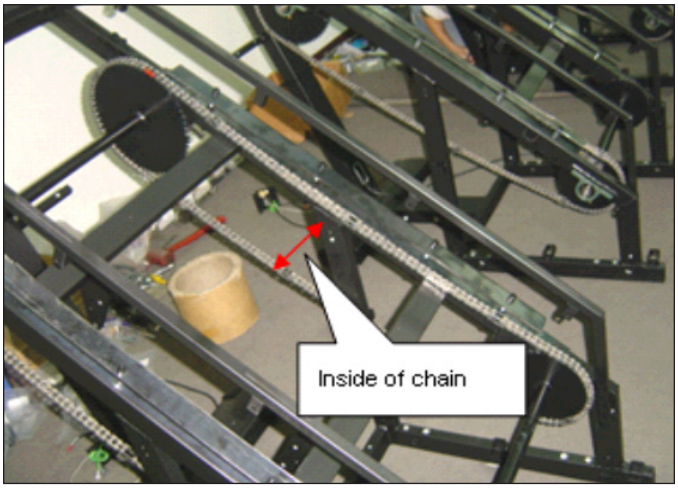


FIGURE G

12) Test the Climb Mill for function as outlined in Section 9.20.

9.12 BRAKE REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the Matrix logoed covers from each side of the machine.
3) Turn the brake lever to the right to lock the stairs and prevent movement that could cause injury.
4) Disconnect the brake and both fan wire connections (Figure A).
5) Remove the 4 screws holding the brake and fan plate to the drive set (Figure B) and remove the assembly.

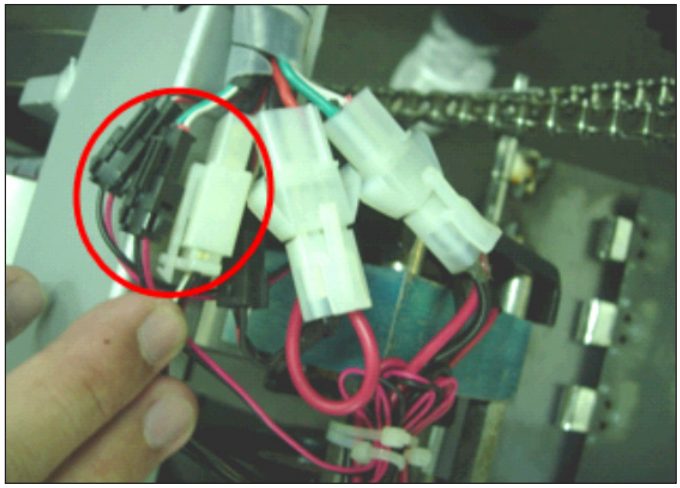


FIGURE A

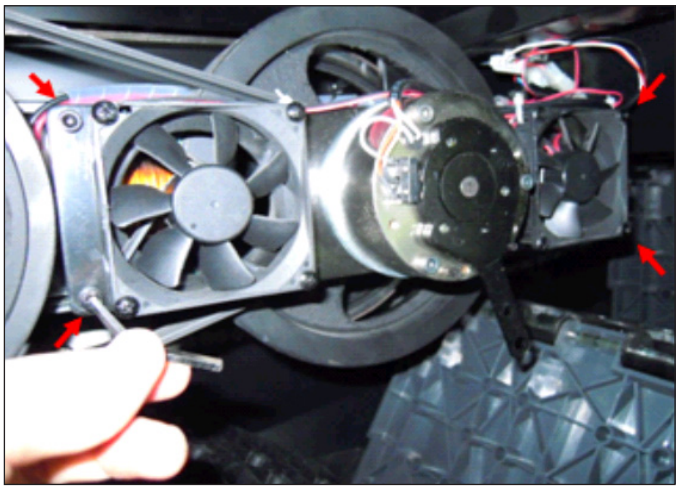


FIGURE B

6) Remove the 3 screws and 2 cable ties holding the brake and brake wire to the plate (Figure C).
7) Reverse Steps 1-6 to install a new brake. ***NOTE:*** When re-installing the plate assembly, make sure that the hexagon shaped plate on the brake lines up with the slots in the shaft of the flywheel (Figure D).

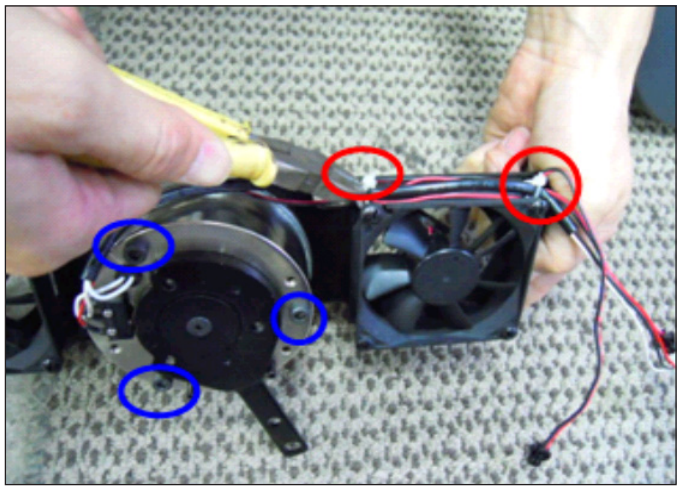


FIGURE C

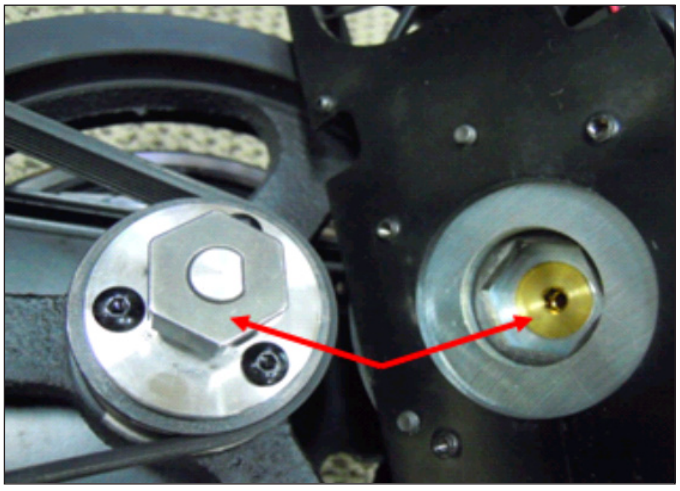


FIGURE D

8) Test the Climb Mill for function as outlined in Section 9.20.

9.13 FAN REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the Matrix logoed covers from each side of the machine.
3) Turn the brake lever to the right to lock the stairs and prevent movement that could cause injury.
4) Disconnect the brake and both fan wire connections (Figure A).
5) Remove the 4 screws holding the brake and fan plate to the drive set (Figure B) and remove the assembly.

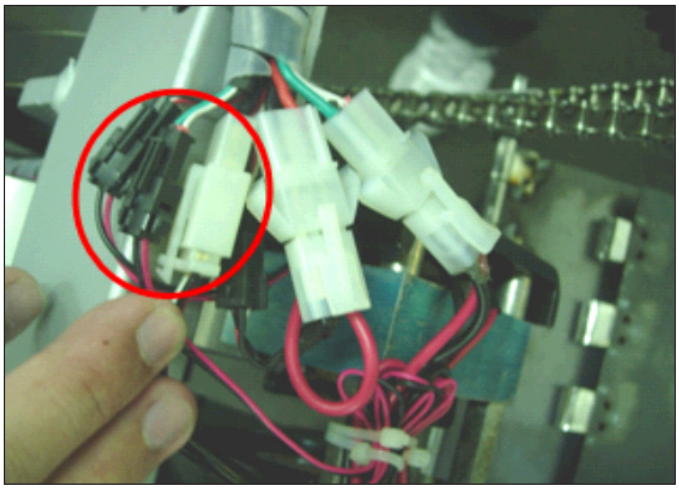


FIGURE A

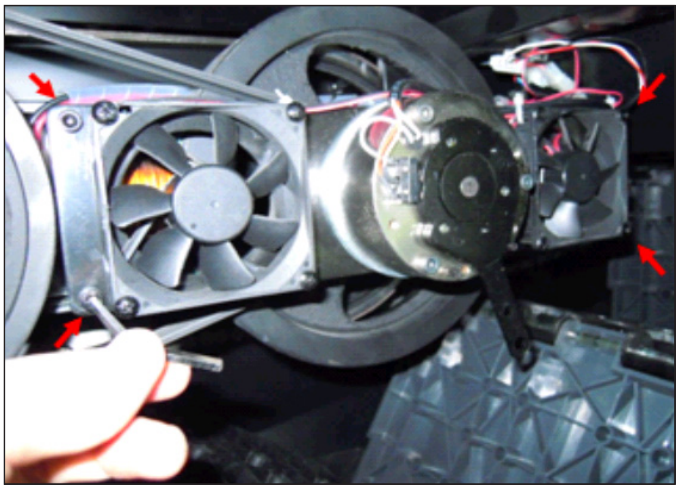


FIGURE B

6) Remove the 4 screws and 2 cable ties holding the fan and fan wire to the plate (Figure C).
7) Reverse Steps 1-6 to install a new fan. ***NOTE:*** When re-installing the plate assembly, make sure that the hexagon shaped plate on the brake lines up with the slots in the shaft of the flywheel (Figure D).

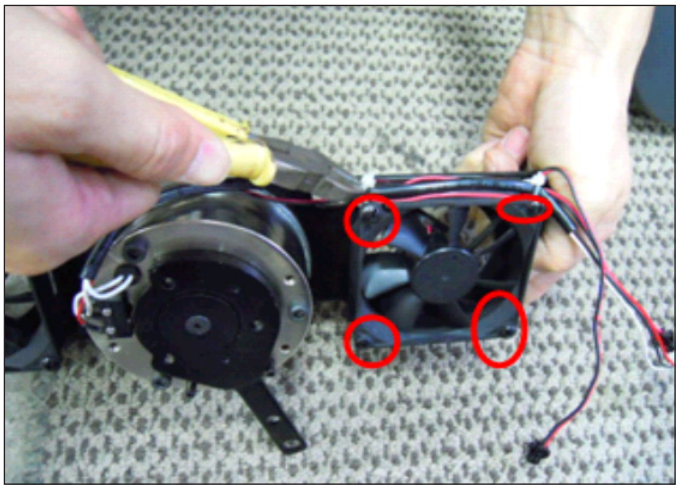


FIGURE C

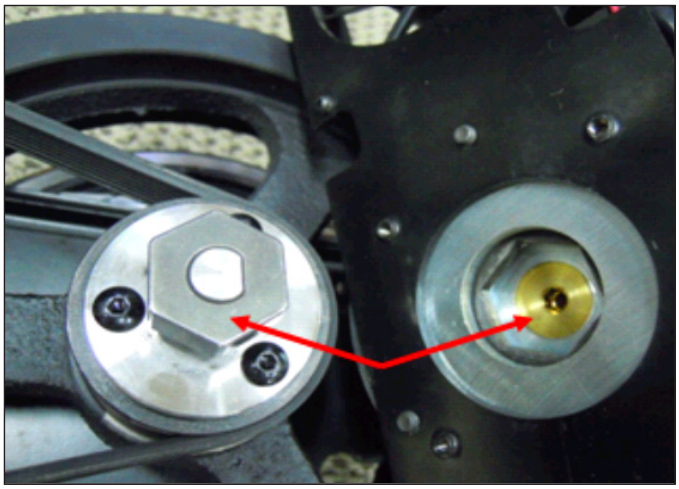


FIGURE D

8) Test the Climb Mill for function as outlined in Section 9.20.

9.14 ECB BELT REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Rotate the 2 plastic clips counter-clockwise to remove the Matrix logoed cover (Figures A & B).



FIGURE A



FIGURE B

3) Turn the brake to the left to lock the stairs.
4) Disconnect the brake and both fan wire connections (Figure C).
5) Remove the 4 screws holding the brake and fan plate to the drive set (Figure D) and remove the assembly.

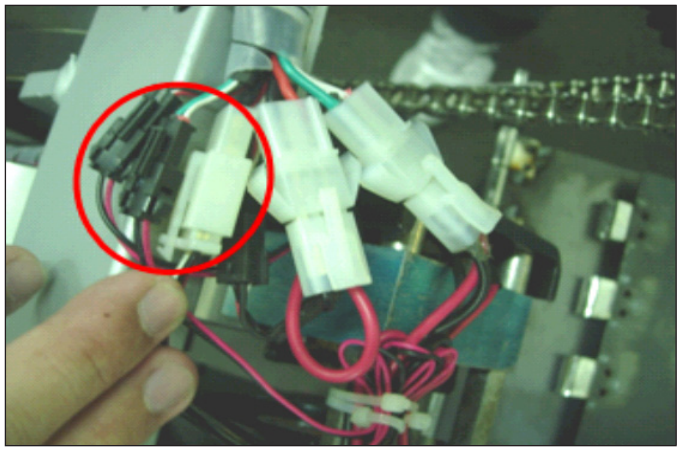


FIGURE C

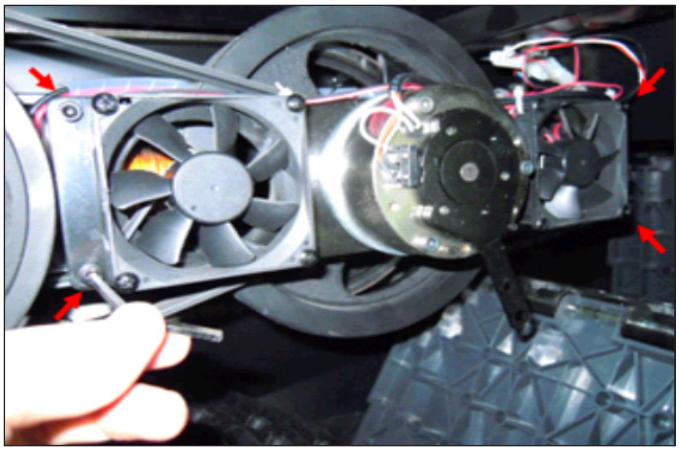


FIGURE D

6) Remove the old ECB belt.
7) Install a new ECB belt. ***NOTE:*** There is a belt installation tool available to assist with installing the Flexonic belt (Figure E - part # 0000093787). After installation, rotate the belt at least 3 full revolutions to insure the belt is centered.



FIGURE E

8) Reverse Steps 1-5 to re-assemble the unit.
9) Test the Climb Mill for function as outlined in Section 9.20.

9.15 DRIVE BELT REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove the drive set as outlined in Section 9.10.
3) Loosen the belt tension nut (Figure A) and screw (Figure B) until there is enough slack in the drive belt to remove it (Figure C).
4) Use a straight edge to make sure that the pulley and encoder pulley are in a straight line (Figure D).



FIGURE A

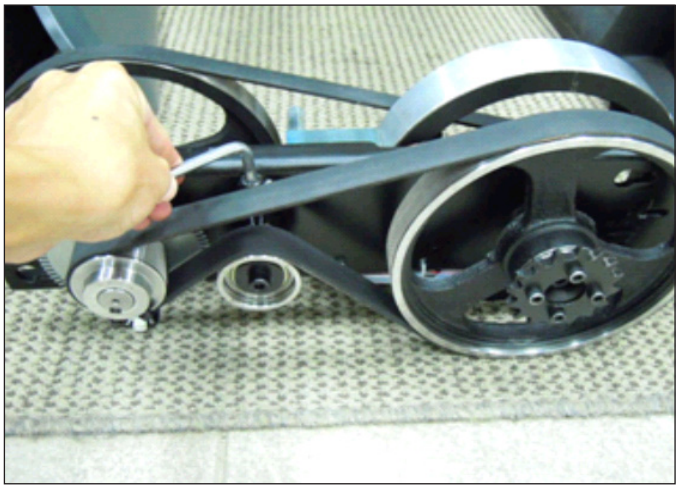


FIGURE B

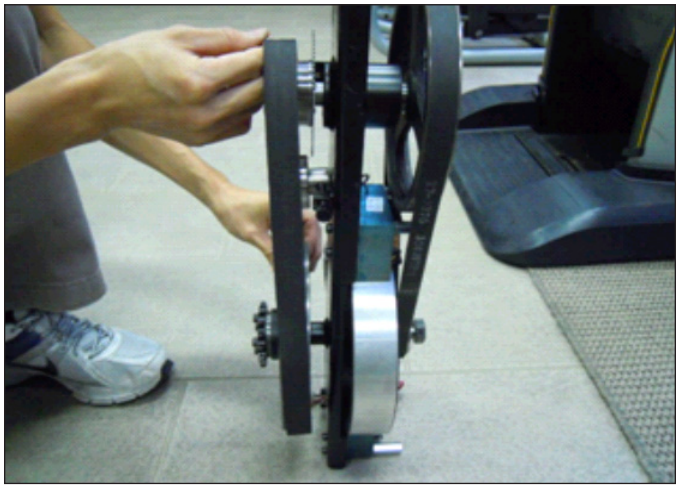


FIGURE C

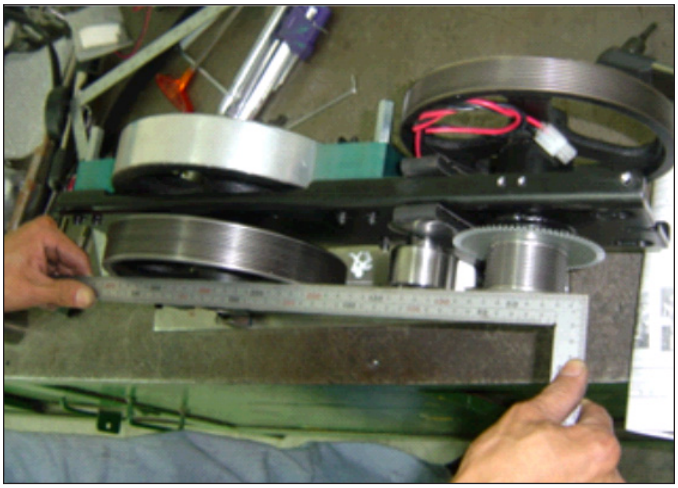


FIGURE D

5) Reverse Steps 1-4 to install a new drive belt. ***NOTE:*** Torque the screw removed in Step 3 to 60 N-m.
6) Test the Climb Mill for function as outlined in Section 9.20.

9.16 ECB REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove the drive set as outlined in Section 9.10.
3) Disconnect the brake and both fan wire connections (Figure A).
4) Remove the 4 screws holding the brake and fan plate to the drive set (Figure B) and remove the assembly.

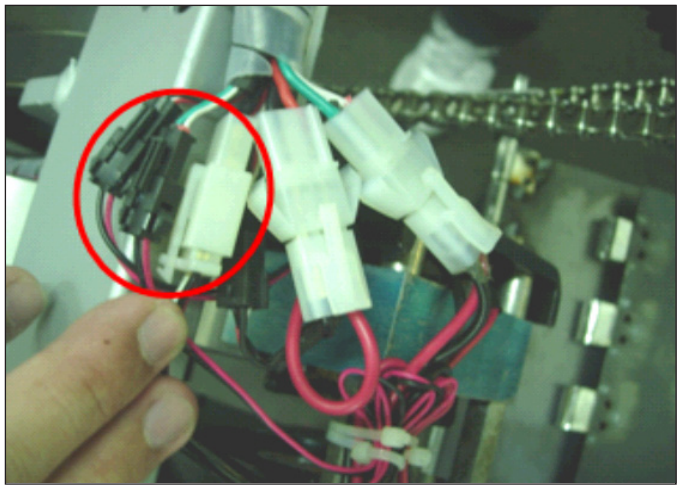


FIGURE A

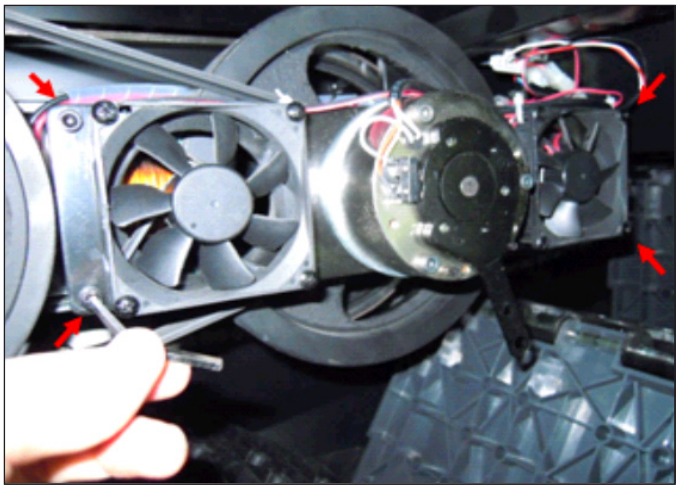


FIGURE B

5) Remove the cable ties holding the ECB wiring to the drive set (Figure C).
6) Loosen 2 screws to remove the nut standoffs off the ECB (Figure D).

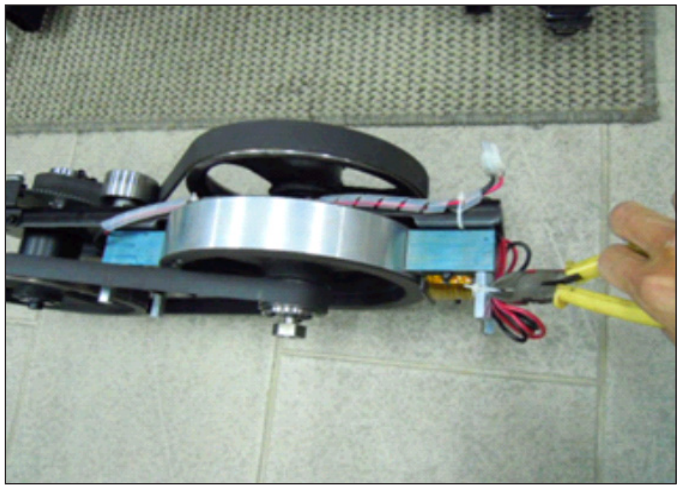


FIGURE C

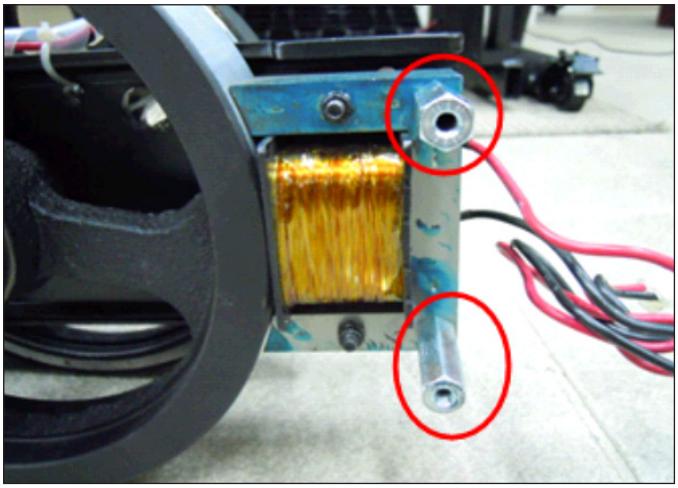


FIGURE D

9.16 ECB REPLACEMENT - CONTINUED

7) Loosen the remaining 2 screws to remove the 2 regular nuts (Figure E). Then remove the ECB.
8) There should be 4 screws & ferrules remaining to mount the new ECB (Figure F).

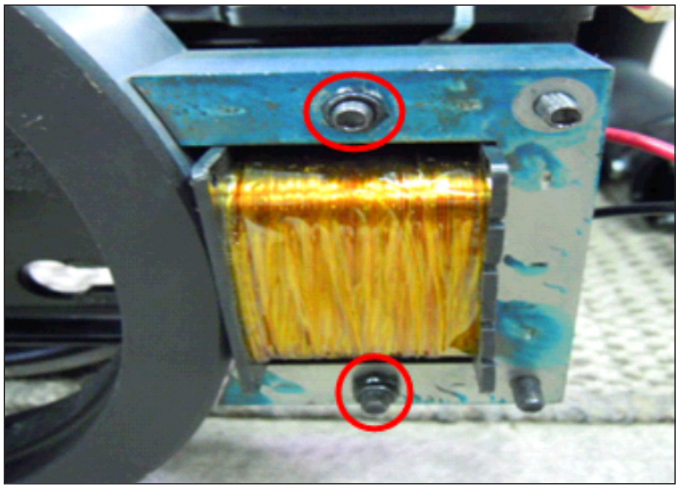


FIGURE E

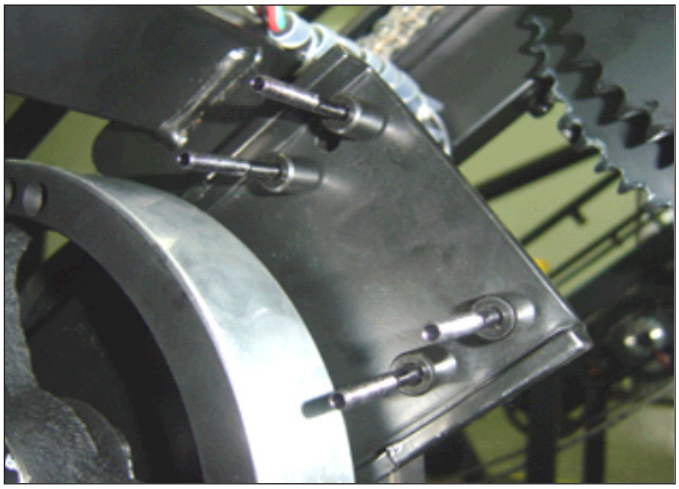


FIGURE F

9) Install a new ECB onto the 4 screws / ferrules.
10) Before tightening the nuts, use a piece of fabric or other material that is approximately 0.5mm thick to adjust the gap between the flywheel and the ECB (Figure G). ***NOTE:*** Once the ECB is in the correct position, torque the 4 ECB screws to 10 N-m. There should normally be a small amount of friction between the flywheel and the ECB.

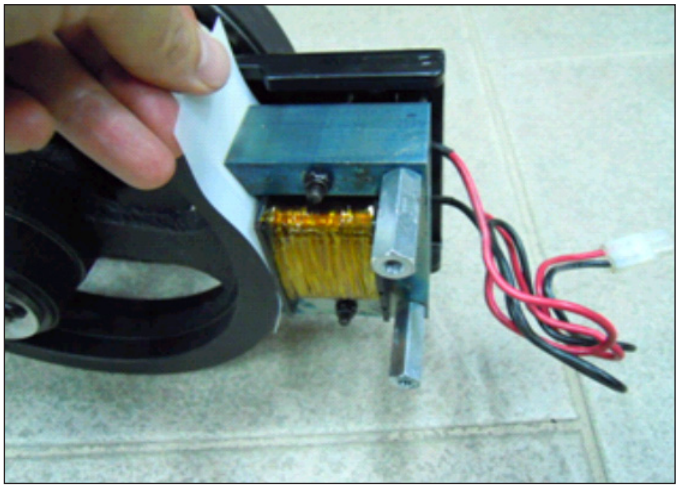


FIGURE G

11) Reverse Steps 1-8 to hook up the ECB and re-assemble the unit.
12) Test the Climb Mill for function as outlined in Section 9.20.

9.17 SPEED SENSOR REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Rotate the 2 plastic clips counter-clockwise to remove the Matrix logoed cover.
3) Disconnect the speed sensor wire (Figure A). ***NOTE:*** Use 2 hands to disconnect the speed sensor wire. Do not pull the socket downwards to disconnect as it will damage the connector.
4) Remove the 2 screws holding the speed sensor plate to the drive set (Figure B), and remove the speed sensor and plate.

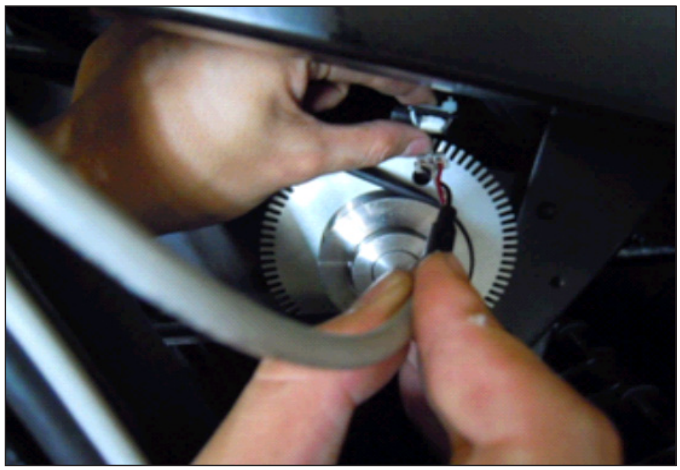


FIGURE A

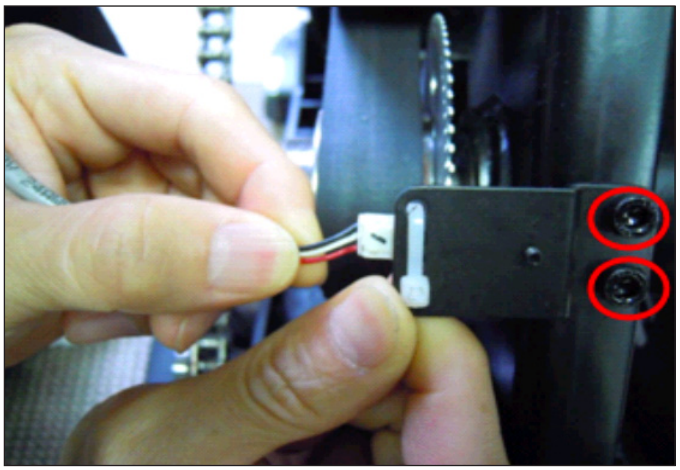


FIGURE B

5) Cut the wire tie and remove the screw holding the speed sensor to the speed sensor plate (Figure C), then remove the speed sensor.

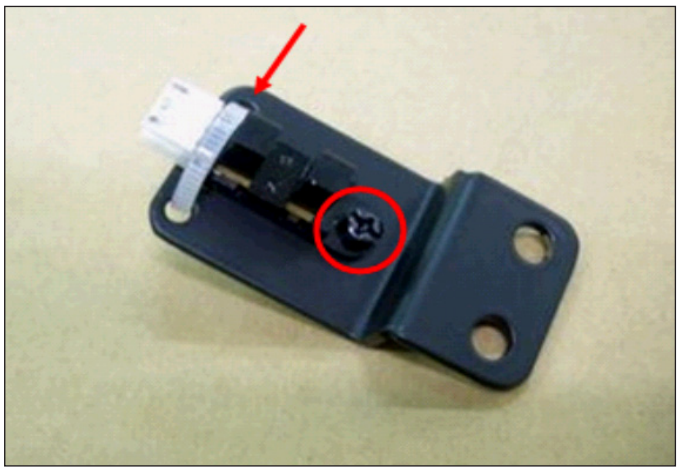


FIGURE C

6) Reverse Steps 1-5 to install a new speed sensor. ***NOTE:*** Install the speed sensor so that the encoder has a distance of 1.5mm from the optic disk on each side (Figures D & E).
7) Test the Climb Mill for function as outlined in Section 9.20.

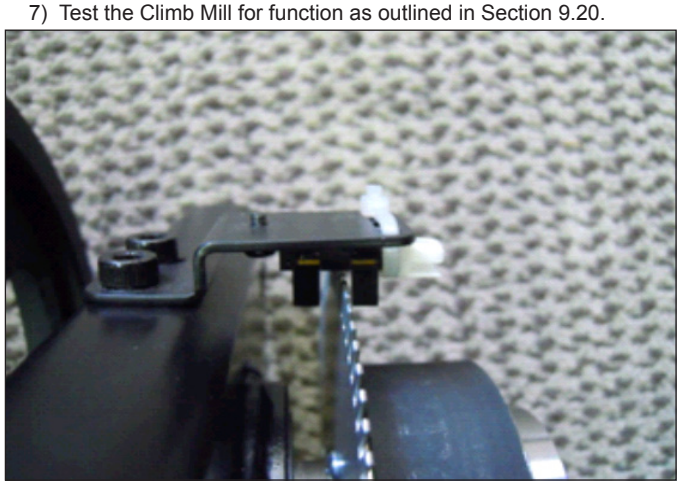


FIGURE D

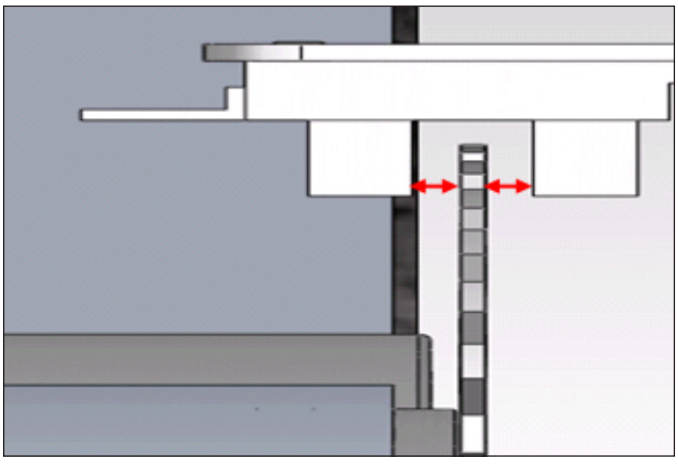


FIGURE E

9.18 CONTROL ZONE SENSOR REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Pull up on the Control Zone carefully (Figure A).
3) Unplug the wire connector from the Control Zone and remove the Control Zone from the unit (Figure B).



FIGURE A



FIGURE B

4) Remove the 8 screws to disassemble the Control Zone sensor from the Control Zone (Figure C), then remove the Control Zone sensor.

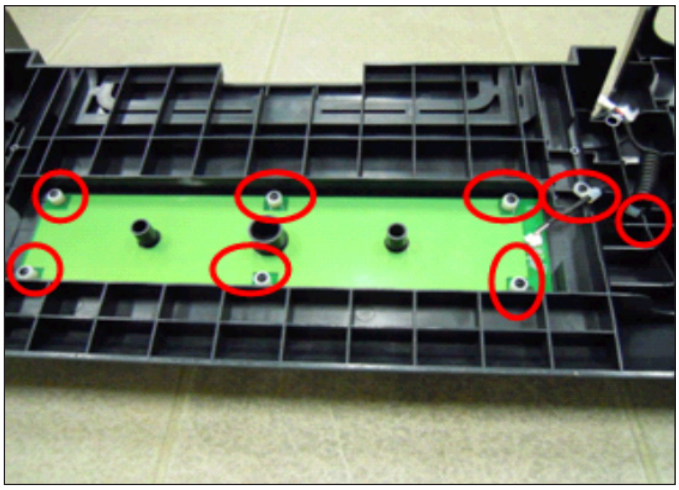


FIGURE C

5) Reverse Steps 1-4 to install a new Control Zone sensor.
6) Test the Climb Mill for function as outlined in Section 9.20.

9.19 PROXIMITY SENSOR REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Rotate the 2 plastic clips counter-clockwise to remove the Matrix logoed cover.
3) Remove the front shroud as outlined in Section 9.4.
4) Remove the proximity sensor cable from the LCB, and cut any wire ties holding the cable to the frame (Figure A).
5) Remove the 2 screws holding the proximity sensor to the frame (Figure B), and remove the proximity sensor.

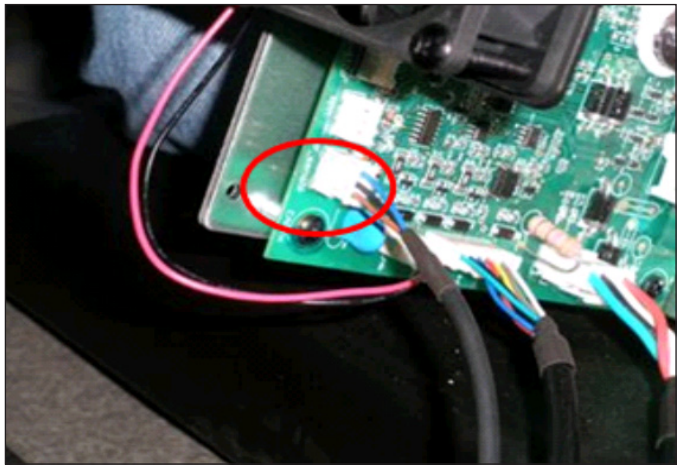


FIGURE A

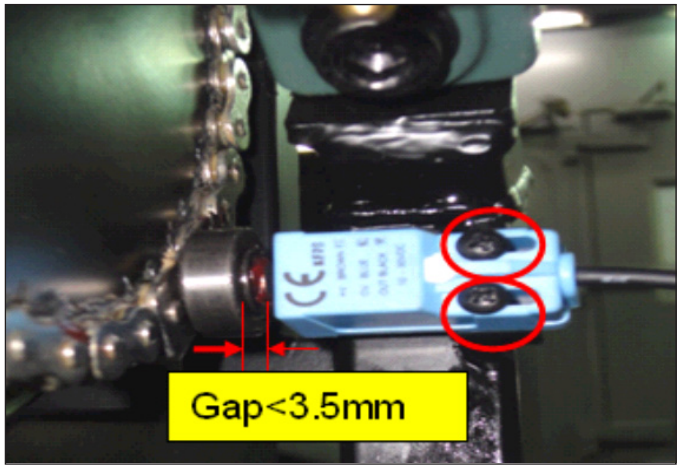


FIGURE B

6) Reverse Steps 1-5 to install a new proximity sensor. NOTE: The proximity sensor should be installed so that there is a gap of 3.5mm between the sensor and the axle (Figure B).
7) Once the proximity sensor is installed, rotate the stairs at least 2 complete revolutions to make sure the sensor does not hit.
8) Test the Climb Mill for function as outlined in Section 9.20.

9.20 TESTING THE CLIMB MILL

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

1) Enter Service Mode (ENTER, 3, 0, 0, 1, ENTER) and input the serial number of the console. Also set the Machine Type (See Section 7.2) and Keypad (See Section 7.3) and verify that the Date and Time are correct (See Section 7.5). ***NOTE:*** The console and unit power must be reset for some changes to go into affect. Cycle the power switch and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.

2) Enter Manager Mode (ENTER, 1, 0, 0, 1, ENTER) and turn on or off Asset Management or Virtual Active depending on whether the club has these functions. ***NOTE:*** The console and unit power must be reset for some changes to go into affect. Cycle the power switch and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.

3) Press the green GO key and begin using the machine. Stand on the machine and hold the handlebars while initiating movement to simulate exercising. While moving listen for any odd noises or squeaks.

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

5) Press the LEVEL UP and DOWN keys on the console to make sure resistance is fully functional.

6) Try stepping off the unit to make sure the proximity sensor is fully functional. Also test the STOP key on the grips and the Control Zone for function. .

CHAPTER 10: CLIMB MILL SPECIFICATIONS AND ASSEMBLY GUIDE

10.1 CLIMB MILL SPECIFICATIONS

FEATURES	
Step Height	10"
Contact and Telemetric Heart Rate Sensors	Yes
Ultra Non-Slip Grips	Yes
Handlebar Design	Ergonomically designed handrails and horn.
Thumb Switch Controls	Yes
RESISTANCE SYSTEM	
Technology	ECB with flywheel
Power Requirements	100V - 240V - 50 / 60 HZ AC
Minimum Watts	N/A
CONSOLE	
Display Type	15" Touch Screen LCD
Display Feedback	Time, Distance, Calories, Calories per hour, Speed, SPM, Floors Climbed, Heart Rate, METs, Watts, Dynamic Profile Display, Static Profile Display
User Defined Multi Language Display	Yes - English, German, French, Italian, Spanish, Dutch, Portuguese, Chinese, Japanese, Korean, Swedish, Finnish, Russian
Resistance Levels	25
Workouts	Manual, Rolling Hill, Interval Training, Fat Burn, Calorie Training, Goal Training, Fitness Test, Constant Watts
CSafe, Fitlinxx Ready	Yes
Netpulse Ready	No
Fit Touch Technology	Yes
On the Fly Program Change	Yes
Integrated Vista Clear™ Digital Ready Television	Yes - 15" Screen Size
Fitconnexion™ Ready	No
Wireless Data Transmitter	Yes
IPod Compatible	Yes
Nike+ IPod Compatible	Yes
Personal Fan	Yes
USB Workout Tracking	Yes - Via www.livestrong.com
Virtual Active™ Compatible	Yes
TECHNICAL DATA	
Overall Dimensions (L x W x H)	65 x 33.5 x 83.5" (165 x 85 x 212cm)
Maximum User Weight	400 lbs / 181.4 kg
Unit Weight	348 lbs / 157.9 kg
Shipping Weight	368 lbs / 166.9 kg

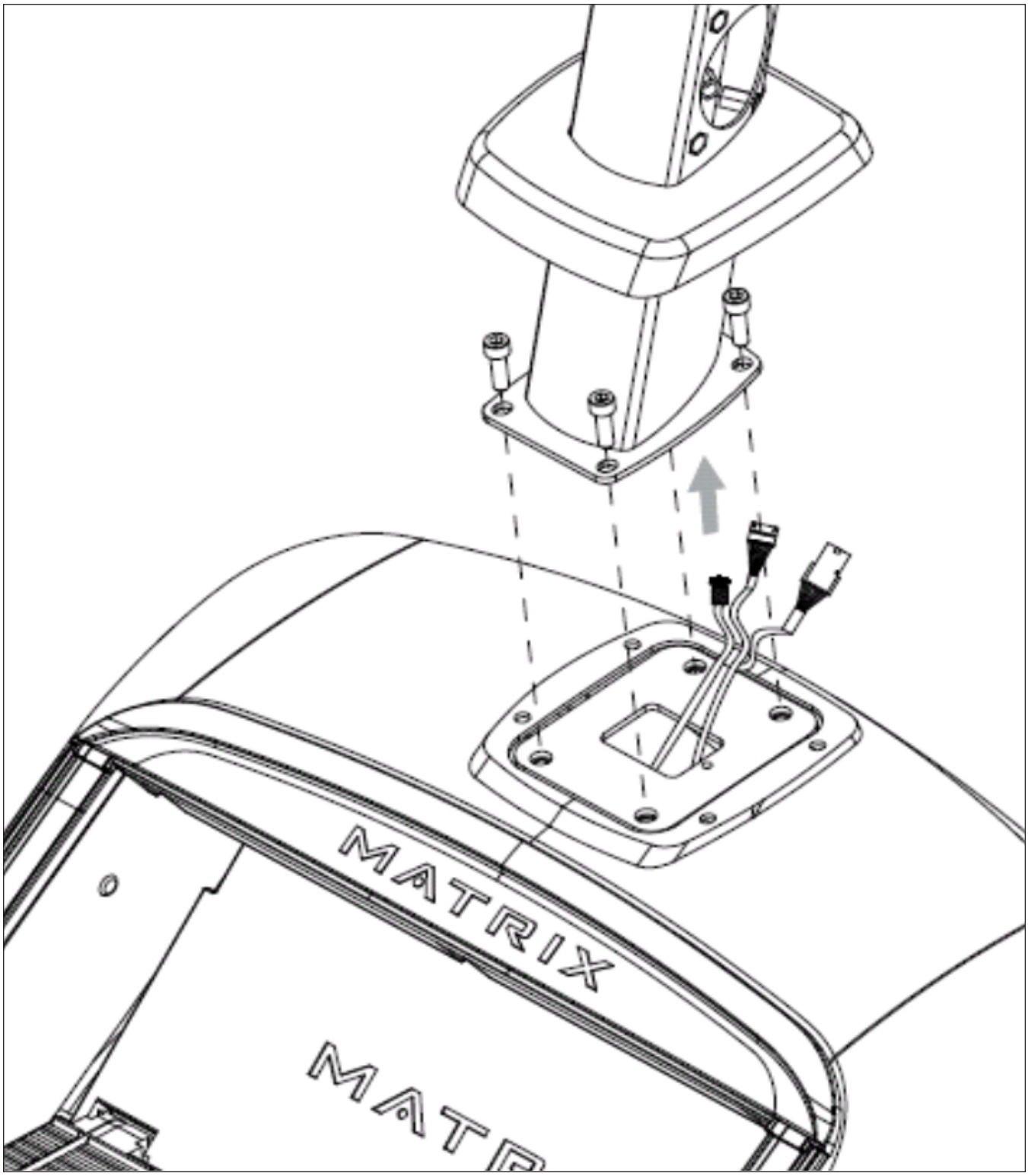
10.2 ASSEMBLY HARDWARE

QUANTITY	SKETCH	DESCRIPTION	PACKAGE COLOR
4		SOCKET HEAD SCREW (M8 X 25L)	BLACK
6		SOCKET HEAD SCREW (M8 X 20L)	BLUE
2		SOCKET HEAD SCREW (M8 X 35L)	GREEN
5		SOCKET HEAD SCREW (M5 X 8L)	GREEN
3		SOCKET HEAD SCREW (M8 X 30L)	GREEN
2		SOCKET HEAD SCREW (M8 X 23L)	GREEN
2		CURVED WASHER	BLUE
4		FLAT WASHER	BLUE
5		FLAT WASHER	GREEN

10.3 CLIMB MILL ASSEMBLY STEPS

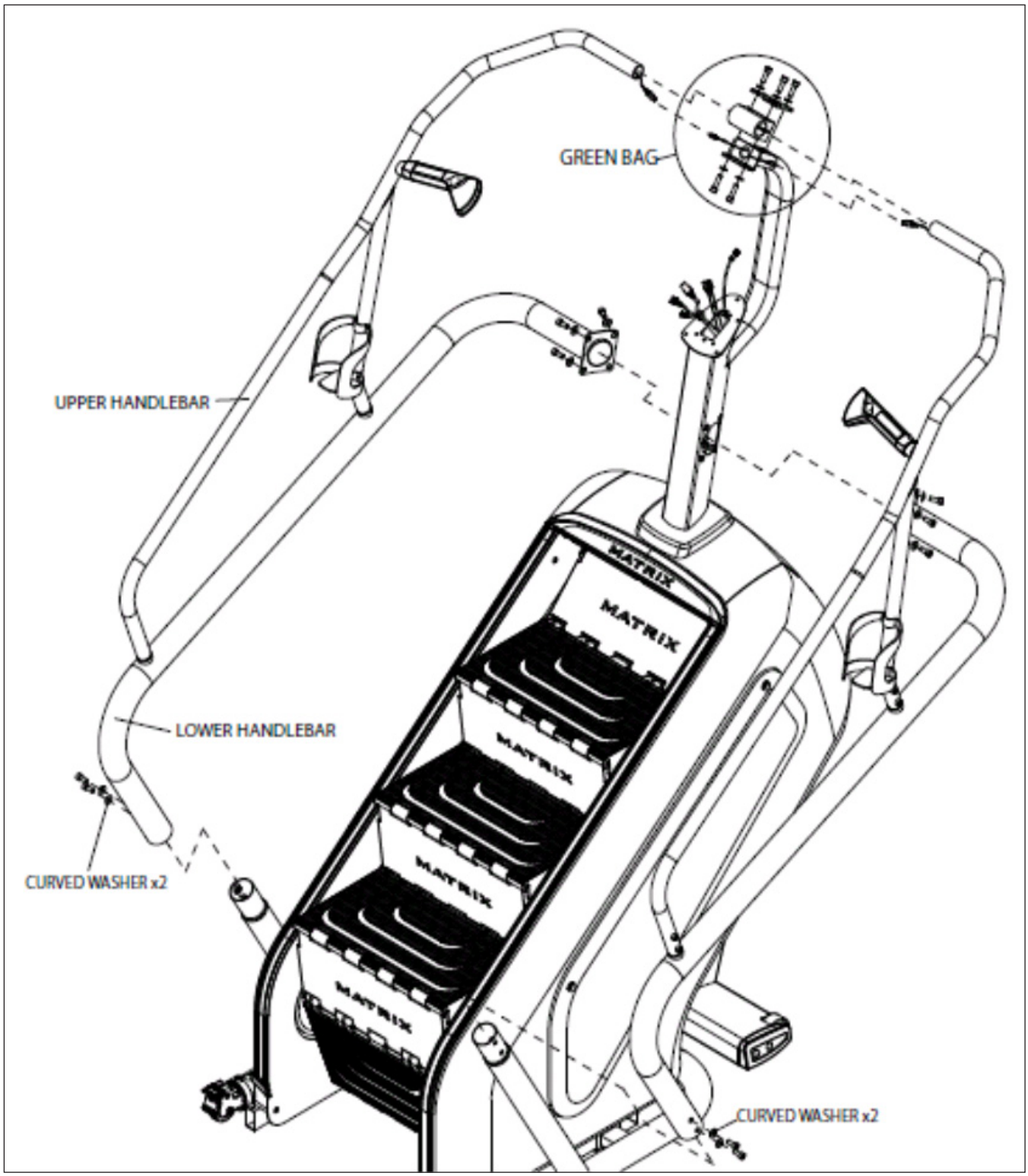
STEP 1 - BLACK HARDWARE BAG

1) Open the Black hardware bag.
2) Carefully route the wires up the console mast.
3) Attach the console mast to the frame using the provided bolts. Secure tightly being careful not to pinch any wires.



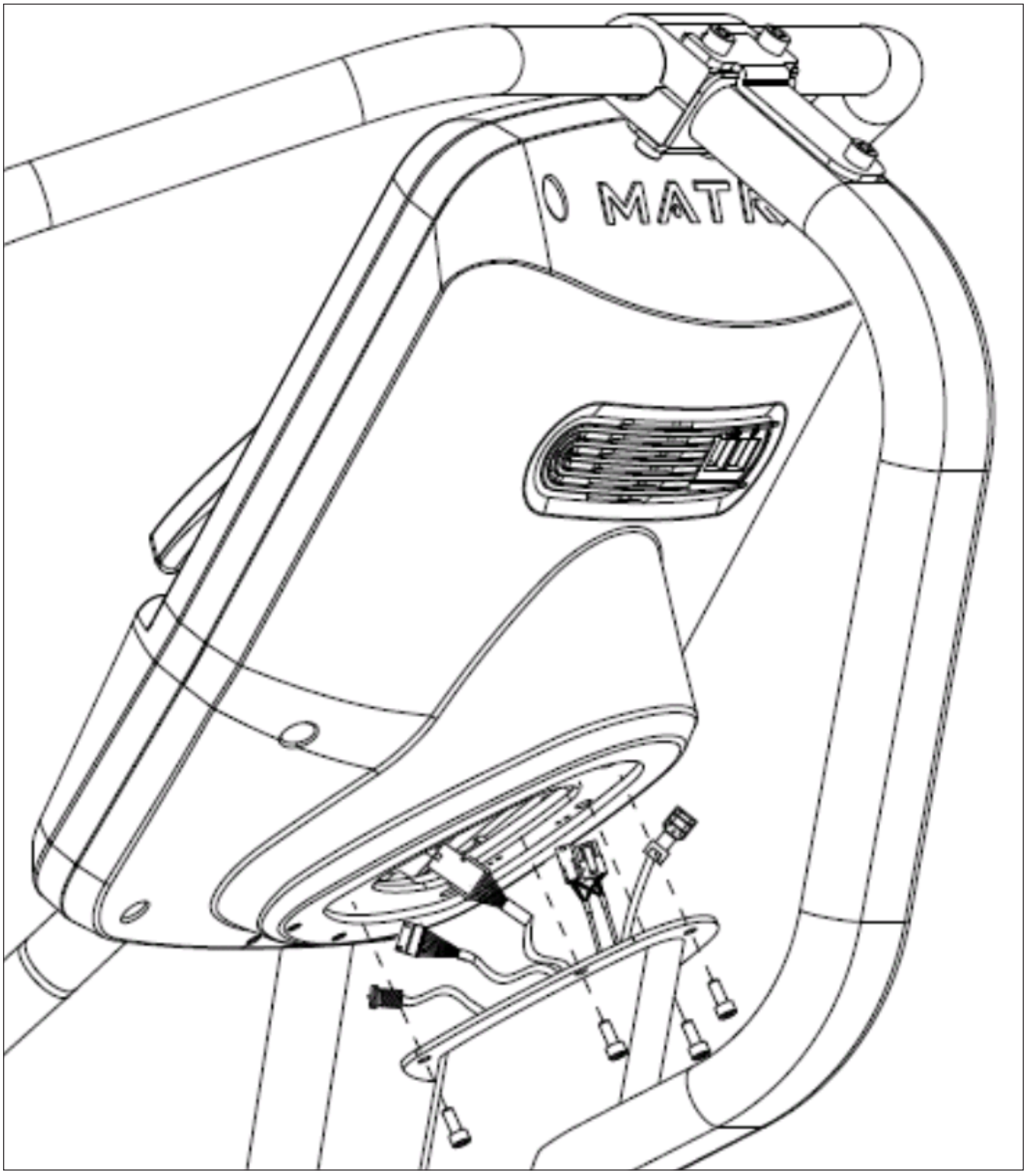
STEP 2 - BLUE & GREEN HARDWARE BAGS

1) Open the Blue and Green hardware bags.
2) Attach the Lower Handlebar using the provided bolts. Tighten securely at the base and mast.
3) Attach the Upper Handlebar using the provided bolts. Carefully route and connect all wires to the console mast. Tighten securely.
4) Repeat on the opposite side.



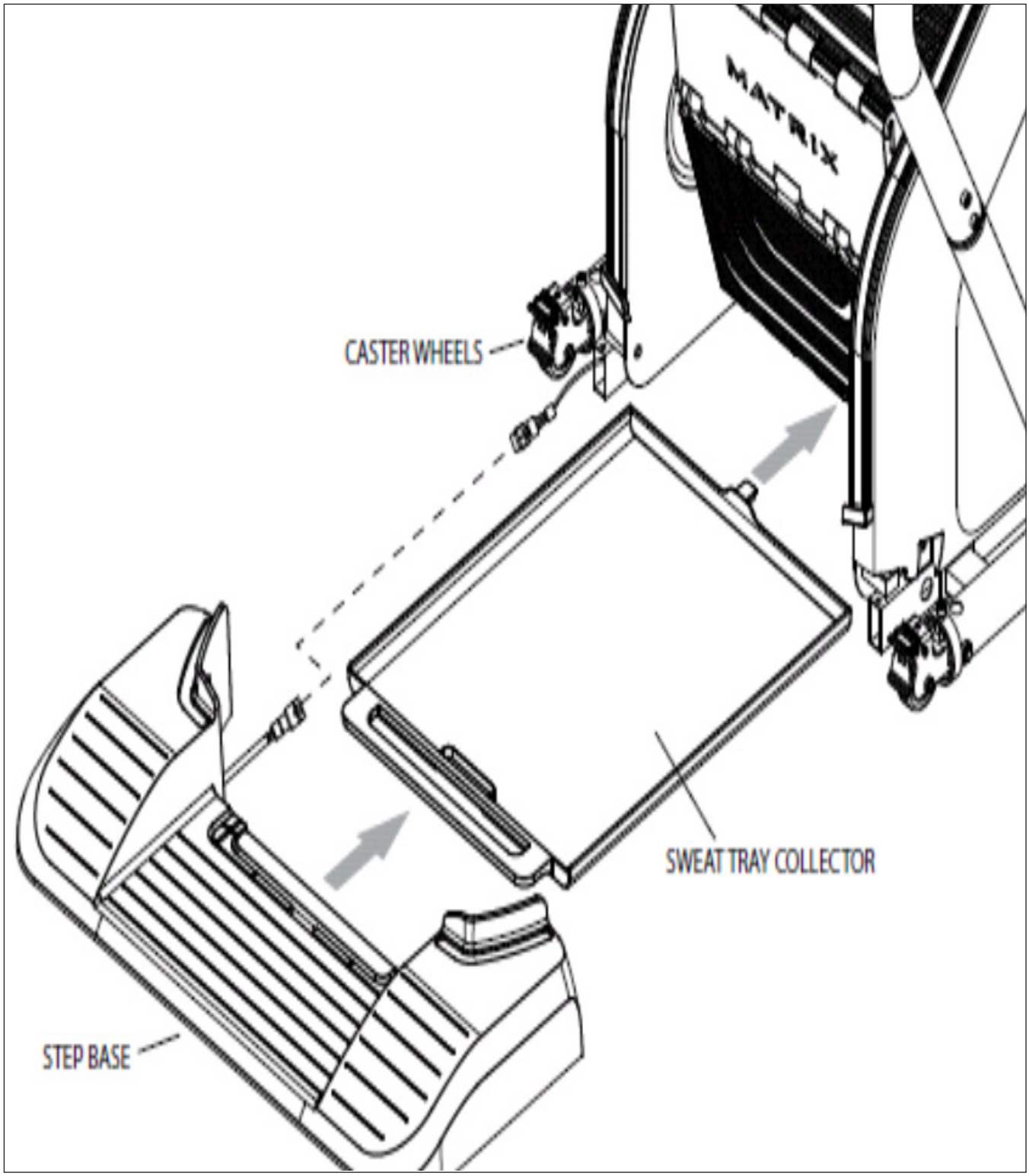
STEP 3 - CONSOLE

1) Remove the five pre-attached console screws from the back of the console.
2) Carefully connect all wires coming from the mast to the inside of the console. NOTE: Depending on the console, not all cables coming from the mast need to be connected.
3) Attach the console to the console mast using the screws removed from the console earlier. Secure tightly being careful not to pinch any wires.



STEP 4 - BASE STEP

1) Connect the wires from the Base Frame to the Base Step.
2) Lift the Base Step over the caster wheels. Push down firmly on both sides until it seats firmly.
3) Slide the Sweat Collection Tray under the Climb Mill, latching the handle to the base.



10.4 STABILIZING THE CLIMB MILL

STABILIZING THE MATRIX C7XE-03 CLIMB MILL

The Matrix Climb Mill should be level for optimum use. Locate a level, stable surface to position the equipment. The equipment has leveling transport wheels located under the "Control Zone" cover (Figure A). To access, grab the left and right sides of the cover and lift off. ***CAUTION:*** There is an electrical plug located under the cover that will need to be unplugged before the cover can be completely removed. With the "Control Zone" cover removed, adjust the transport wheels until the equipment is stable and lock the wheels into place. Once stable, plug the electrical connection back together and place the "Control Zone" cover back into place.



FIGURE A

10.5 TV PROGRAMMING INSTRUCTIONS

Once the cardio equipment has been installed, and proper power and cable wiring is provided, The Television must be programmed to the club's channels and settings.

Auto Scan - An auto scan will search for channel signals from the coax cable. It will tune in all channels that provide a signal.

1. Press ENTER, 1, 0, 0, 1, ENTER on the number keypad to enter Manager Mode.
2. Press TV on the display (Figure A).
3. Press SETUP on the display (Figure B). A TV will appear.



FIGURE A



FIGURE B

4. Press the - key on the number keypad and a Menu will appear on the TV (Figure C). ***NOTE:*** Once the Menu is present on the screen, the following buttons must be pressed quickly, or the Menu will minimize after 5 seconds of no key strokes.
5. Use the VOLUME UP or DOWN keys to move horizontally in the Menu and the CHANNEL UP and DOWN keys to move vertically.
6. Use the VOLUME UP or DOWN keys to scroll the cursor to Channel on the top right of the Menu (Figure D).



FIGURE C



FIGURE D

7. Use the CHANNEL UP or DOWN keys to scroll down to Auto Scan, then press the VOLUME UP or DOWN keys to enter the Channel Scan sub-menu (Figure E).
8. Use the CHANNEL UP or DOWN keys to scroll to Start To Scan, then press the VOLUME UP or DOWN keys to start the channel scan (Figure F).



FIGURE E



FIGURE F

10.5 TV PROGRAMMING INSTRUCTIONS - CONTINUED

Auto Scan (continued):

9. If the channels are not coming in clearly after a channel scan (or if only some channels come in), follow Steps 4-7 to enter the Auto Scan sub-menu. Use the VOLUME UP or DOWN keys to change the Cable System to match the club's incoming frequency (Figure G), then re-run Auto Scan.
10. If the channels are coming in clearly, press the HOME key to return to normal function (Figure H). If some channels are still not coming in, are blurry, or are not scanning, follow the procedure below for adding / deleting a single channel. If no channels are coming in, see the troubleshooting in Chapter 2.



FIGURE G



FIGURE H

Adding or Deleting a Single Channel - At times the Channel Scan can pick up channels that do not have a strong enough signal to come in clearly or will fail to pick up channels that do come in clearly. Use the following procedure to manually add or delete a channel.

1. Follow Steps 1-4 in the Auto Scan instructions to access the TV Menu.
2. Use the VOLUME UP or DOWN keys to scroll to Channel on the top right of the Menu.
3. Use the CHANNEL UP or DOWN keys to scroll to Show / Hide (Figure I). Then use the VOLUME UP or DOWN keys to enter the Show / Hide sub-menu.
4. The Show / Hide sub-menu will show a list of channels available (Figure J). Channels with a check mark are scanned in and should show up during normal TV usage.
5. To remove or add any channel, simply scroll to the channel using the CHANNEL UP or DOWN keys, and then press ENTER to add or delete a check mark (which adds or deletes the channel).
6. Once the desired channels are scanned in, press HOME to return to normal operation.



FIGURE I



FIGURE J

10.5 TV PROGRAMMING INSTRUCTIONS - CONTINUED

Closed Caption - Clubs will vary on whether they request the closed caption to be turned off or on. Please discuss this option with the club manager prior to adjusting this setting.

1. Press ENTER, 1, 0, 0, 1, ENTER on the number keypad to enter Manager Mode.
2. Press TV on the display (Figure K).
3. Press SETUP on the display (Figure L). A TV will appear.

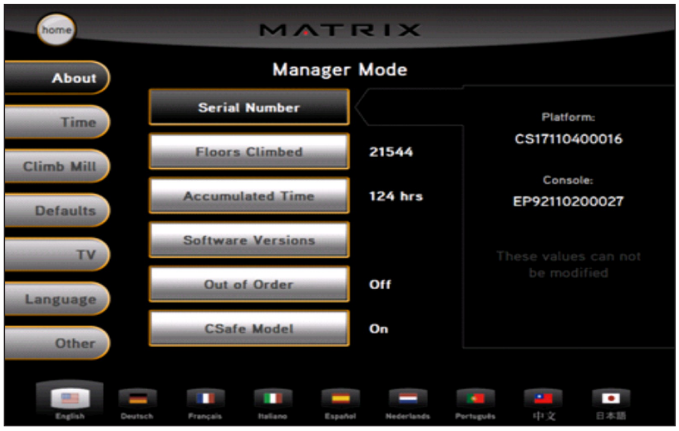


FIGURE K



FIGURE L

4. Press the - key on the number keypad and a Menu will appear on the TV (Figure M).
5. Use the VOLUME UP or DOWN keys to scroll the cursor to Setup on the Menu (Figure N).



FIGURE M



FIGURE N

6. Use the CHANNEL UP or DOWN keys to scroll the cursor to Closed Caption, then press the VOLUME UP or DOWN key to enter the Closed Caption sub-menu (Figure O).
7. Use the VOLUME UP or DOWN keys to toggle the CC Mode from ON to OFF or vice versa as needed (Figure P).
8. Press HOME to return to normal function.



FIGURE O



FIGURE P

11.1 SOFTWARE UPGRADE PROCEDURE

**** An AC power cord is required to update software in the field. Plug in the unit prior to beginning the update procedure.***
***** All plug ins must be removed prior to updating software (for example, no IPod can be connected). Do not use the console while an update is in process.***
****** If VA is installed on the console, wait until the Virtual Active icon on the standard display picture turns red prior to updating the software.***

1) Five files should be present on the USB drive. These are: DrummuDeploy.cab, NK, IO_XXX, updateLMM.confige, and Extract_CE.
2) Turn on the power to the Climb Mill, wait until the standard display picture has been come up (Figure A).
2) Enter Manager Mode by pressing ENTER, 1, 0, 0, 1, ENTER on the lower keypad.
3) Record the Accumulated Mileage, Accumulated Time, and Serial Number. ***NOTE:*** The information can be lost during the update procedure and should be recorded so that the information can be entered into the newly updated console.
4) Press the HOME key to return to the standard display picture.
5) Wait until the Virtual Active icon turns RED. Insert the USB Drive into the USB port in the console (Figure B).



FIGURE A



FIGURE B

6) After a few seconds, the Climb Mill will auto run the upgrade processing. The achieved percentage of the scheduled process will be displayed in the bottom right corner of the display (Figure C).
7) When the update is complete, the display will ask you to remove the USB drive (Figure D). Once the USB drive is removed, turn off the Climb Mill and wait 10 seconds, then turn the Climb Mill back on.
8) Enter Service Mode by pressing ENTER, 3, 0, 0, 1, ENTER on the lower keypad and check that the Machine Type is correctly set for Climb Mill and that the Service On Boot setting is NO. If the Machine Type is not correct, press ENTER, 3, 0, 0, 2, ENTER. This will do a software parameter reset. Then change the Machine Type. Once the Machine Type is changed cycle unit and console power. Press the HOME key to return to the standard display picture if the Machine Type is correct.
9) Also enter the values recorded in Step 3 in Service Mode (if needed).



FIGURE C



FIGURE D

9) Enter Manager Mode by pressing ENTER, 1, 0, 0, 1, ENTER on the lower keypad. Press SOFTWARE VERSIONS to verify that the new software version is shown on the screen. Re-load software if any problems are seen.

NOTES



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