MATRIX

E7XE-04 SUSPENSION ELLIPTICAL SERVICE MANUAL

TABLE OF CONTENTS

CHAPTER 1: SERIAL NUMBER LOCATION 1

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.1 Read and Save These Instructions 3
2.2 Electrical Requirements 4

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.1 Recommended Cleaning Tips 5
3.2 Check for Damaged Parts 5
3.3 Care and Maintenance Instructions 6
3.4 Touch Screen Care & Cleaning 7

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 Console Description 8
4.2 Workout Setup Steps 9

CHAPTER 5: MANAGER MODE

5.1 Manager Mode Overview 10
5.2 Manager Mode - About Tab 11
5.3 Manager Mode - Time Tab 12
5.4 Manager Mode - Defaults Tab 12
5.5 Manager Mode - TV Tab 13
5.6 Manager Mode - Language Tab 14
5.7 Manager Mode - Other Tab 15

CHAPTER 6: ENGINEERING MODE

6.1 Engineering Mode Overview 16
6.2 Engineering Mode - Calibration Tab 16
6.3 Engineering Mode - Statistics Tab 17
6.4 Engineering Mode - Errors Tab 17
6.5 Engineering Mode - Clubs Tab 18
6.6 Engineering Mode - Club ID Tab 18
6.7 Engineering Mode – Other Tab 19

CHAPTER 7: SERVICE MODE

7.1 Service Mode Overview 20
7.2 Service Mode - Setup Tab 21
7.3 Service Mode - Test Tab 22
7.4 Service Mode - Log Tab 23
7.5 Service Mode - Date / Time Tab 23

CHAPTER 8: TROUBLESHOOTING

8.1 Electrical Diagram 24
8.2 LCB LED Indicators 28
8.3 LCB Wiring Connections 29
8.4 Troubleshooting - Error 04A0 30
8.5 Troubleshooting - Error 04B0 31
8.6 Troubleshooting - Error 0248 32
8.7 Troubleshooting - Error 02B4 33
8.8 Troubleshooting - Error 02AB 34
8.9 Troubleshooting - Error 01AC 35
8.10 Troubleshooting - No Resistance Issues 36
8.11 Troubleshooting - Touch Pad Issues 37

TABLE OF CONTENTS

8.12 Troubleshooting - Heart Rate Issues 38
8.13 TV Troubleshooting - Overview 39
8.14 TV Troubleshooting - Picture Fuzzy or Unclear 40
8.15 TV Troubleshooting - TV Will Not Turn On 41
8.16 TV Troubleshooting - Entertainment Keypad Issues 42

CHAPTER 9: PART REPLACEMENT GUIDE

9.1 Front Disk Replacement 43
9.2 Front Shroud Replacement 44
9.3 Lower Control Board (LCB) Replacement 47
9.4 Generator Replacement 48
9.5 Generator Belt Replacement 50
9.6 Drive Belt Replacement 51
9.7 Pulley Axle Set Replacement 52
9.8 Drive Axle Set Replacement 53
9.9 Crank Replacement 57
9.10 Console Replacement 58
9.11 Console Overlay / Keypad Replacement 59
9.12 Console Mast Handlebar 61
9.13 Dual Action Handlebar Replacement 62
9.14 Foot Pedals Replacement 63
9.15 Pedal Arm Replacement 64
9.16 Link Arm Replacement 65
9.17 Swing Arm Replacement 66
9.18 Vertical Stabilizer Replacement 67
9.19 Incline Arm Cover Replacement 68
9.20 Handlebar Service Replacement 69
9.21 Testing the Suspension Elliptical 70

CHAPTER 10: EXPLODED DIAGRAMS

10.1 Suspension Elliptical Specifications 71
10.2 Assembly Hardware 72
10.3 Suspension Elliptical Assembly Steps 73
10.4 Leveling the Suspension Elliptical 85
10.5 TV Programming Instructions 86

CHAPTER 11: SOFTWARE UPGRADE PROCEDURE

11.1 Software Upgrade Procedure 88

CHAPTER 1: SERIAL NUMBER LOCATION

1.1 SERIAL NUMBER LOCATION



SERIAL NUMBER LOCATION

1.1 SERIAL NUMBER LOCATION - CONTINUED

CONSOLE SERIAL NUMBER LOCATION



CONSOLE SERIAL NUMBER LOCATION

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.1 READ AND SAVE THESE INSTRUCTIONS

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

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 console covers. Service should only be done by an authorized service technician.***
- ***Do not carry this unit by it's supply cord or use the cord as a handle.***
- ***Close supervision is necessary when the Suspension Elliptical 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.***
- ***To disconnect, turn all controls to the off position, then remove the plug from the outlet.***
- ***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.***

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.***

2.2 ELECTRICAL REQUIREMENTS

The Matrix Suspension Elliptical can now be self powered. It is recommended that the unit be plugged in for at least 4 hours after initial installation to charge the battery prior to using the self powered feature. ***NOTE:*** If an add on TV (using a bracket) or Virtual Active is added to the unit, it must be plugged in, or the TV or VA will not operate correctly. If the Suspension Elliptical will be plugged in, follow the requirements below.

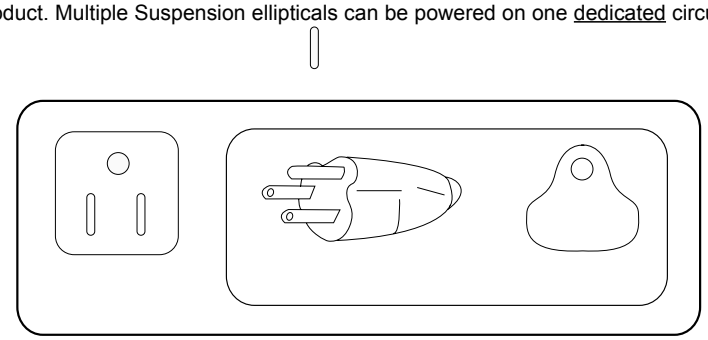
MATRIX DEDICATED CIRCUIT/ELECTRICAL REQUIREMENT INFO

All Matrix Suspension Elllipticals 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 Suspension ellipticals into should not have anything else running on that same circuit besides other Suspension ellipticals (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 Suspension ellipticals 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 Suspension Elliptical performance, the ground on this circuit must be non-looped. Please refer to NEC article 210-21 and 210-23. Your Suspension elliptical 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 Suspension ellipticals can be powered on one dedicated circuit. (3 units per 15 Amp and 4 units per 20 Amp dedicated circuit.)



GROUNDING INSTRUCTIONS:

The Matrix E7xe-04 Suspension Elliptical 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 Suspension Elliptical 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 Suspension Elliptical 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.

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.1 RECOMMENDED CLEANING TIPS

In order to maximize life span, and minimize down time, all Matrix Fitness Equipment requires regularly scheduled cleaning.

YOU WILL NEED:

- Mild dish soap and water mixture in a spray bottle (10:1 water to soap ratio).
- Lint free 100% cotton cleaning cloths or Micro fiber cleaning cloths.
- Vacuum / Shop Vac with extendable hose and soft brush attachment.
- Corrosion Block (available from Matrix - part # ZMS4001374).

DAILY:

1. Wipe down the unit after each use with a mild dish soap and water mixture. ***NOTE:*** Spray the soap / water mixture onto the cloth. NEVER spray directly onto the equipment. We recommend that you do NOT allow customers to use spray bottles to clean the equipment. If the cleaner is sprayed directly on the equipment or over spray is present, it may cause your equipment to rust and / or cause damage to console overlays.

WEEKLY:

1. With a clean dry 100% lint free cloth and water / soap mixture, wipe down the entire frame so it is free of dust, dirt, and sweat.
2. With a clean dry 100% lint free cloth and water / soap mixture, wipe down the entire console area including the hand grips and hand rails.
3. Use a computer screen cleaner or LCD / LED screen cleaner on the touch portion of the console.

MONTHLY:

1. Vacuum under and around the Elliptical Trainer. If you need to move it, unplug the unit first.
2. Vacuum debris out of the foot pedals.
3. Apply Corrosion Block to the metal part of the iPod cable.

3.2 CHECK FOR DAMAGED PARTS

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

3.3 CARE AND MAINTENANCE INSTRUCTION

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

* Metric Allen wrenches
* #2 Phillips head screwdriver
* Adjustable wrench
* Teflon based spray lubricant such as “Super Lube”, or other Matrix approved product

You may periodically see an addendum 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. Attempt to wobble the unit back and forth, level if needed (see Section 10.4).

QUARTERLY MAINTENANCE ITEMS

1. Check all connecting joint areas for tightness of bolt assemblies.
2. Ensure that there is little, or no free play at all joint assemblies once bolts have been tightened. Installation of washer kits may be required if free play does not come out from tightening bolts.
3. Remove plastic covers, and lubricate the ball joint where the Link Arm and Handlebar join together. Use your finger to apply grease to the ball bearing. Matrix recommends using Superlube brand grease with PTFE {Teflon} additive.

YEARLY MAINTENANCE ITEMS

1. Remove the front round covers and check the belts for damage, alignment, and proper tension.

3.4 TOUCH SCREEN CARE & CLEANING

TOUCH SCREEN CARE AND CLEANING

* The touch screen requires very little maintenance. We recommend that you periodically clean the touch screen surface with a clean dry 100% lint free cloth and water / soap mixture or a computer or LCD / LED screen cleaner.

* 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 water / soap mixture 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 E7xe-04 has a fully integrated touch screen display. All information required for workouts is explained on screen. Exploration of the interface is highly encouraged. The information explaining how to program for various workouts will give an explanation about the contents of each screen.

GO: One touch Start.

STOP: Ends workout and shows workout summary data.

COOL DOWN (displayed on-screen during workout): Puts unit into Cool Down mode. Cool Down time is dependent on the length of the workout. Workouts 19 minutes and shorter will have a cool down length of 2 minutes. Workouts 20 minutes and longer will have a cool down length of 5 minutes.

E7XE-04 ENTERTAINMENT ZONE

iPOD®: Will take the user directly to the iPod screen to allow for iPod control and playlist selection.

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

CC/MUTE: Mutes sound and turns closed captioning on or off.

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. Pressing GO will not prompt user for age, weight, or level settings.

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.

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

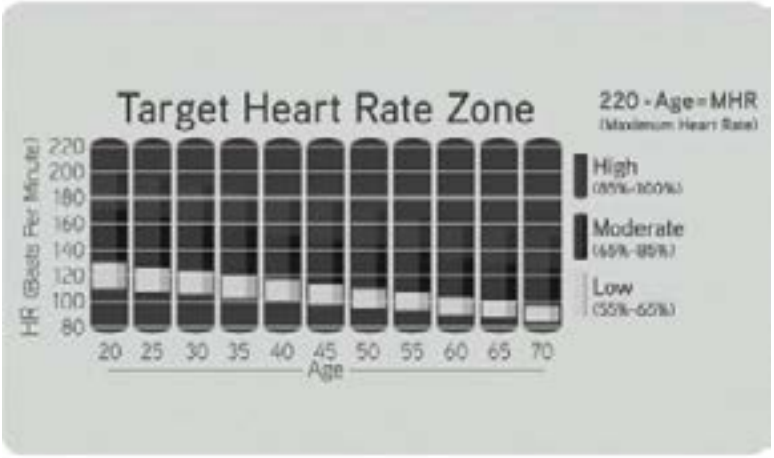
ROLLING HILLS - The Rolling Hills program is a level based program that automatically adjusts the resistance level to simulate real terrain.

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.

RANDOM - Random is a level based workout that randomly adjusts the resistance of the machine.

TARGET HEART RATE - The Matrix Suspension Elliptical 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 Suspension Elliptical will automatically adjust the level based upon the user's heart rate. The heart rate zone is calculated using the following equation: (220-Age)8%=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 Suspension Elliptical. 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 -The Cooper Fitness Test measures cardiovascular fitness and proves an estimated sub-maximal VO2 result. It is based on power output according to ACSM standards and was developed by the Cooper Institute© (www.cooperinstitute.org). User RPMs must remain between 60-80 RPM during the test. The test will end when the user can no longer maintain this speed. Use of a heart rate strap is optional but provides more data.

The test starts at a low intensity level and gradually increases in intensity (difficulty) every 2 minutes. As it increases, the user must maintain 60-80 RPM to advance to the next level. The test could take upwards of 30+ minutes for very fit individuals. Once the test ends a recovery period (cool down) will begin and the user's results are calculated and displayed. Results are based on the number of stages completed. Incline will not be adjustable during the test.

STAGE COMPLETE:

1	Well Below Average
2	Well Below Average
3	Below Average
4	Below Average
5	Average
6	Average
7	Above Average
8	Above Average
9+	Well Above Average

CONSTANT WATTS - Constant Watts is a unique program that allows you to vary your cadence or RPM and the Suspension Elliptical's resistance level will adjust accordingly to your selected goal. The quicker you pedal, the less resistance for the goal selected.

CHAPTER 5: MANAGER MODE

5.1 MANAGER MODE OVERVIEW

The Manager's Custom Mode allows the club owner to customize the Suspension Elliptical for the club.

1) To enter Manager Mode, press ENTER, 1, 0, 0, 1, ENTER on the lower display. 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



E7xe-02-C or E7xe-01-C - If the unit has the old MMM board, the CSafe Model should be set for Off (even if the MMM console is replaced).

E7xe-03-C - If the unit has the LMM board, the CSafe Model should be set for On. The Suspension Style Elliptical uses this console.

E7xe-04-C - If the unit has the LAM console (the console cover back will have holes for ventilation), the CSafe Model should be set for LAM.

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	This option controls whether the console is Fitlinxx compatible.	LMM / MMM / LAM

5.3 MANAGER MODE - TIME TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Time	Max 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.	Max: Max Time Min: 5 Min
	Pause Time Default: 5 Minutes	This option controls the default pause time.	Max: 10 Min Min: 1 Min

5.4 MANAGER MODE - DEFAULTS TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTION	MODIFIED
Defaults	Level Default: 1	This option controls the default program level.	Max: 1 Min: 20
	Age Default: 30	This option controls the default user's age used in the target HR calculations.	Maximum: 100 Minimum: 10
	Weight Default: 150 lbs / 68 kg	This option controls the default weight used in the calorie calculations. Displayed in pounds or kilograms.	Maximum: 400 lbs / 182 kg Minimum: 50 lbs / 22 kg
	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

5.5 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 sets the TV tuner function.	On / Off
	Remove TV Default: No	This option controls the remote TV function.	NO or YES
	Remove TV channel Default: 1	This option controls the default remove TV channel on start up.	Maximum: 37 Minimum: 1
	Remove TV volume Default: 15	This option controls the default remove TV volume on start up.	Maximum: 15 Minimum: 1

5.6 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

LANGUAGE	FLAG	UNIT
English		Mile
		Mile
		KM
German		KM
		KM

LANGUAGE	FLAG	UNIT
Spanish		KM
		KM
Dutch		KM
Italian		KM
Japanese		KM

LANGUAGE	FLAG	UNIT
Chinese		KM
		KM
Portuguese		KM
		KM
French		KM

5.7 MANAGER MODE - ABOUT 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 control the Virtual Active 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 Suspension Elliptical.

1) To enter Engineering Mode, press ENTER, 2, 0, 0, 1, ENTER on the lower display. 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.

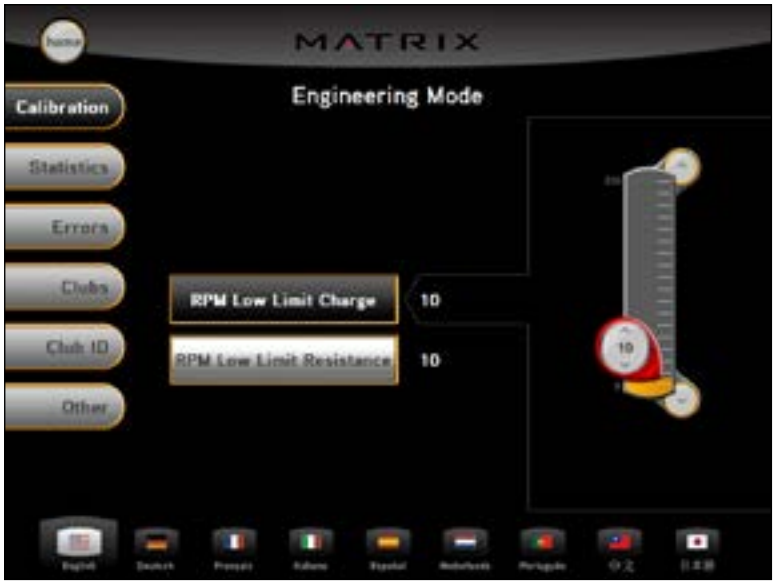
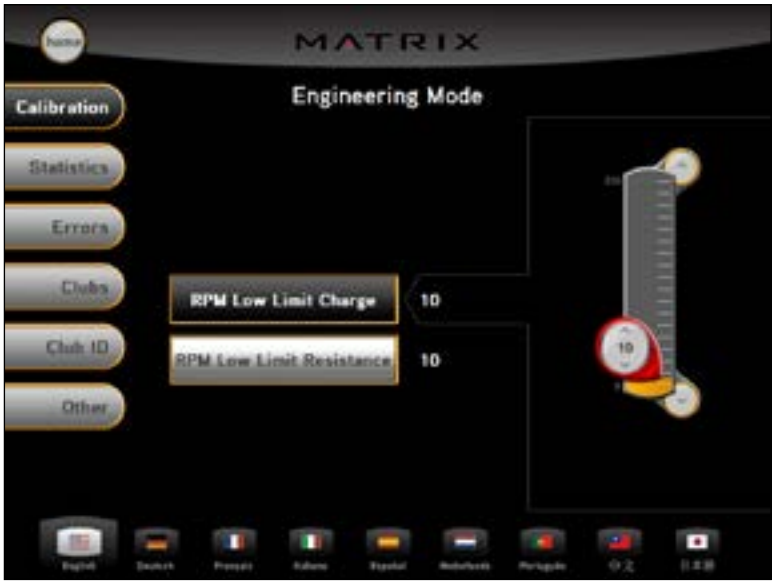


FIGURE A

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 information for the unit.	N/A

6.4 ENGINEERING MODE - ERRORS TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Errors		This option displays the error code history for the unit.	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 - OTHER TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Other	Erp Time Default: 0 minutes	If there is no use of the machine over a period of time, the console LEDs will turn off (go into ErP mode).	Maximum: 30 minutes Minimum: 0

CHAPTER 7: SERVICE MODE

7.1 SERVICE MODE OVERVIEW

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

1) To enter Service Mode, press ENTER, 3, 0, 0, 1, ENTER on the lower display. 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



E7xe-02-F - All elliptical trainers should be set for this model if rollers / tracks are present.

E7xe-03-F - This is for the suspension elliptical model that has no rollers / tracks.

SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
Setup	Machine Type Default: Elliptical	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.

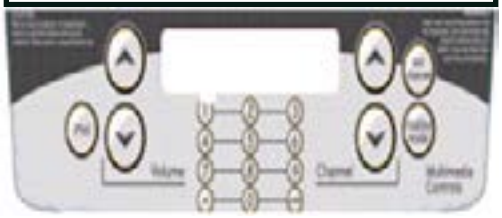
7.3 SERVICE MODE - TEST TAB



E7xe-02--C Keypad - Old keypad - Includes Quick Start Key



E7xe-03--C Keypad - Old keypad - Does NOT Includes Quick Start Key



E7xe-04-C Keypad - New keypad -



SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Test	Keypad	This option is for a keypad test.	N/A
	Touch Calibration	This option allows for a touch calibration of the console. Follow the cross mark and touch the screen to catch. After 5 positions are tested, touch the center of the screen to exit this test.	N/A
	Keypad Type	This option sets the keypad type for the console.	Quick Start or No Quick Start or LAM
	Radio Test	This option will test the radio signal for function.	N/A

7.4 SERVICE MODE - LOG TAB



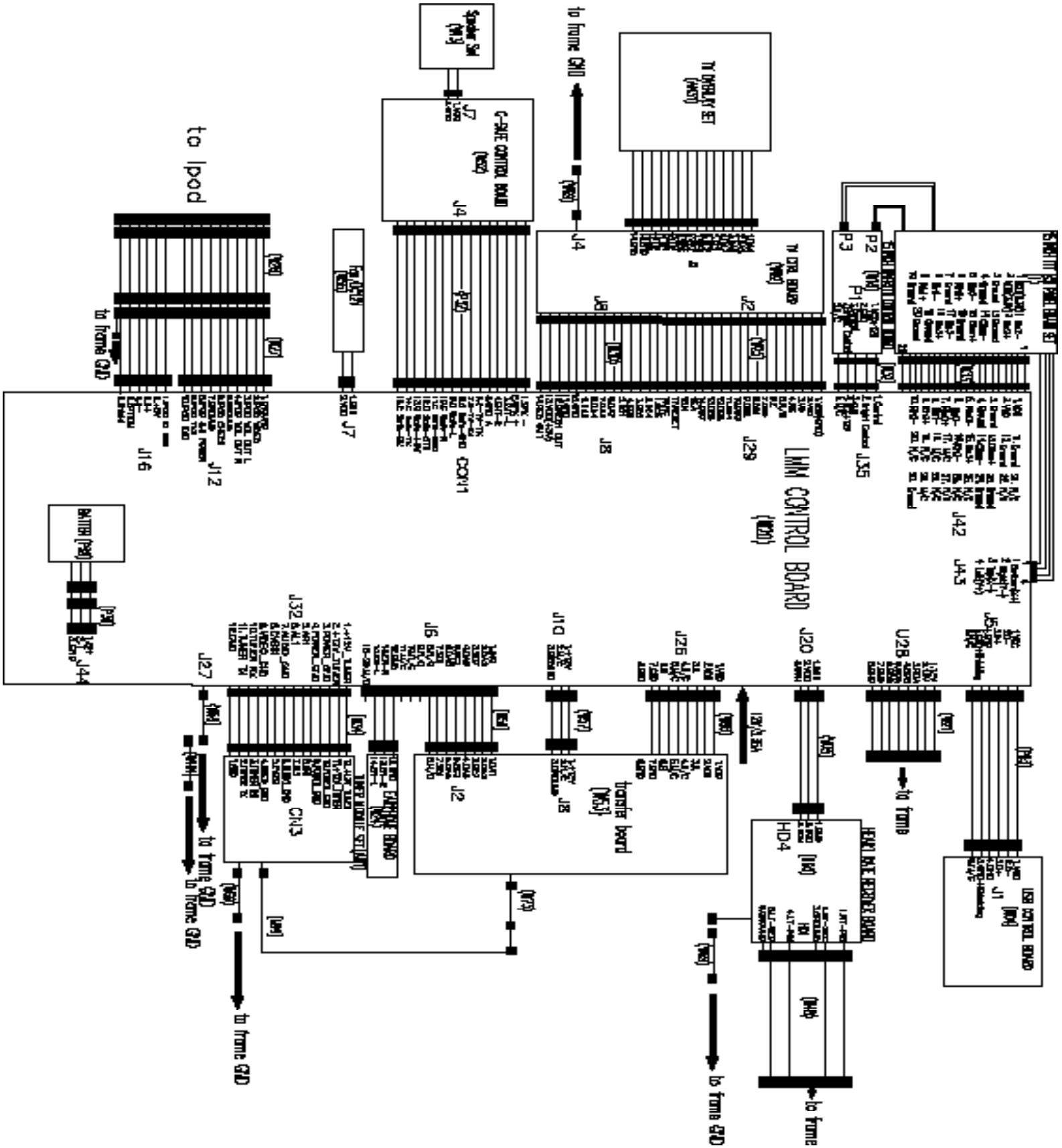
SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
	Log	This option records key components replacement history.

7.5 SERVICE MODE - DATE & TIME TAB

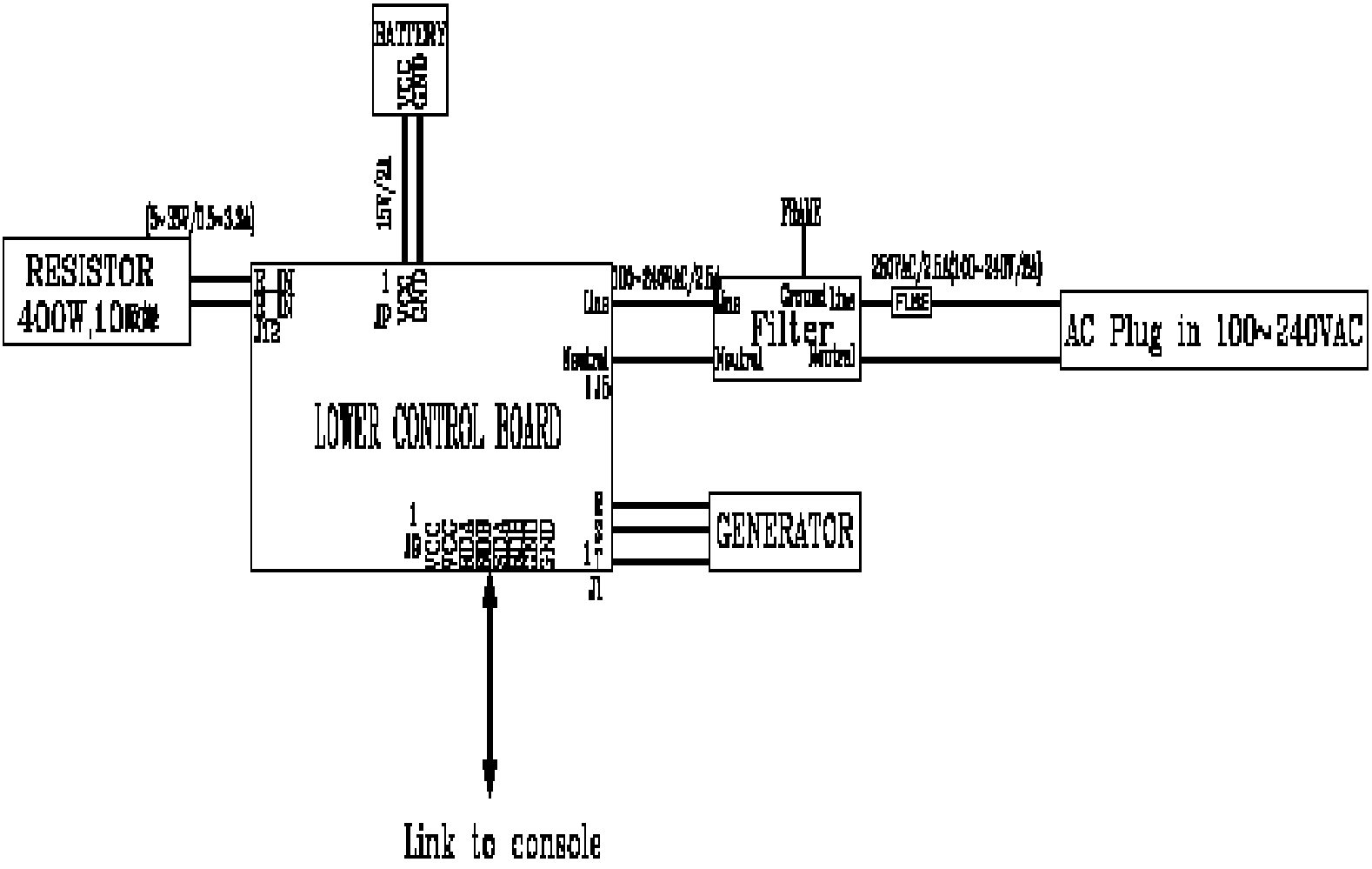


SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
	Date & Time	This option sets the current date and time on the machine.

8.1 ELECTRICAL DIAGRAMS

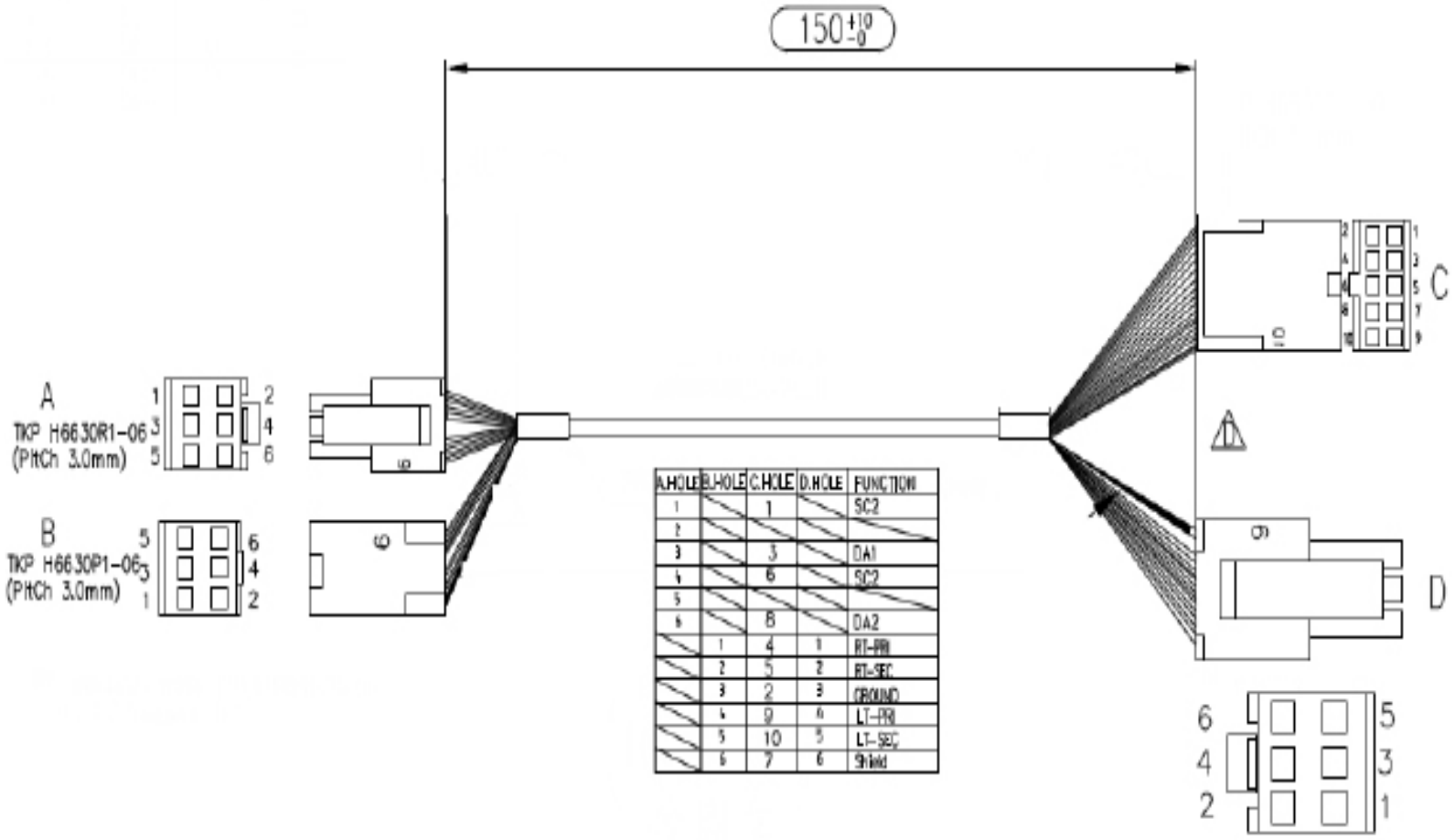


8.1 ELECTRICAL DIAGRAMS - CONTINUED



8.1 ELECTRICAL DIAGRAMS - CONTINUED

PULSE SENSOR WIRE



A.HOLE	B.HOLE	C.HOLE	D.HOLE	FUNCTION
1		1		SC2
2				
3		3		DA1
4		6		SC2
5				
6		8		DA2
	1	4	1	RT-PRI
	2	5	2	RT-SEC
	3	2	3	GROUND
	4	9	4	LT-PRI
	5	10	5	LT-SEC
	6	7	6	Shield

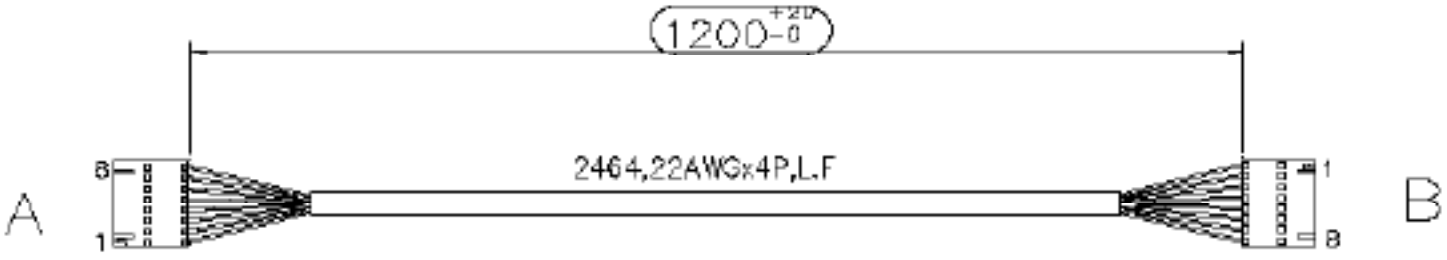
POWER RESISTANCE WIRE



A:HOLE	COLOR	FUNCTION
1	WHITE	R_IN
2		
3		
4	WHITE	R_IN

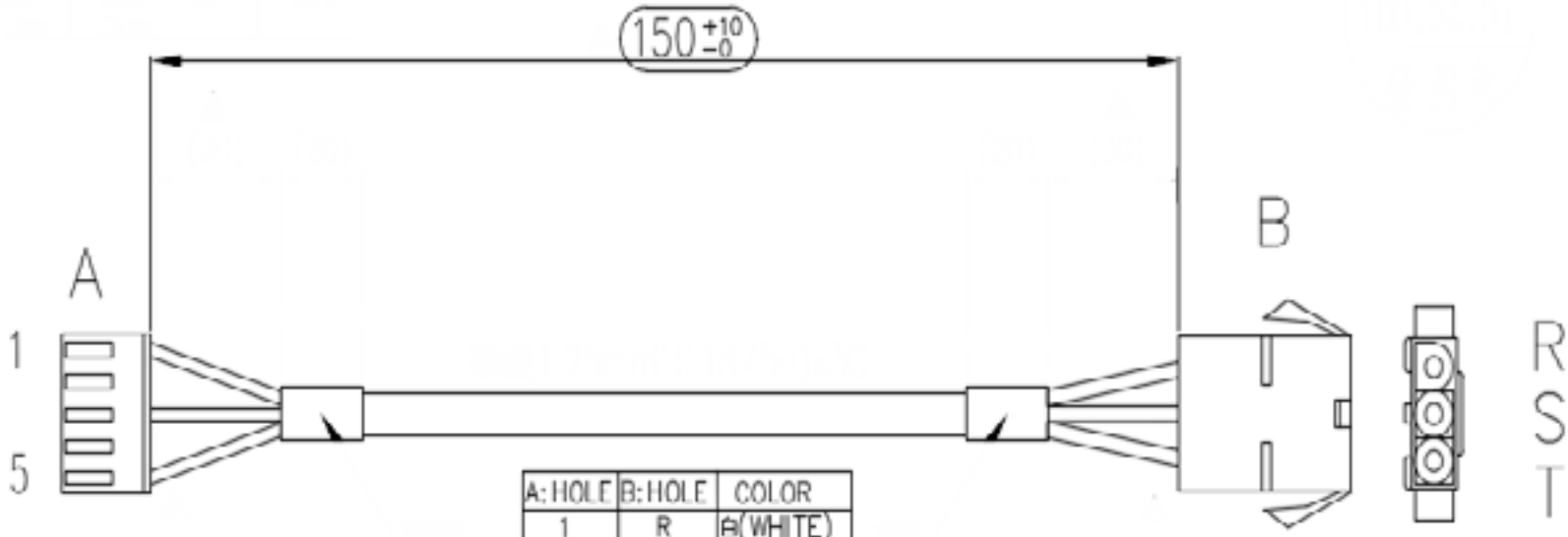
8.1 ELECTRICAL DIAGRAMS - CONTINUED

DIGITAL COMMUNICATION WIRE



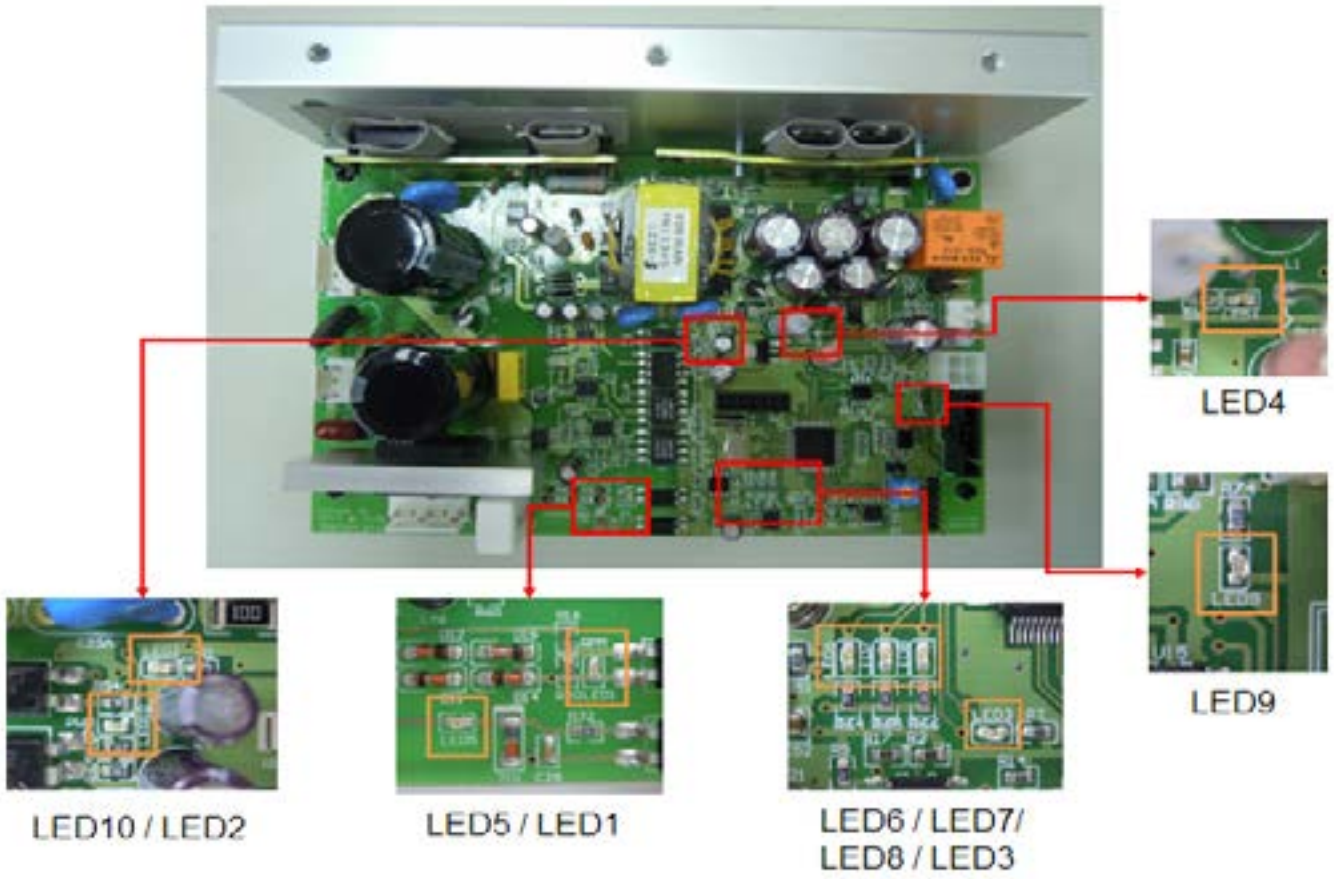
A:HOLE	B:HOLE	FUNCTION	COLOR
1	1	12V	red
2	2	12V	
3	3	RDA	
4	4	隔	
5	5	隔	
6	6	RDB	
7	7	GND	black
8	8	GND	

ECB WIRE



A:HOLE	B:HOLE	COLOR
1	R	白(WHITE)
2		
3	S	紅(RED)
4		
5	T	黑(BLACK)

8.2 LCB LED INDICATORS



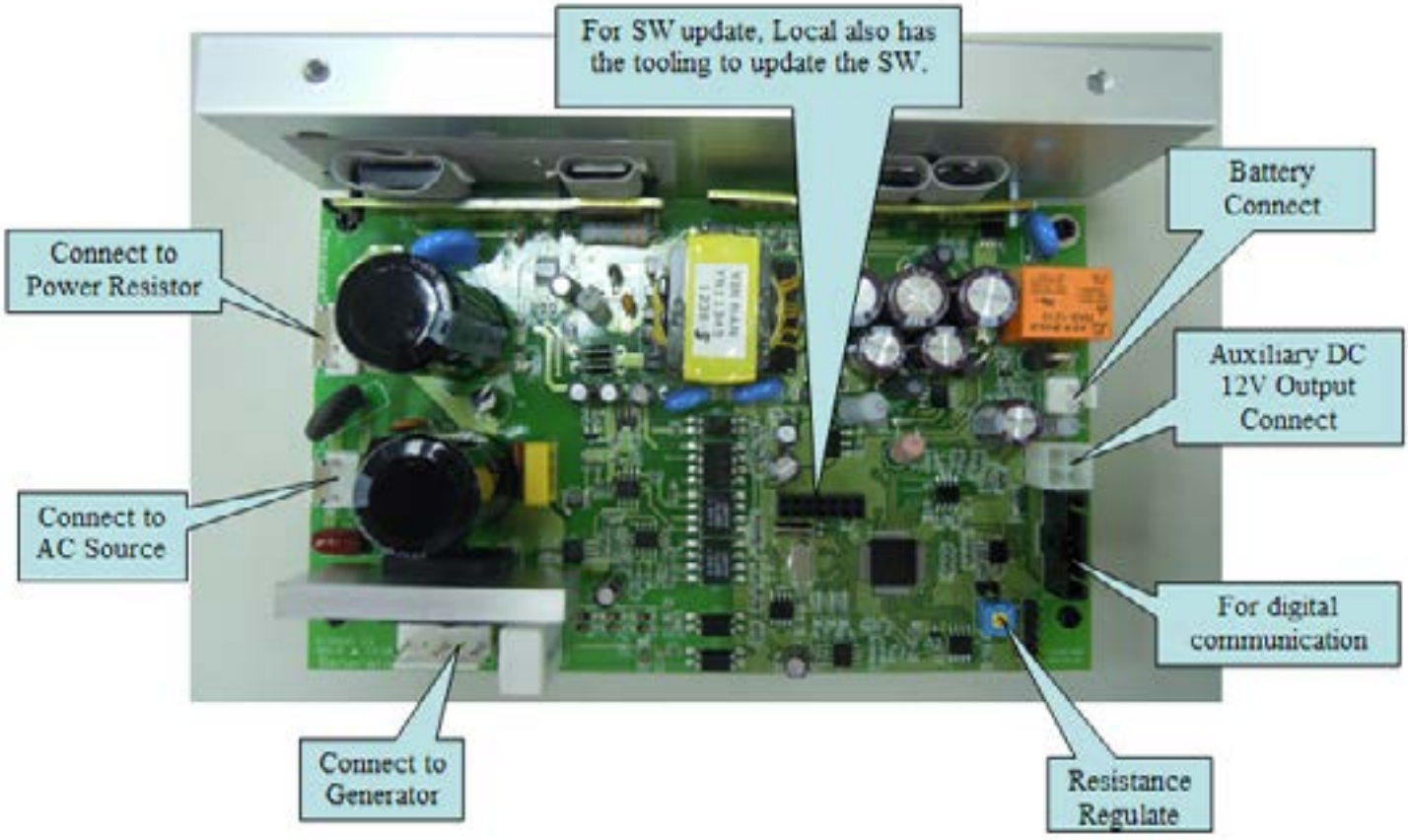
========== FIRMWARE DEFINITION ==========

LED6: LCB STATUS (BLINKING: OK)
LED7: RESISTANCE REGULATE STATUS (BRIGHT : NORMAL)
LED8: UCB/LCB COMMUNICATION STATUS (BLINKING : OK)

========== HARDWARE DEFINITION ==========

LED1: AC PLUG-IN STATUS (BRIGHT : AC)
LED2: DC 5V STATUS (BRIGHT : OK)
LED3: AC PLUG-IN STATUS (BRIGHT : AC)
LED4: DC 12V STATUS (BRIGHT : OK)
LED5: RPM
LED9: UCB POWER SUPPLY STATUS (BRIGHT: POWER ON)
LED10: RESISTANCE PWM STATUS (BRIGHT: RESISTANCE ON)

8.3 LCB WIRING CONNECTIONS



ERROR CODE 04A0

1) SYMPTOM:

04A0 – PCB communication disconnected.

2) SOLUTION:

1) Check the connection of the console cable at the UCB and LCB. Also check the console cable for damage, replace as needed.
2) If the console cable connections are good, the issue is likely with the UCB. Replace the console.
3) If the console does not resolve the issue, replace the LCB.



FIGURE A

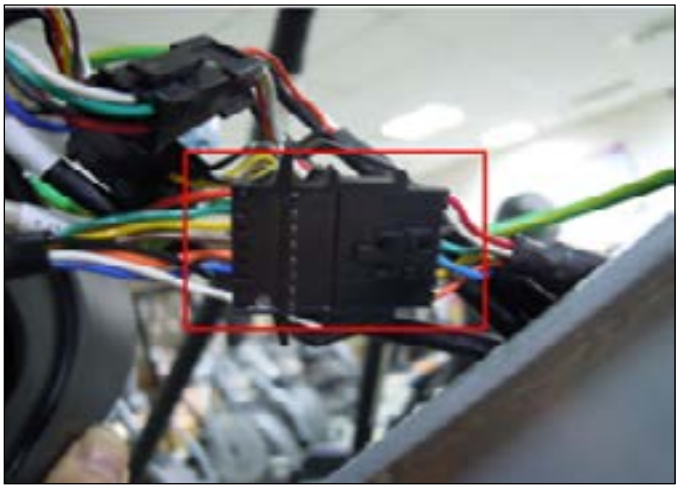


FIGURE B

ERROR CODE 04B0

1) SYMPTOM:
04B0 – LCB communication disconnected.

2) SOLUTION:
1) Check the connection of the console cable at the UCB and LCB. Also check the console cable for damage, replace as needed.
2) If the console cable connections are good, the issue is likely with the UCB. Replace the console.
3) If the console does not resolve the issue, replace the LCB.



FIGURE A

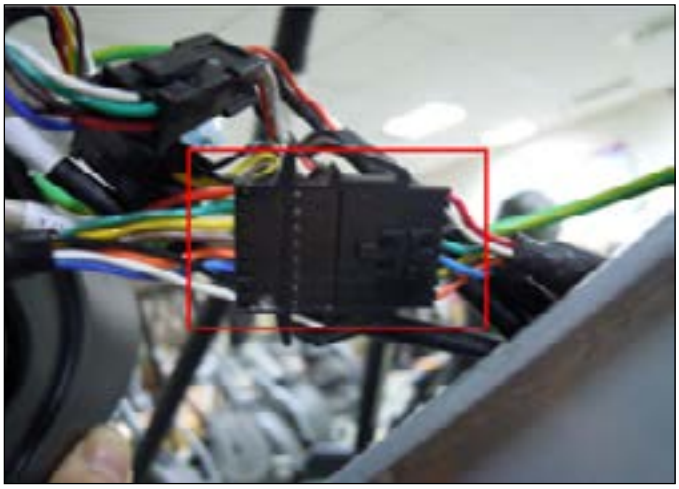


FIGURE B

ERROR CODE 0248

1) SYMPTOM:

0248 –Battery disconnection or fail. (When the power is on, LCB battery voltage is less than 6 VAC)

2) SOLUTION:

1) Check the battery wire connection between the battery and LCB (Figure A).
2) Check the battery voltage (Figure B), if it is less than 6 VAC, replace the battery.
3) If the battery voltage is more than 6 VAC, replace the LCB.

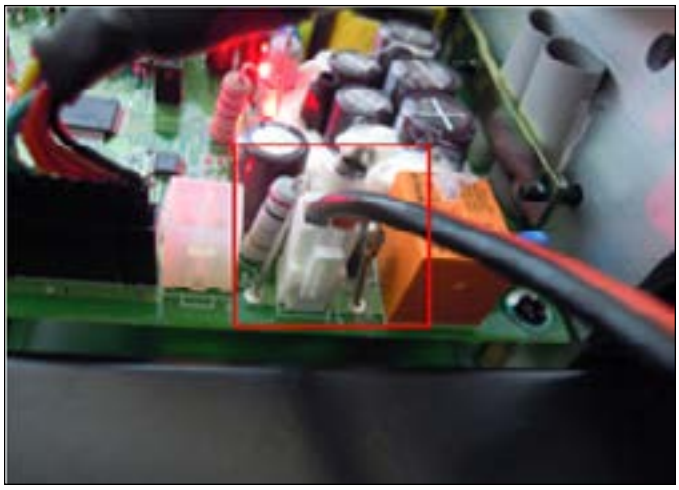


FIGURE A



FIGURE B

ERROR CODE 02B4

1) SYMPTOM:

02B4 – Resistance type error.

2) SOLUTION:

1) Check if the machine has the correct resistance system (resistor or ECB) (Figures A & B).
2) Check if the console is matched with the correct frame, and that the Machine Type is set correctly in Engineering Mode.
3) Replace the LCB.
4)..Replace the console. .

Resistor use on HUREA5x frame

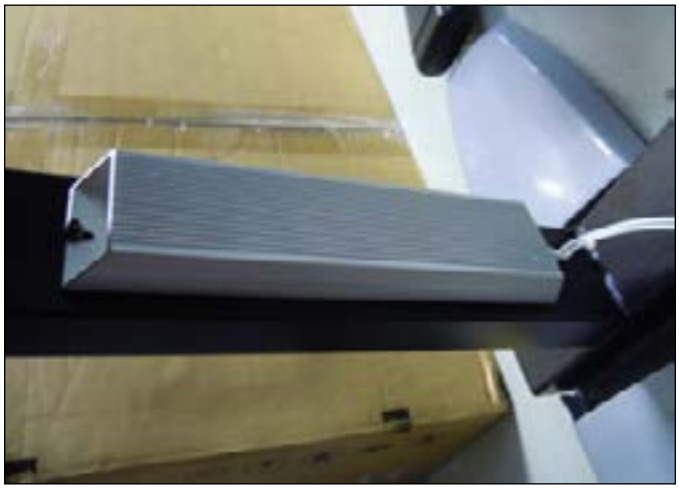


FIGURE A

ECB use on SC5x frame and EP84 (ECB system E5x).

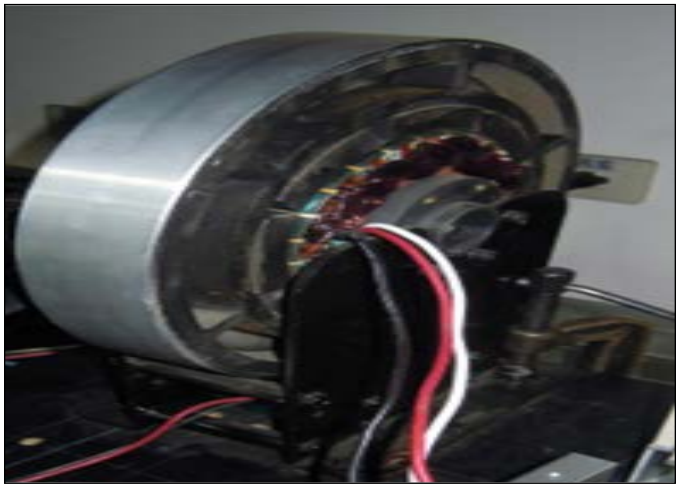


FIGURE B

ERROR CODE 02AB

1) SYMPTOM:
02AB –Machine type error.

2) SOLUTION:
1) Check if the console machine type is matched with the correct frame in Engineering Mode.

Remarks: There are two types of E5x-F as below, each with different machine type in setting.

Machine type is E5x-02



FIGURE A

Machine type is E5x-03



FIGURE B

ERROR CODE 01AC

1) SYMPTOM:

01AC - Resistance over current.

2) SOLUTION:

1) Check the resistance coming out of the resistor (Figure A).
--If the resistance value is under 8 ohms, replace the power resistor.
--If the resistance value is over 8 ohms, replace the LCB.



FIGURE A

8.10 TROUBLESHOOTING - NO RESISTANCE ISSUES

NO RESISTANCE TROUBLESHOOTING

1) SYMPTOM:
No resistance

2) SOLUTION:
1) Check the power resistance wire connection between the power resistor and LCB (Figure A).
2) Check the resistance coming out of the resistor (Figure A).
--If the resistance value is under 8 ohms, replace the power resistor.
--If the resistance value is over 8 ohms, replace the LCB.

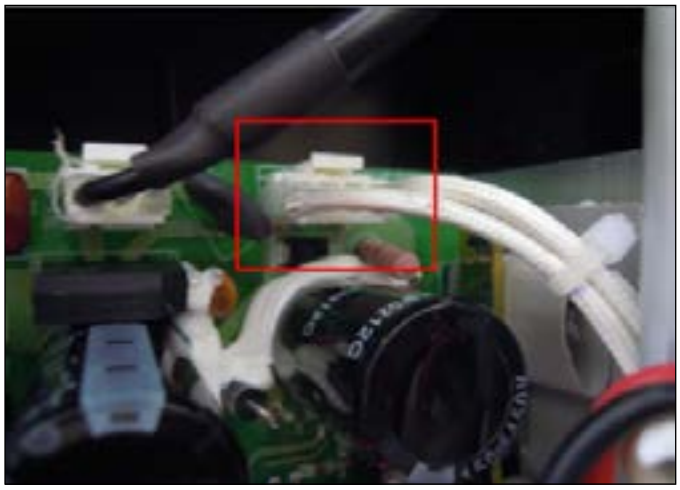


FIGURE A



FIGURE B

8.11 TROUBLESHOOTING - TOUCH PAD ISSUES

ALL OR SOME OF THE FUNCTION KEYS DO NOT RESPOND

POSSIBLE CAUSES:

1) The touch pad is not calibrated properly.
2) The UCB is damaged.

SOLUTION:

1) Perform a touch pad calibration in Service Mode:
   a. Press ENTER, 3, 0, 0, 1, ENTER on the lower number keypad.
   b. Press TEST on the display.
   c. Press TOUCH CALIBRATION on the display.
   d. Follow the cross mark moving across the screen and touch. After testing 5 positions, touch the center to exit the test (Figure A).

2) If the Touch Calibration does not work, replace the console.



FIGURE A

8.12 TROUBLESHOOTING - HEART RATE ISSUES

HEART RATE FUNCTION DOES NOT WORK OR IS READING INCORRECTLY

POSSIBLE CAUSES:

1) The HR grips are not hooked up correctly.
2) The HR grip wiring is damaged.
3) The console or HR board is not properly grounded.
4) The console, HR board, or wiring between are bad.

SOLUTION:

1) Perform a DC Voltage test on the HR grips.
   a. With one prong of a multi meter on each of the plates on one side of the HR grip set (Figure A), a voltage reading of between .5 and 2.0 should be seen. If the reading is correct, the issue is not with the HR grips or grip wiring.
   b. If the reading is not correct, remove the screws holding the halves of the HR grip together and check the connection of the wiring to the grips (Figure B).

2) Remove the console from the unit and verify continuity of the HR grip wiring. With a multi meter set for ohms, place one prong on the HR grip wiring coming up the console mast (Figure C), and the other on the appropriate plate (match red with red and white with white).
   a. An ohm reading of less than 1 should be received. If it is higher, replace the HR grip wiring.

3) Perform a continuity check on the console (See Service Bulletin - Continuity Test on Matrix Elliptical Trainers).
   a. Once the console continuity is confirmed, perform a continuity check on the HR board ground wire. With a multi meter set for ohms, place one prong on the HR board ground wire (Figure D), and the other on the console ground wire. An ohm reading of less than 1 should be received. If it is higher, replace the HR board.

4) If all the troubleshooting listed above has been performed, and the unit still has HR issues, replace the HR board.
   a. If the HR board does not resolve the issue, replace the console.



FIGURE A



FIGURE B



FIGURE C



FIGURE D

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 Suspension Elliptical 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

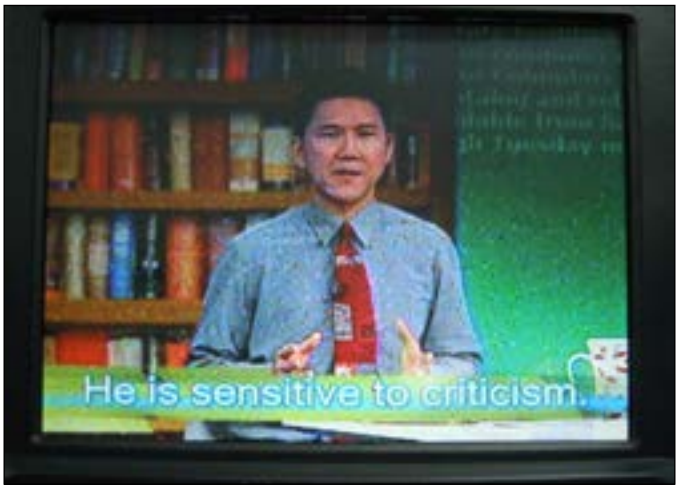


FIGURE B



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

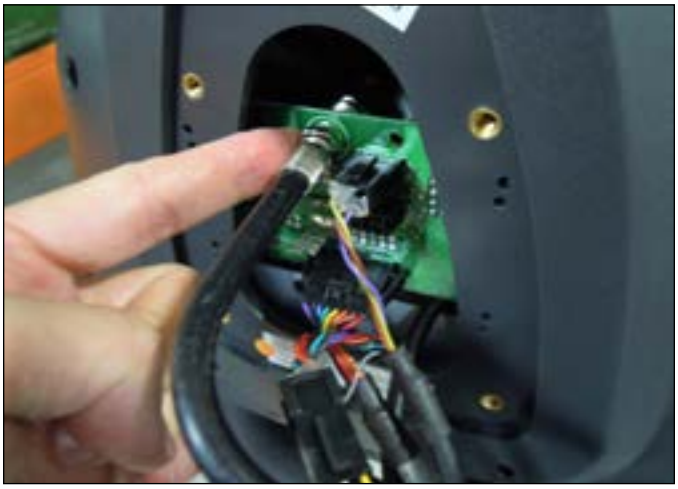


FIGURE B

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.

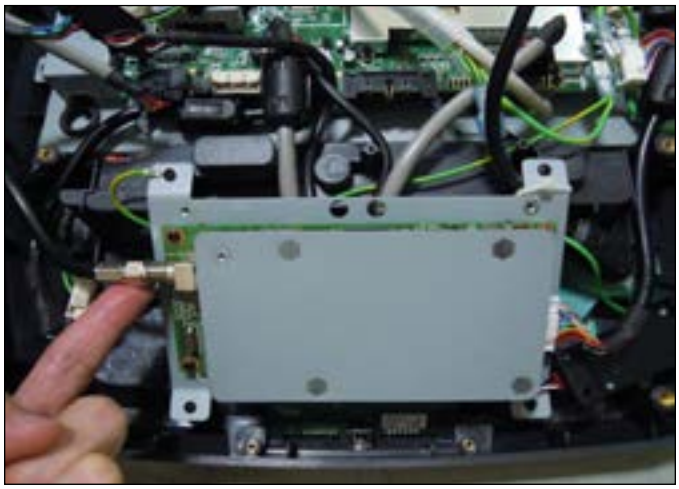


FIGURE C



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).

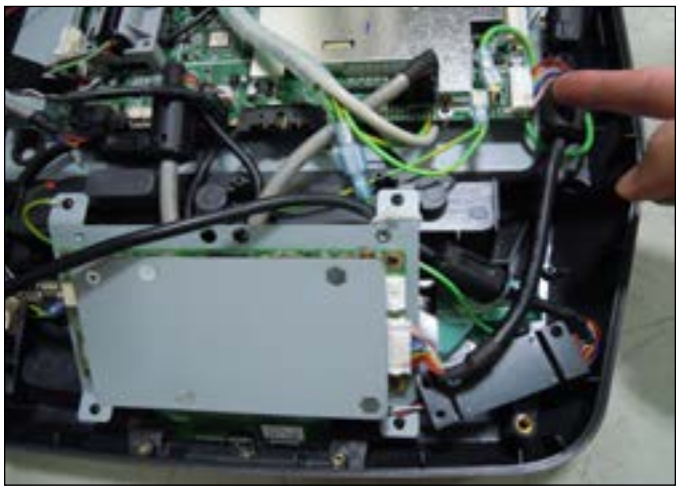


FIGURE A

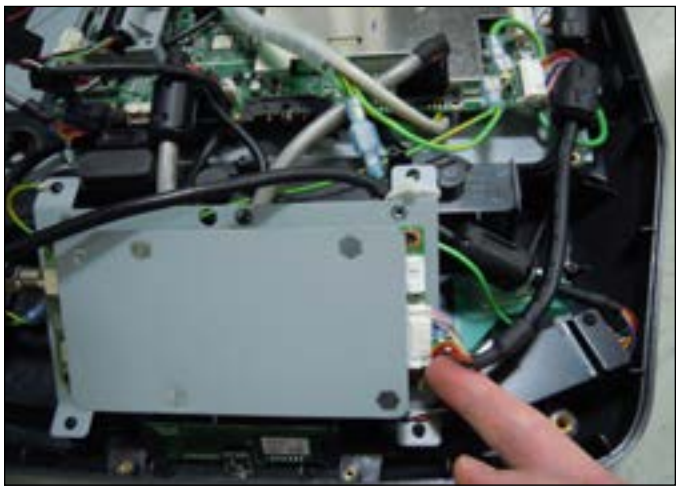


FIGURE B

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

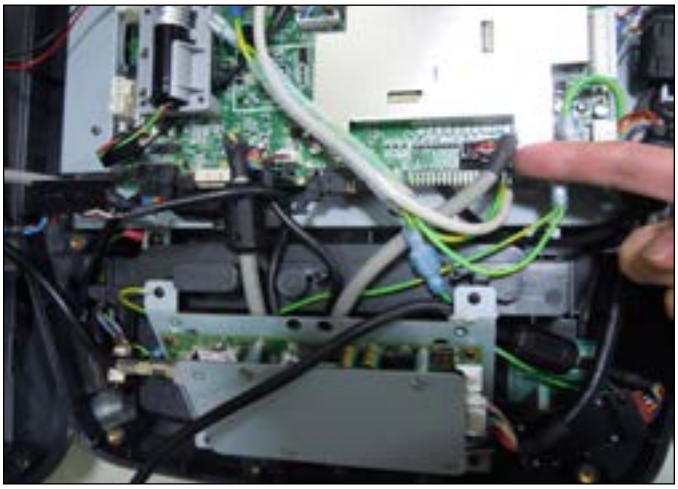


FIGURE B

9.1 FRONT DISK REPLACEMENT

1) Remove the center cover by turning it counter clockwise (Figures A & B).



FIGURE A



FIGURE B

2) Remove the 3 screws holding the disk to the axle (Figure C).
3) Remove the disk (Figure D).



FIGURE C



FIGURE D

4) Reverse Steps 1-3 to install a new disk. ***NOTE:*** The 3 screws removed in Step 2 should be torqued to 25 N-m.

9.2 FRONT SHROUD REPLACEMENT

1) Remove the link arm and pedal arm plastic caps (Figures A & B).



FIGURE A



FIGURE B

2) Detach the dual action handlebar from the link arm (Figure C).
3) Secure the handlebar so that it is out of the way (Figure D).

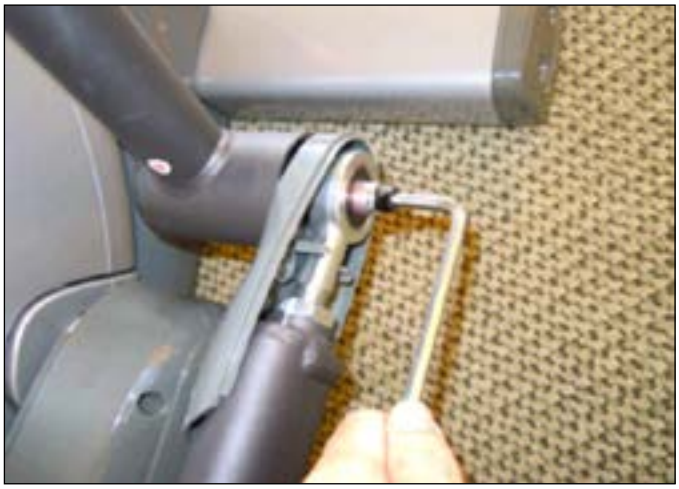


FIGURE C



FIGURE D

4) Remove the front disks as outlined in Section 9.1.
5) Detach the pedal arm from the crank bearing assembly (Figure E).
6) Remove the 2 screws that hold the front top cover to the frame and remove the top cover (Figure F).



FIGURE E



FIGURE F

9.2 FRONT SHROUD REPLACEMENT - CONTINUED

7) Pull out the rubber tray from the cup holder plastic (figure G).
8) Remove the 2 screws to disassemble the cup holder plastic and remove it from the unit (Figure H).



FIGURE G



FIGURE H

9) Remove the 2 screws to disassemble and remove the middle stabilizer sweat cover (Figures I & J).



FIGURE I



FIGURE J

10) Remove the 1 screw (exposed when the cup holder is removed) holding the orange slot cover to the frame and remove it (Figure K).
11) Remove all of the cables from the front shrouds (Figure L).



FIGURE K



FIGURE L

9.2 FRONT SHROUD REPLACEMENT - CONTINUED

12) Remove the 9 screws to detach the front shrouds from the frame (or each other) (Figure M).
13) Turn the crank to the slotted portion of the shroud (Figure N).

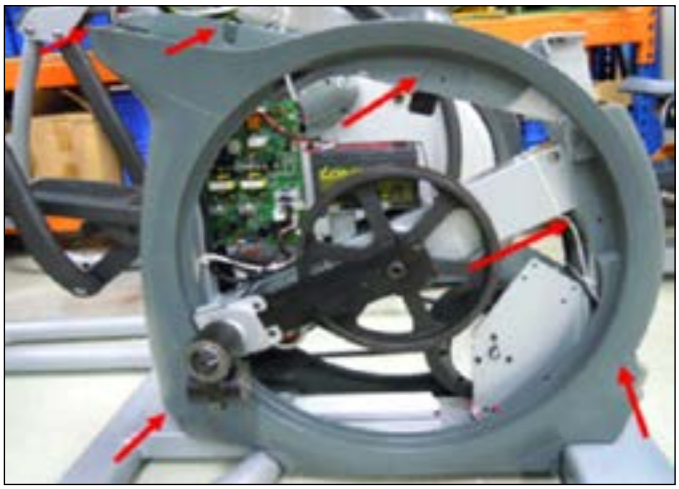


FIGURE M

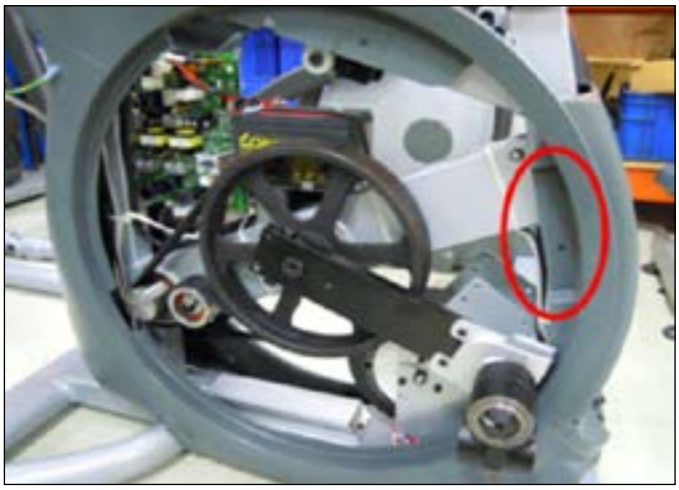


FIGURE N

14) Remove the front shrouds for frame access (Figures O & P).



FIGURE O



FIGURE P

15) Reverse Steps 1-14 to install new shrouds. ***NOTE:*** The bolt / nut removed in Step 5 should be torqued to 70 N-m.

9.3 LOWER CONTROL BOARD REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove both front disks from the machine as outlined in Section 9.1.
3) Disconnect all wires from the LCB (Figure A).



FIGURE A

4) Remove the 2 screws holding the LCB to the frame (Figure B).



FIGURE B

5) Reverse Steps 1-4 to install a new LCB.
6) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.4 GENERATOR REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove the front disks as outlined in Section 9.1.
3) Remove the front shrouds as outlined in Section 9.2.
4) Cut the cable tie holding the cable to the frame (Figure A).
5) Unplug the power cable connector of the generator (Figure B).



FIGURE A



FIGURE B

6) Loosen the nut holding the generator to the frame (Figure C).
7) Remove the three screws from the generator bracket (Figure D).



FIGURE C

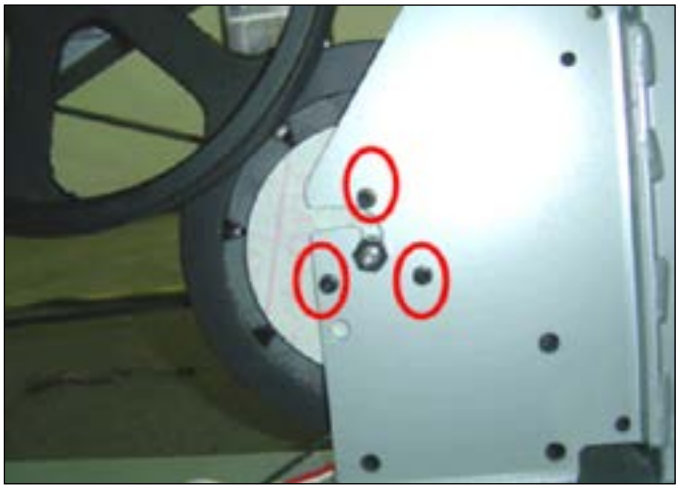


FIGURE D

9.4 GENERATOR REPLACEMENT – CONTINUED

8) Remove the nut from the other side of the generator bracket (Figure E).
9) Loosen and remove the generator belt (Figure F).



FIGURE E



FIGURE F

10) Remove the generator from the frame.
11) Reverse Steps 1-10 to install a new generator. Re-install the belts as outlined in Section 9.5. ***NOTE:*** The 3 screws removed in Step 7 should be torqued to 8 N-m and the nut from Step 8 to 40 N-m.
12) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.5 GENERATOR BELT REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks from the machine as outlined in Section 9.1.
3) Remove the front shrouds as outlined in Section 9.2.
4) Remove the generator as outlined in Section 9.4.
5) To install a new belt, first put the belt installation tool on the pulley (Figure A).

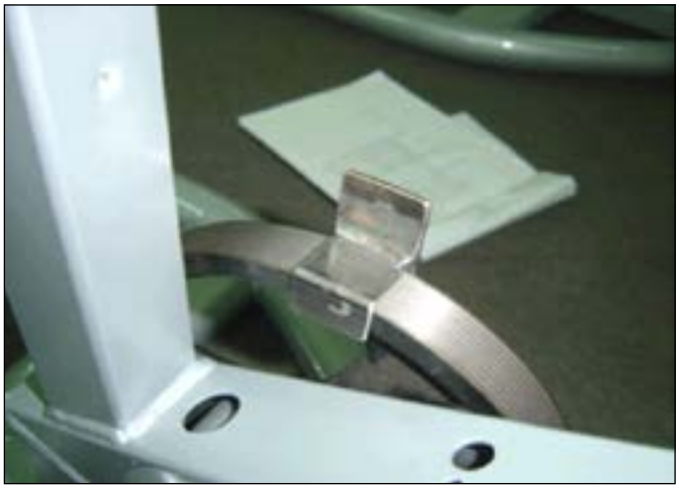


FIGURE A

6) Put the new belt on the installation tool (Figure B).
7) Turn the pulley until the belt is installed. Rotate the pulley at least 3 full rotations to insure that the belt is centered.



FIGURE B

8) Reverse Steps 1-4 to re-assemble the unit.
9) Test the Suspension Elliptical for function as outlined in Section 9.21. .

9.6 DRIVE BELT REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks from the machine as outlined in Section 9.1.
3) Loosen the belt tension bolt on the left side of the tension pulley and rotate the pulley counter-clockwise until there is enough slack in the belt to remove it (Figures A & B).



FIGURE A



FIGURE B

4) Install the replacement belt and reverse necessary steps to secure the assembly until the belt is tight. ***NOTE:*** Tighten the drive belt to 180 lbs. for a new belt, 150 lbs. for a used belt. The idler bolt should be torqued to 80 N-m.
5) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.7 PULLEY AXLE SET REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove both front disks from the machine as outlined in Section 9.1.
3) Loosen the belt tension bolt on the right side until there is enough slack to remove the drive belt (Figure A).
4) On the right side of the frame, remove the retaining clip that holds the pulley axle bearing into the frame (Figure B).



FIGURE A



FIGURE B

5) On the left side of the frame, remove the retaining ring that holds the pulley axle bearing into the frame (Figure C).
6) Remove the pulley axle set assembly from the frame. Clean any debris from the hole in the frame (Figure D).



FIGURE C

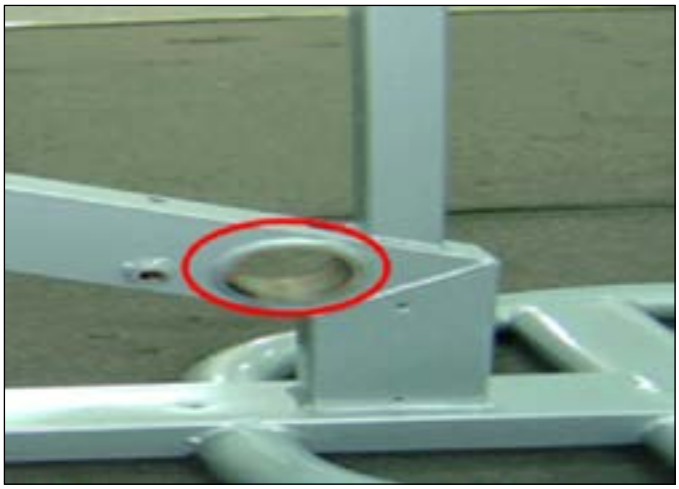


FIGURE D

7) Reverse Steps 1-6 to install a new pulley axle set. Rotate the pulley to make sure that the motion is smooth and that there is no wobbling to one side. Re-install the belts as outlined in Sections 9.5 and 9.6.
8) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.8 DRIVE AXLE SET REPLACEMENT

NOTE: A Matrix special tool is needed to correctly replace a drive axle. Order part # 1000368807

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks from the machine as outlined in Section 9.1.
3) Remove both belts as outlined in Sections 9.5 & 9.6.
4) On the left side of the frame, remove the retainer clip that holds the drive axle bearings in the frame (Figure A).
5) Install an M10 screw into the drive axle (Figure B).



FIGURE A



FIGURE B

6) Turn the screw until the head is close to the drive axle (Figure C).
7) Use a hammer to hit the screw until the drive axle assembly is loose in the frame, and remove it (Figure D).

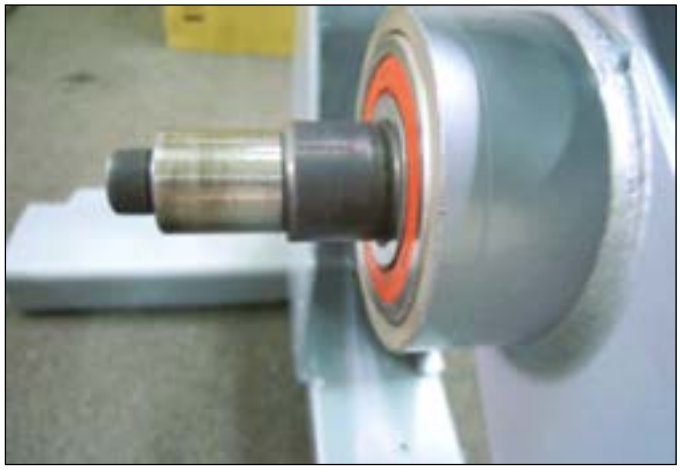


FIGURE C



FIGURE D

8) Install the tool into the hole in the frame (Figure E).
9) Use a rubber mallet to hit the end of the tool until the bearing can be removed from the frame (Figure F).



FIGURE E



FIGURE F

9.8 DRIVE AXLE SET REPLACEMENT - CONTINUED

10) The drive axle should have come with an iron plate installed (Figure G).
11) Assemble the Matrix tool as shown in Figure H.



FIGURE G



FIGURE H

12) Slide the drive axle assembly into the frame from the right side. Install the bearing cap portion of the tool into the left side of the frame (Figure I).
13) Mount the other tool from Figure H behind the bearing cap portion of the tool. Use the M10 x 65L screw with a washer and a nut to attach the tool to the drive axle (Figure J).

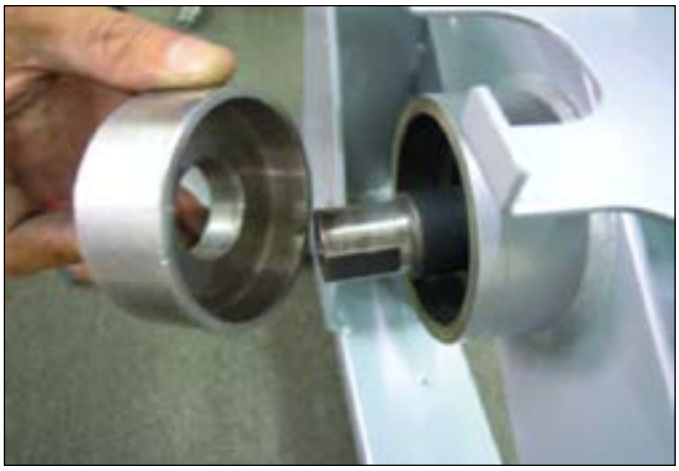


FIGURE I

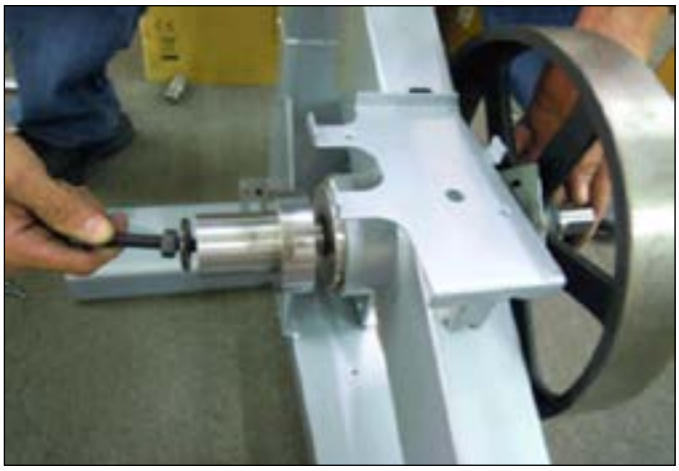


FIGURE J

14) Turn the screw at least 4 full revolutions into the drive axle. Then turn the nut until it is close to the cup portion of the tool (Figure K).
15) Use a wrench to hold the screw, then turn the nut to pull the drive axle into the frame (Figure L).



FIGURE K



FIGURE L

9.8 DRIVE AXLE SET REPLACEMENT - CONTINUED

16) Turn the nut until the iron plate is close to the frame on the right side (Figure M).
17) Remove the tools, then insert the bearing into the hole in the frame on the left side (Figure N).

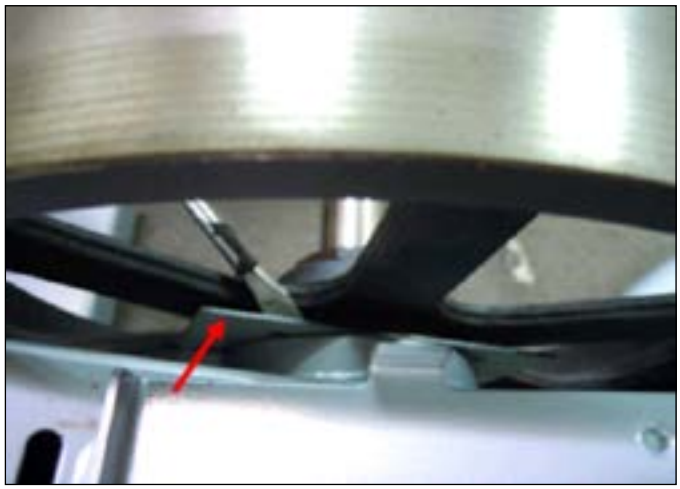


FIGURE M



FIGURE N

18) Again use the M10 x 65L screw with a washer and a nut to attach the tool to the drive axle (Figure O).
19) Turn the screw at least 4 full revolutions into the drive axle. Then turn the nut until it is close to the cup portion of the tool (Figure P).



FIGURE O



FIGURE P

20) Use a wrench to hold the screw, then turn the nut to push the bearing into the hole in the frame (Figure Q).
21) Insert the retainer clip to hold the bearing in the frame (Figure R).



FIGURE Q



FIGURE R

9.8 DRIVE AXLE SET REPLACEMENT - CONTINUED

22) Use a screwdriver to remove the iron plate from the drive axle (Figures S & T).



FIGURE S



FIGURE T

23) Re-install the belts as outlined in Sections 9.5 and 9.6.
24) Test the Suspension Elliptical as outlined in Section 9.21.

9.9 CRANK REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks from the machine as outlined in Section 9.1.
3) Remove the screw from the crank (Figure A).
4) Insert an M10 screw (should be at least 40 long) into the crank hole. Then turn the screw until the crank can be separated from the axle (Figure B).



FIGURE A



FIGURE B

5) Install the replacement crank. There should be a 4mm gap between the end of the drive axle shaft and the crank (Figure C).

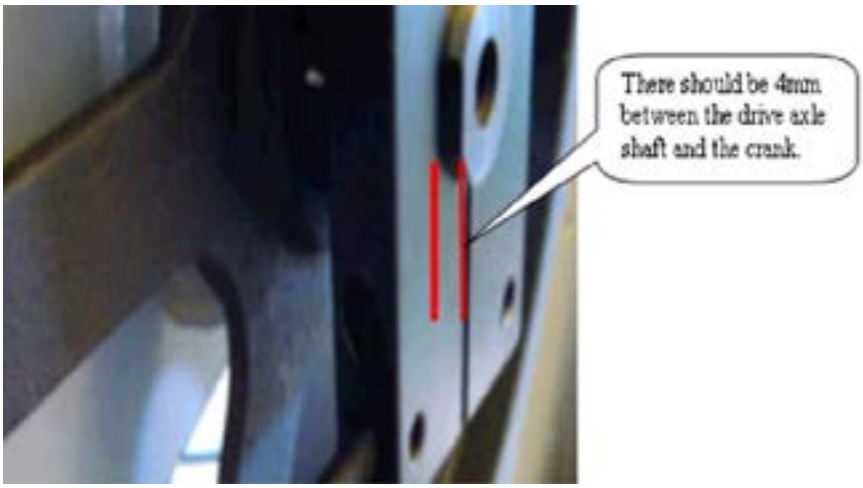


FIGURE C

6) Install the crank screw. ***NOTE:*** This screw should be torqued to 80 N-m.
7) Reverse Steps 1-2 to re-assemble the unit.

9.10 CONSOLE REPLACEMENT

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



FIGURE A



FIGURE B

4) Remove the 5 screws that hold the mounting plate to the console (Figure C).

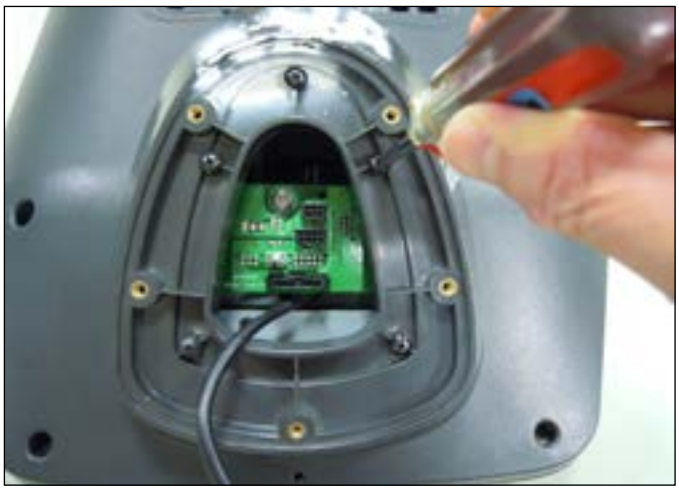


FIGURE C

5) Attach the mounting plate to the new console.
6) Connect the wire connections to the new console.
7) Carefully push the wires into the console and mast until they are clear of the console / mast connection and attach the console to the mast using the 5 screws removed in Step 2.
8) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.11 CONSOLE KEYPAD / OVERLAY REPLACEMENT

NOTE: The instructions below are for console overlays / keypads replacement, but the procedure is the same regardless of where the overlay / keypad is.

1) Remove the console as outlined in Section 9.10.
2) Remove the back cover of the console (Figure A).
3) Unplug and remove the faulty overlay (Figure B).



FIGURE A

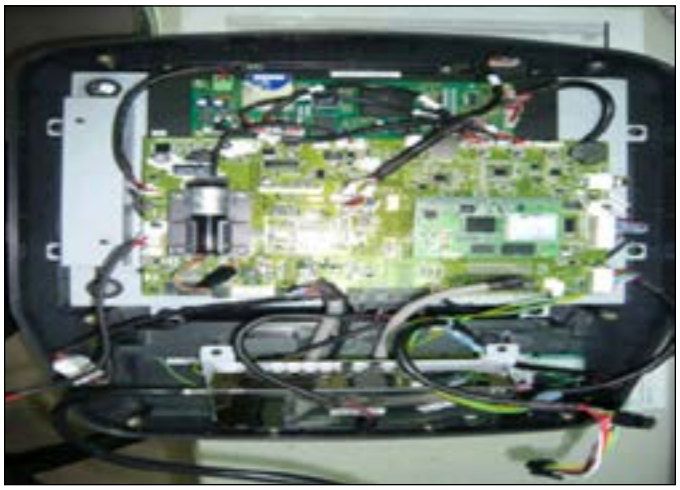


FIGURE B

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

9.11 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

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



FIGURE G



FIGURE H

10) Use the same procedure to replace any additional faulty overlays / keypads. ***NOTE:*** Overlays / keypads cannot be re-used.
11) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.12 CONSOLE MAST HANDLEBAR REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the 4 bolts that hold the handlebar to the console mast (Figure A).



FIGURE A

3) Pull the handlebar away from the console mast to expose the HR grip wiring (Figure B).
4) Carefully remove the wires from inside the console mast until the connectors on the ends come free and disconnect (Figure C).



FIGURE B



FIGURE C

5) To install a new handlebar assembly, connect the new handlebar and carefully push the heart rate wires into the console mast.
6) Attach the new handlebar assembly to the console mast using the 4 screws removed in Step 3.
7) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.13 DUAL ACTION HANDLEBAR REPLACEMENT

1) Remove the plastic cover where the dual action handlebar meets the link arm (Figure A).
2) Remove the bolt and bushings where the dual action handlebar and the link arm meet (Figure B).



FIGURE A



FIGURE B

3) Remove the two bolts that hold on the pivot cap and remove the cap (Figure C).
4) Unplug and separate the heart rate connector exposed once the pivot cap is removed. Then remove the 4 screws that hold the dual action handlebar to the console mast (Figure D).



FIGURE C



FIGURE D

5) Reverse steps 1-4 to install a new dual action handlebar.
6) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.14 FOOT PEDALS REPLACEMENT

1) Pull up on and remove the rubber portion of the pedal (Figure A).
2) Remove the 4 screws that hold the plastic pedal to the foot plate (Figure B).



FIGURE A



FIGURE B

3) Remove the plastic foot pedal (Figure C).



FIGURE C

4) Clean the foot plate to remove any rubber or debris.
5) Reverse Steps 1-4 to install a new foot pedal.
6) Test the Suspension Elliptical as outlined in Section 9.21.

9.15 PEDAL ARM REPLACEMENT

1) Remove the plastic cover where the pedal arm attaches to the crank (Figure A).
2) Disconnect the pedal arm from the crank (Figure B).



FIGURE A



FIGURE B

3) Remove the plastic cap from the swing arm (Figure C).
4) Remove the bolt that holds the pedal and swing arms together (Figure D).



FIGURE C



FIGURE D

5) The swing arm can now be separate from the pedal arm (Figure E).
6) Remove the bolt that holds the link arm to the pedal arm and remove the pedal arm (Figure F).



FIGURE E



FIGURE F

7) Reverse Steps 1-5 to install a new pedal arm. ***NOTE:*** Torque the bolt removed in Step 4 to 80 N-m and the bolt / nut removed in Step 2 to 70 N-m.
8) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.16 LINK ARM REPLACEMENT

1) Remove the plastic cover where the dual action handlebar meets the link arm (Figure A).
2) Remove the bolt and bushings where the dual action handlebar meets the link arm (Figure B).



FIGURE A



FIGURE B

3) Remove the bolt that holds the link arm to the pedal arm and remove the link arm (Figure C).



FIGURE C

4) Reverse Steps 1-3 to install a new link arm.
5) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.17 SWING ARM REPLACEMENT

1) Remove the bolt from the upper pivot joint on the swing arm (Figure A).
2) Remove the plastic cap from the swing arm (Figure B).



FIGURE A



FIGURE B

3) Remove the bolt that holds the swing arm to the pedal arm (Figure C).
4) Take the bolt removed in Step 1 and turn it into the shaft (Figure D).



FIGURE C



FIGURE D

5) Use a mallet to hit the head of the bolt until the swing arm can be separate from the pedal arm, and remove the pedal arm (Figures E & F).



FIGURE E



FIGURE F

6) Reverse Steps 1-5 to install a new swing arm. ***NOTE:*** Torque the bolts removed in Steps 1 & 3 to 80 N-m when installing a new swing arm.
7) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.18 VERTICAL STABILIZER ARM REPLACEMENT

1) Remove the bolt that holds the vertical stabilizer arm to the frame (Figures A & B).



FIGURE A



FIGURE B

2) Remove the bolt from the upper pivot joint of the vertical stabilizer arm (Figure C).
3) Remove the vertical stabilizer arm (Figure D).



FIGURE C



FIGURE D

4) Reverse Steps 1-3 to install a vertical stabilizer arm. ***NOTE:*** Tighten the bolt removed in Step 2 to 80 N-m torque.
5) Test the Suspension Elliptical for function as outlined in Section 9.21.

9.19 INCLINE ARM COVER REPLACEMENT

1) Remove the screw that holds the plastic cover on the arm (Figures A & B).



FIGURE A



FIGURE B

2) Remove the incline arm cover (Figure C).



FIGURE C

3) Reverse Steps 1-2 to install a new incline arm.

9.20 HANDLEBAR SERVICE

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

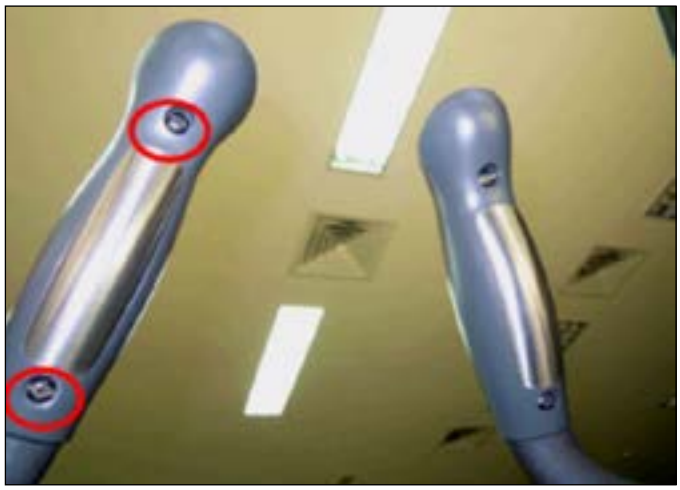


FIGURE A



FIGURE B

9.21 TESTING THE SUSPENSION ELLIPTICAL

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

1) 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:*** 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.

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:*** 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. Enter into and test Virtual Active.

3) Perform a channel scan on the TV.

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

5) After stopping movement, press the green GO key and begin using the machine.

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

7) Press the LEVEL UP and DOWN keys both on the hand grips and on the console to make sure resistance is fully functional.

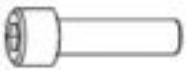
8) If everything functions properly, stop pedaling and the unit will reset to normal operation after 30 seconds.

CHAPTER 10: SUSPENSION ELLIPTICAL SPECIFICATIONS AND ASSEMBLY GUIDE

10.1 SUSPENSION ELLIPTICAL SPECIFICATIONS

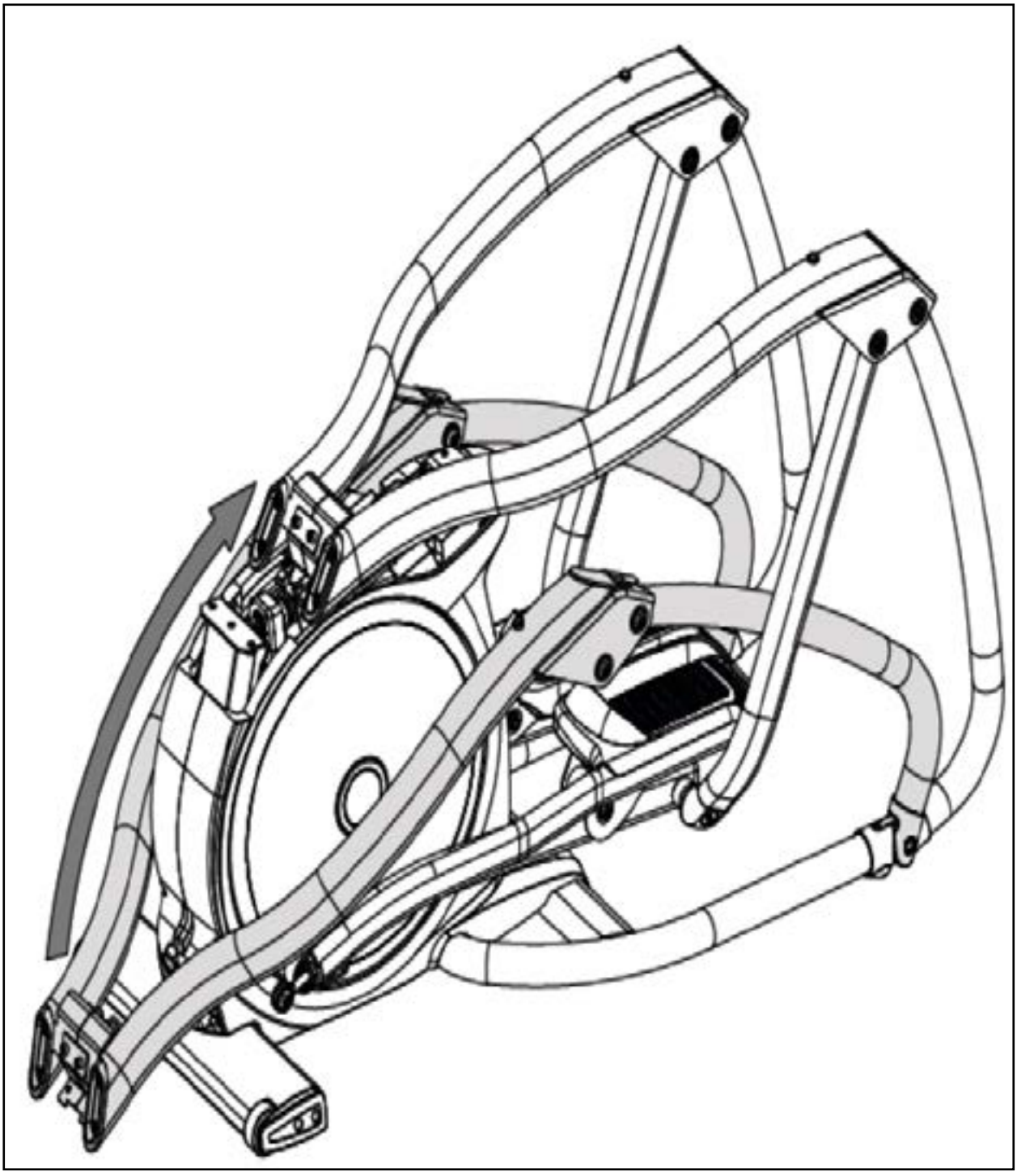
MODEL NAME	E-3X/5X/7X
MODEL TYPE	E7XE ELLIPTICAL
FRAME PART #	E-3X/5X/7X-03-F
CONSOLE PART #	HURESAC-7xe-04-C
FEATURES	
STRIDE LENGTH	21” / 53.3 CM
INCLINE RANGE	N/A
CONTACT & TELEMETRIC HR SENSORS	YES
CUSHIONED FOOTPADS	NO
PEDAL SPACING	2.5” / 6.4 CM
HANDLEBAR DESIGN	MULTI-POSITION DUAL ACTION AND CUSTOM ERGO-BEND STATIONARY
THUMB SWITCH CONTROLS	YES
RESISTANCE SYSTEM	
TECHNOLOGY	GENERATOR
POWER REQUIREMENTS	SELF POWERED - POWERED 100-125 V, 60 HZ OR 216-250 V, 50 HZ
MINIMUM WATTS	56 SELF-POWERED
MINIMUM RPM	10 POWERED / 25 SELF-POWERED
CONSOLE	
DISPLAY TYPE	15” / 38.1 CM TOUCH SCREEN LCD
DISPLAY FEEDBACK	TIME ELAPSED, TIME REMAINING, TOTAL PROGRAM TIME, CLOCK, DISTANCE (KILOMETERS OR MILES), CALORIES, CALORIES PER HOUR, SPEED, LEVEL, RPM, HEART RATE, METS, WATTS, STATIC PROFILE DISPLAY, DYNAMIC PROFILE DISPLAY
USER DEFINED MULTI-LANGUAGE DISPLAY	YES - ENGLISH, GERMAN, FRENCH, ITALIAN, SPANISH, DUTCH, PORTUGUESE, CHINESE, JAPANESE, KOREAN, SWEDISH, FINNISH, RUSSIAN, ARABIC
RESISTANCE LEVELS	25
WORKOUTS	MANUAL, ROLLING HILLS, INTERVAL TRAINING, FAT BURN, RANDOM, FITNESS TEST, HEART RATE, 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” / 38.1 CM SCREEN SIZE
FITCONNEXION™ READY	NO
WIFI	YES
ASSET MANAGEMENT COMPATIBLE	YES
IPOD COMPATIBLE	YES
NIKE + IPOD COMPATIBLE	YES
PERSONAL FAN	YES
VIRTUAL ACTIVE™ COMPATIBLE	YES
TECH SPECS	
OVERALL DIMENSIONS L X W X H	81X34X79" 1780X742X1740MM
MAXIMUM USER WEIGHT	400 LBS/182 KG
WEIGHT	402 LBS/182.7KG
SHIPPING WEIGHT	430 LBS/195.5KG

10.2 ASSEMBLY HARDWARE

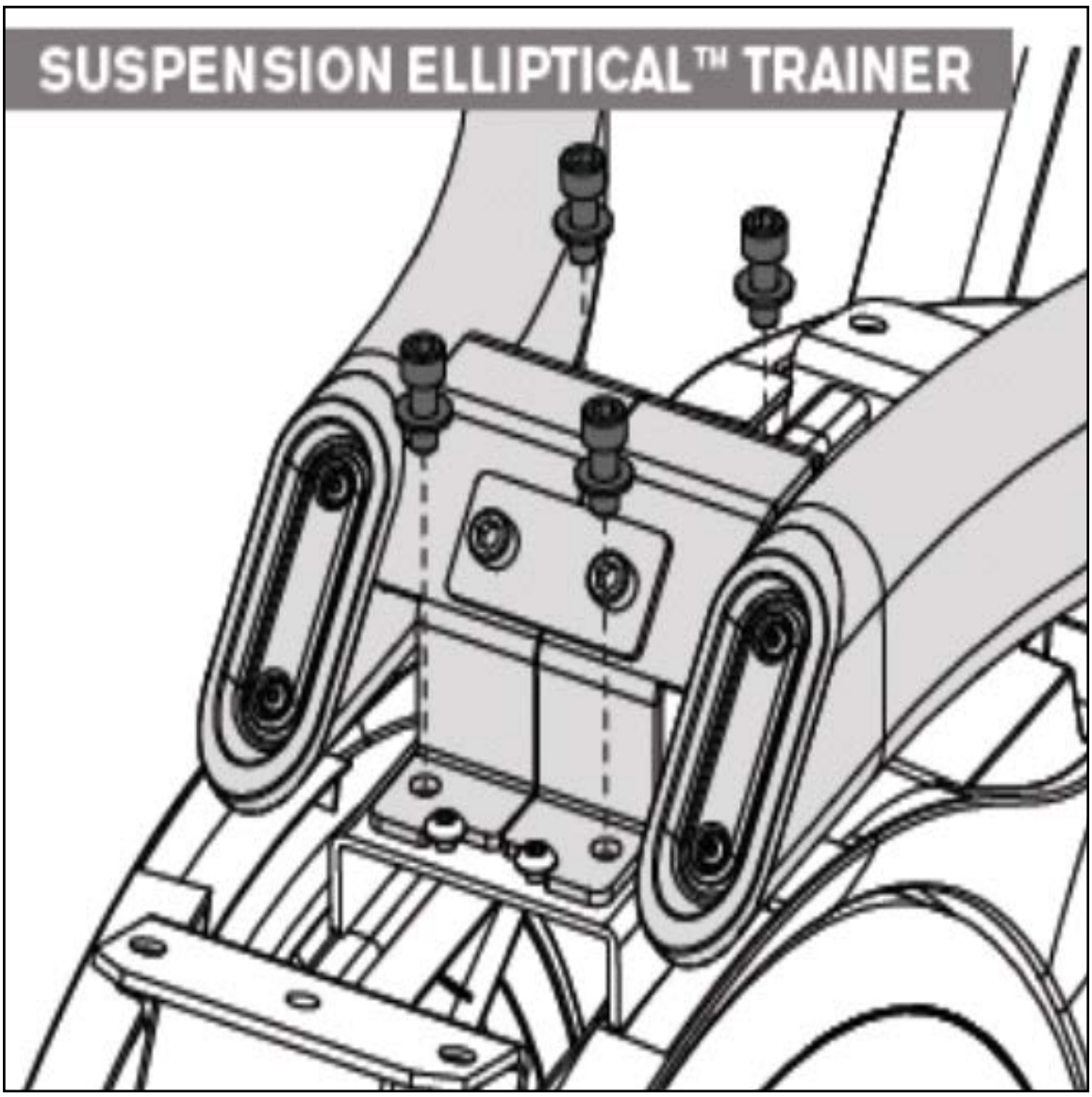
QUANTITY	SKETCH	DESCRIPTION	PACKAGE COLOR
4		SOCKET HEAD CAP SCREW (M10 X 1.5P X 25L) 10.9 GRADE MINIMUM	RED (2 BAGS)
4		FLAT WASHER (10.2 X 20 X 2.0T)	RED (2 BAGS)
1		SOCKET HEAD CAP SCREW (M10 X 1.5P X 100L) 12.9 GRADE MINIMUM	GREEN
2		FLAT WASHER (10.2 X 20 X 2.0T)	GREEN
1		HEX NUT (M10) 10.9 GRADE MINIMUM	GREEN
5		SCREW (M5 X 0.8P X 10L)	YELLOW
2		SCREW (M5 X 0.8 X 12L)	BLACK (2 BAGS)
4		SPRING WASHER (8.2 X 15.4 X 2.0T)	BLACK (2 BAGS)
4		SOCKET HEAD CAP SCREW (M8 X 1.25P X 20L) 10.9 GRADE MINIMUM	BLACK (2 BAGS)
1		SOCKET HEAD CAP SCREW (M8 X 1.25P X 45L) 10.9 GRADE MINIMUM	BLUE (2 BAGS)
3		SCREW (M5 X 0.8P X 16L)	BLUE (2 BAGS)
4		SOCKET HEAD CAP SCREW (M8 X 1.25P X 25L)	WHITE
4		SPRING WASHER (8.2 X 13.5 X 2.0T)	WHITE
12		SCREW (M5 X 0.8P X 16L)	PINK
1		ADAPTOR PLATE (ONLY USED ON PREMIUM AND LA CONSOLE INCLUDING E5X FRAME)	

10.3 SUSPENSION ELLIPTICAL ASSEMBLY STEPS

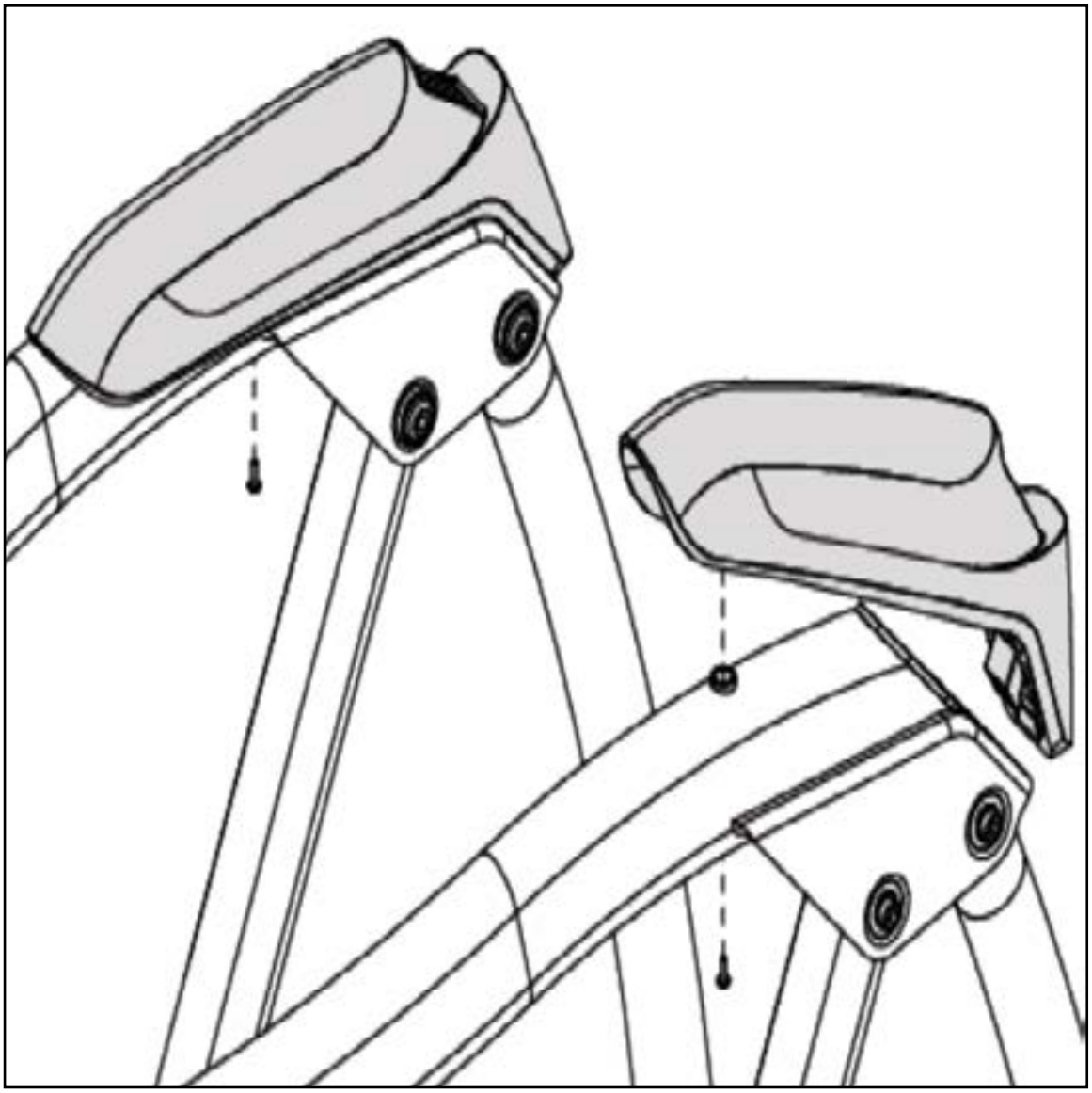
STEP 1



STEP 2 - RED HARDWARE BAG

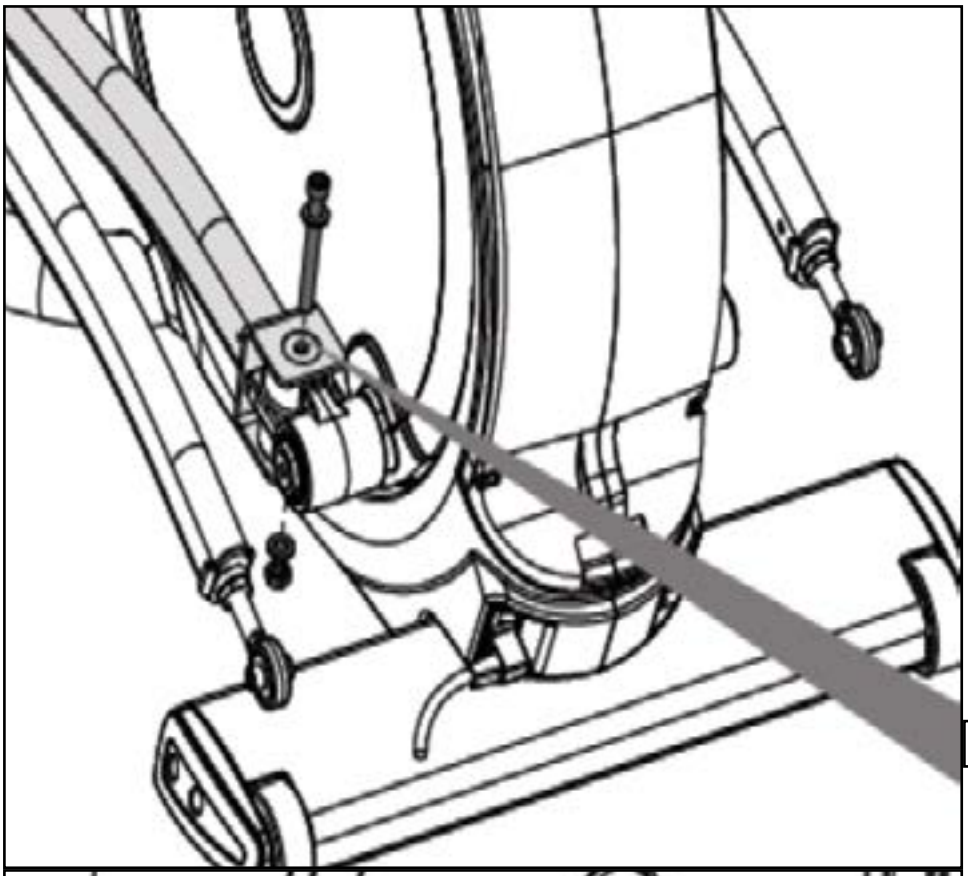


STEP 3 - PINK HARDWARE BAG

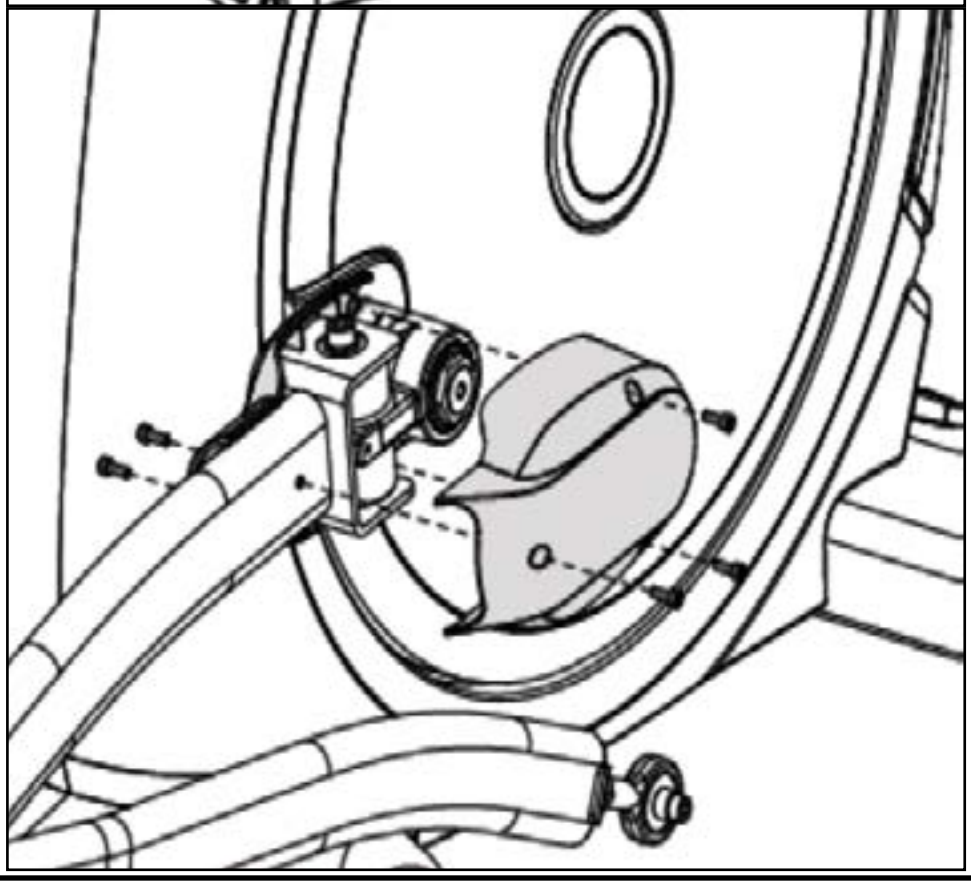


10.3 SUSPENSION ELLIPTICAL ASSEMBLY STEPS - CONTINUED

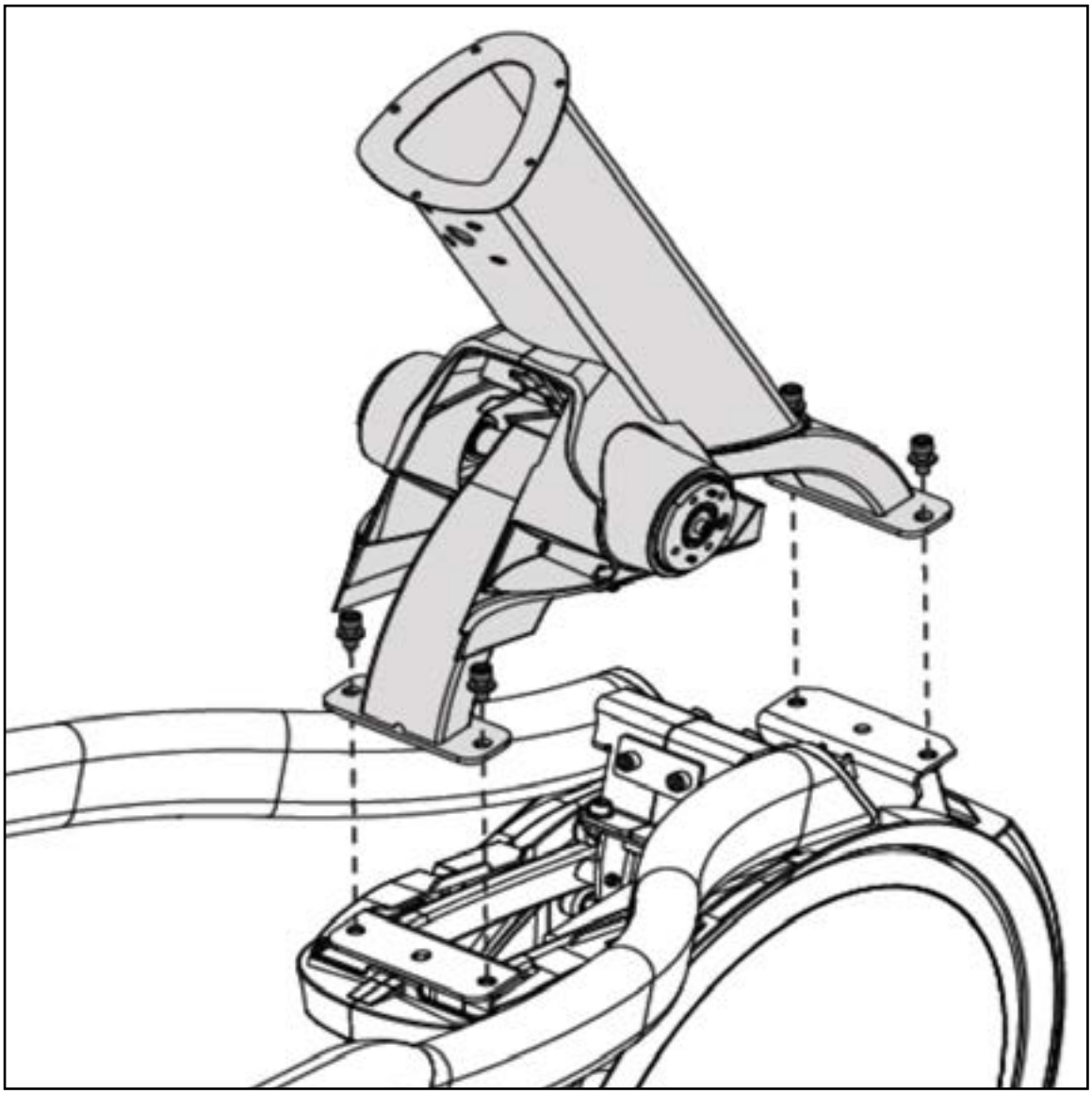
STEP 4 - GREEN / YELLOW HARDWARE BAG



Torque this bolt to 80 N-m.

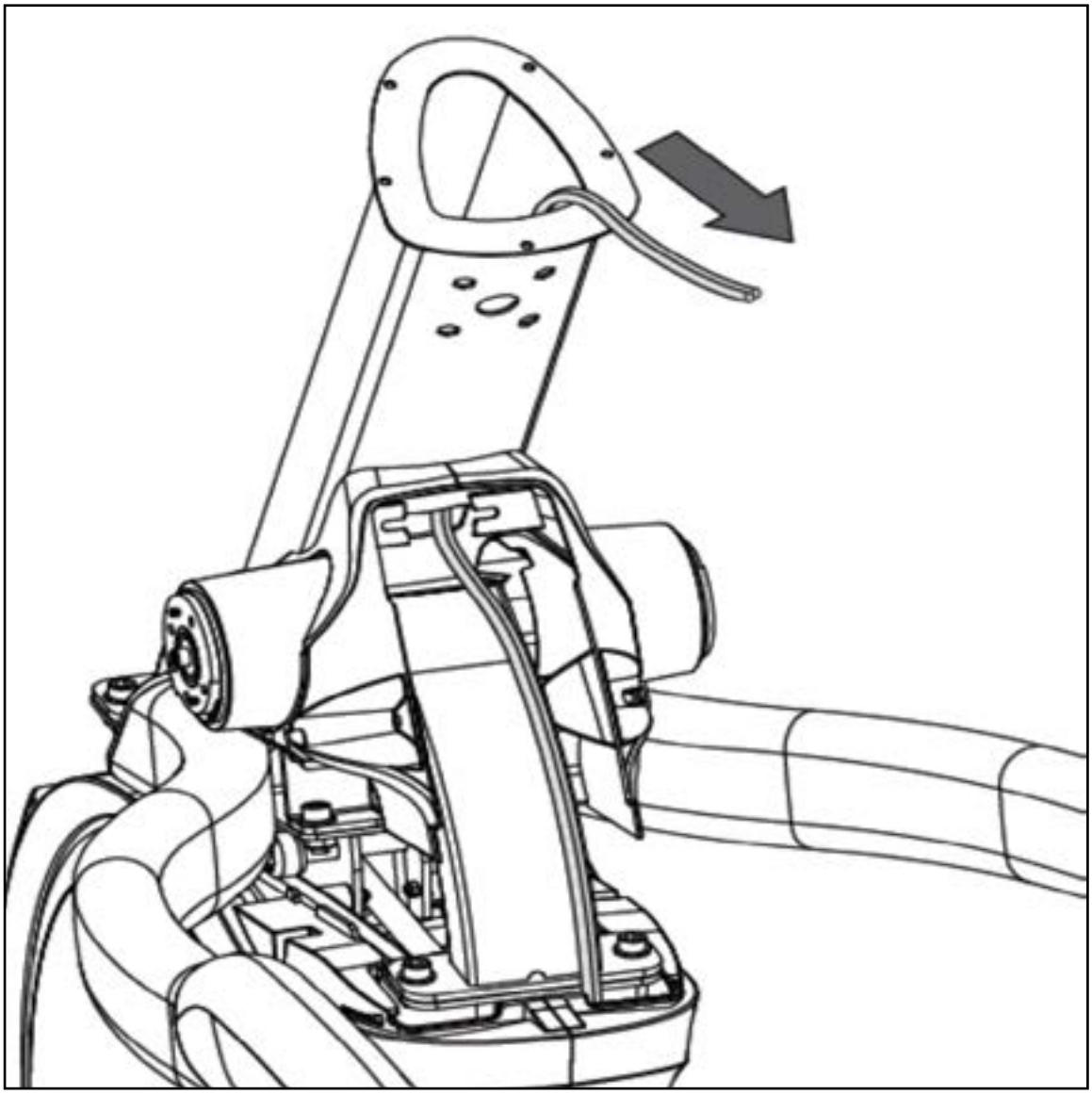


STEP 5 - RED HARDWARE BAG

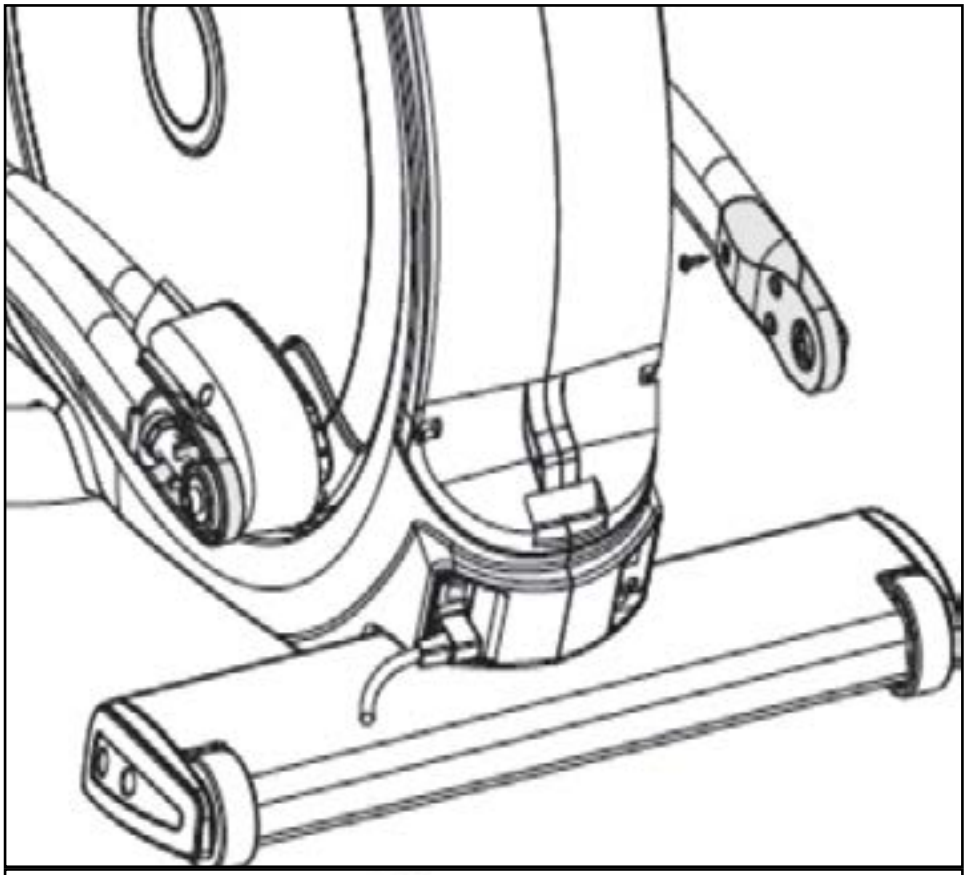


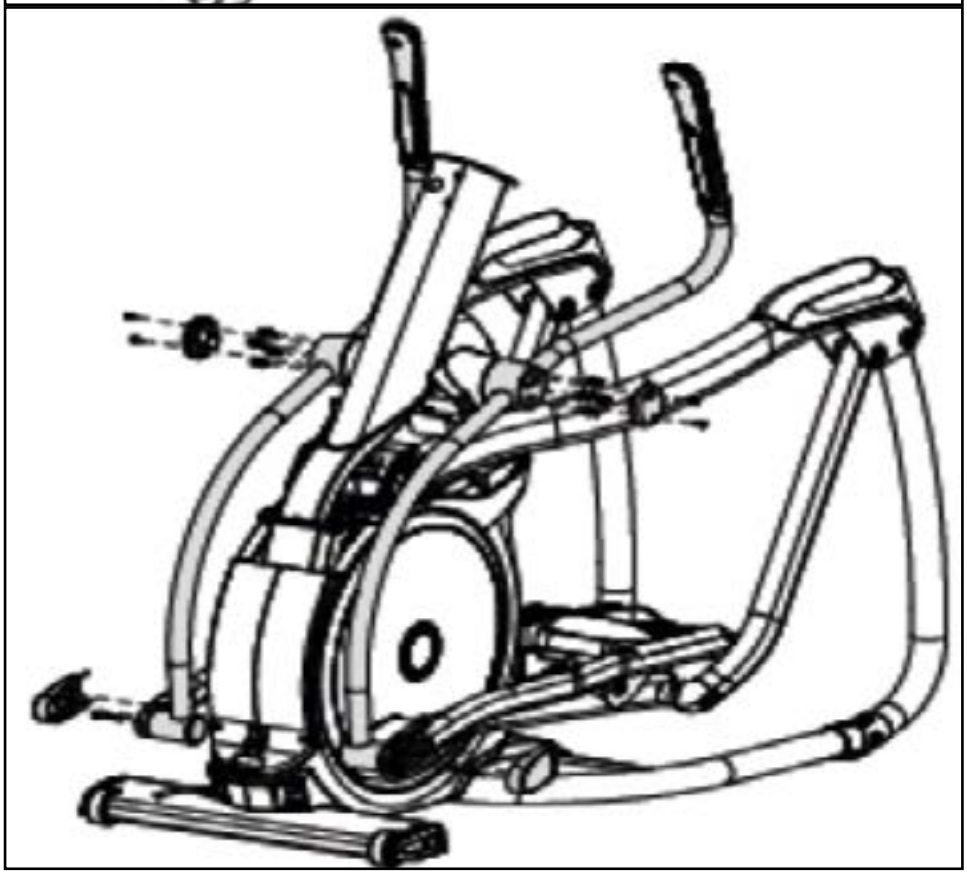
10.3 SUSPENSION ELLIPTICAL ASSEMBLY STEPS - CONTINUED

STEP 6



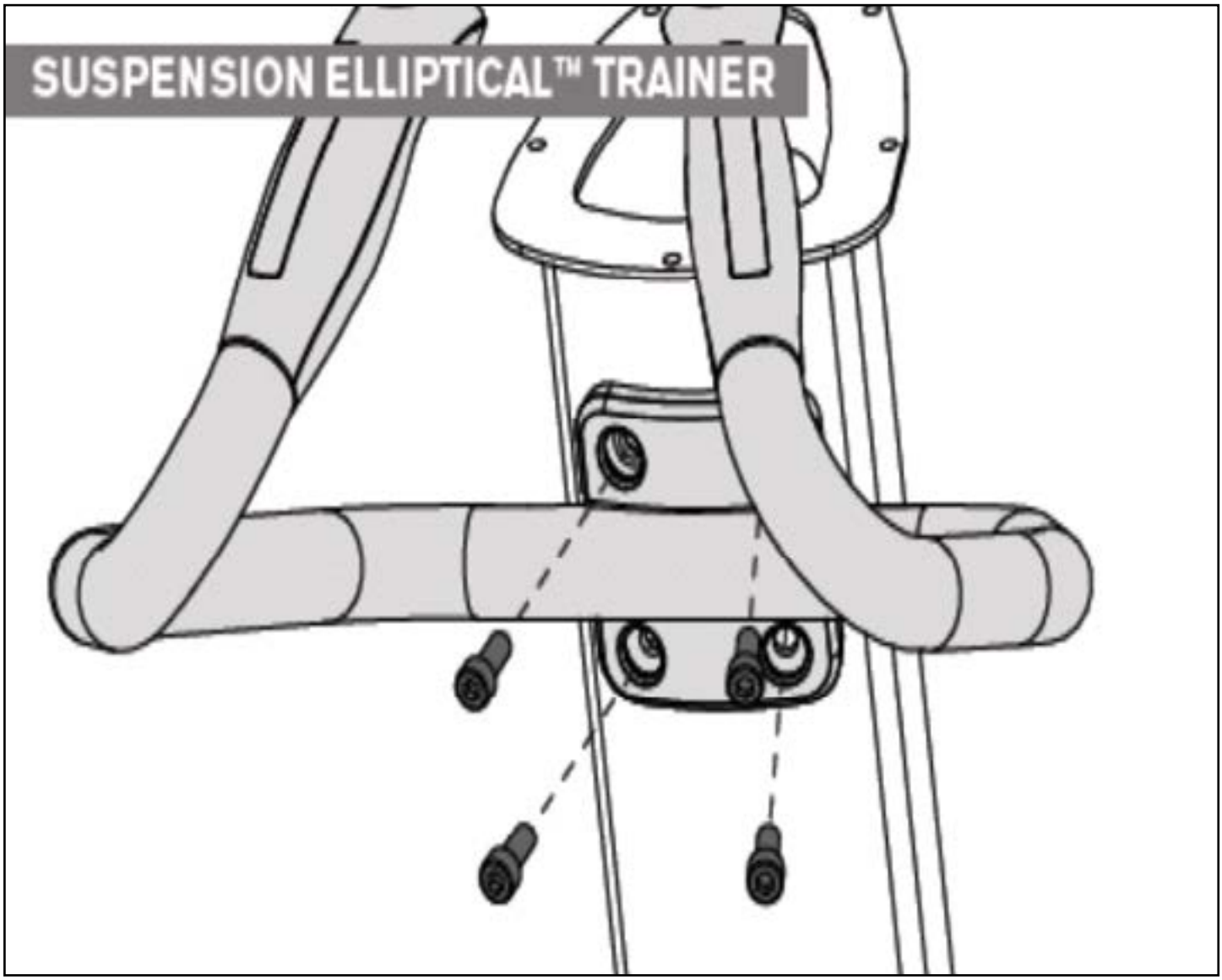
STEP 7 - BLUE / BLACK HARDWARE BAG



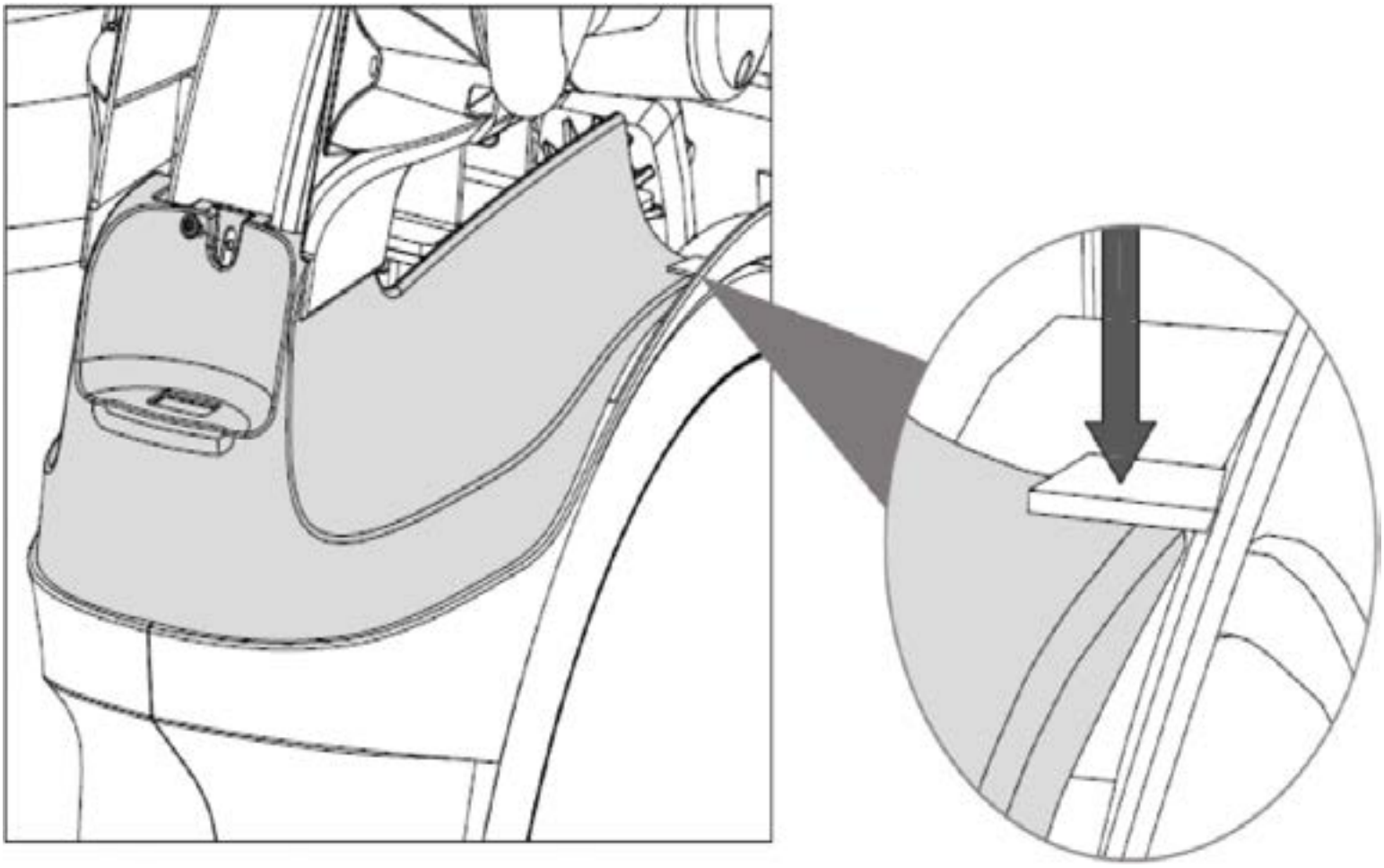


10.3 SUSPENSION ELLIPTICAL ASSEMBLY STEPS - CONTINUED

STEP 8 - WHITE HARDWARE BAG

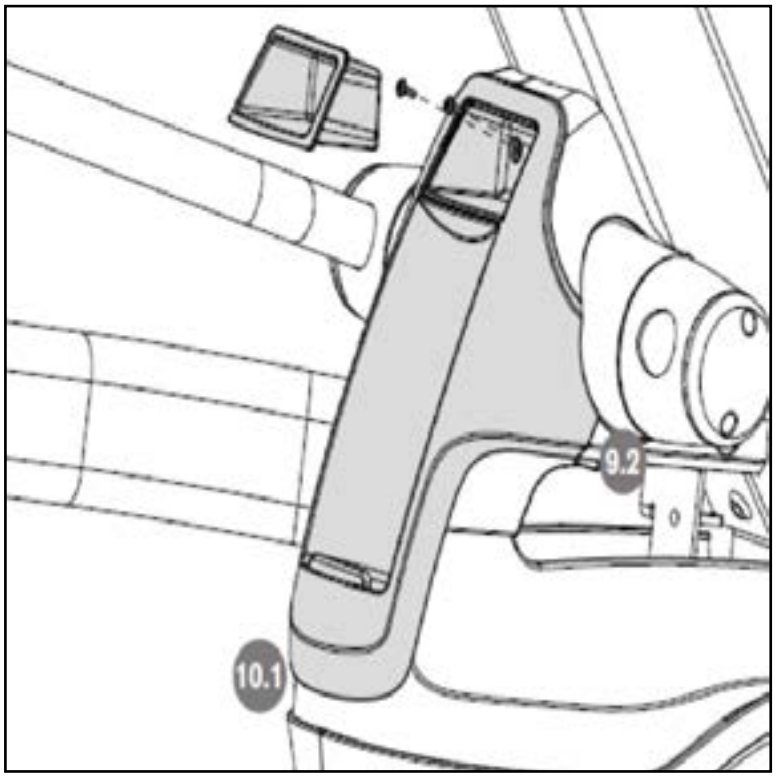


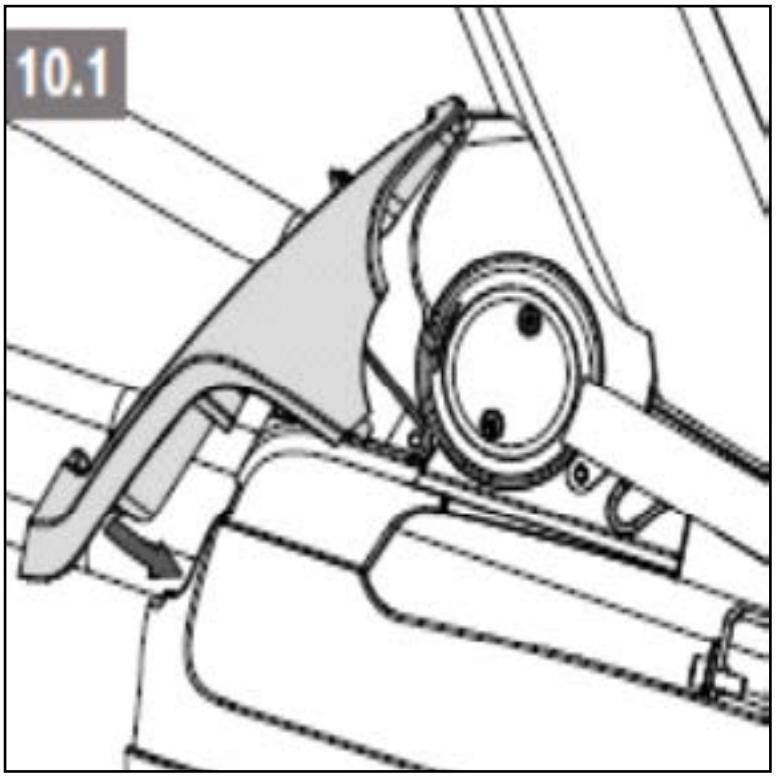
STEP 9 - PINK HARDWARE BAG

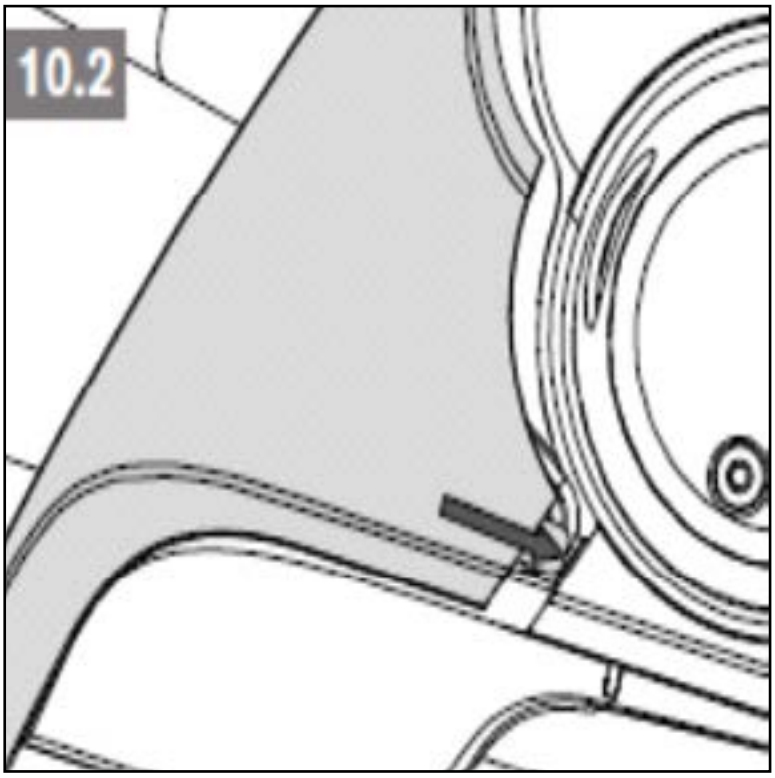


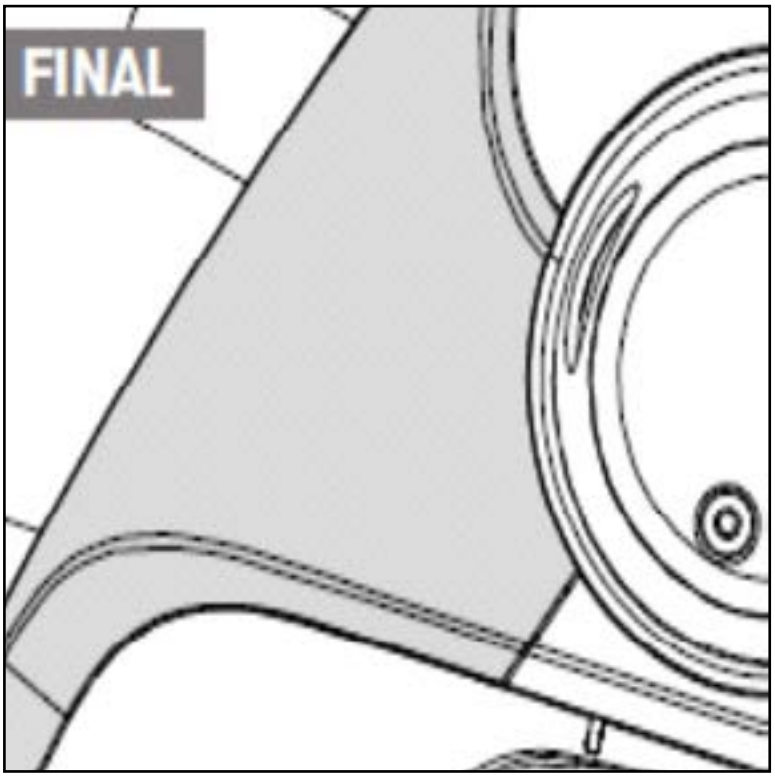
10.3 SUSPENSION ELLIPTICAL ASSEMBLY STEPS - CONTINUED

STEP 10 - PINK HARDWARE BAG

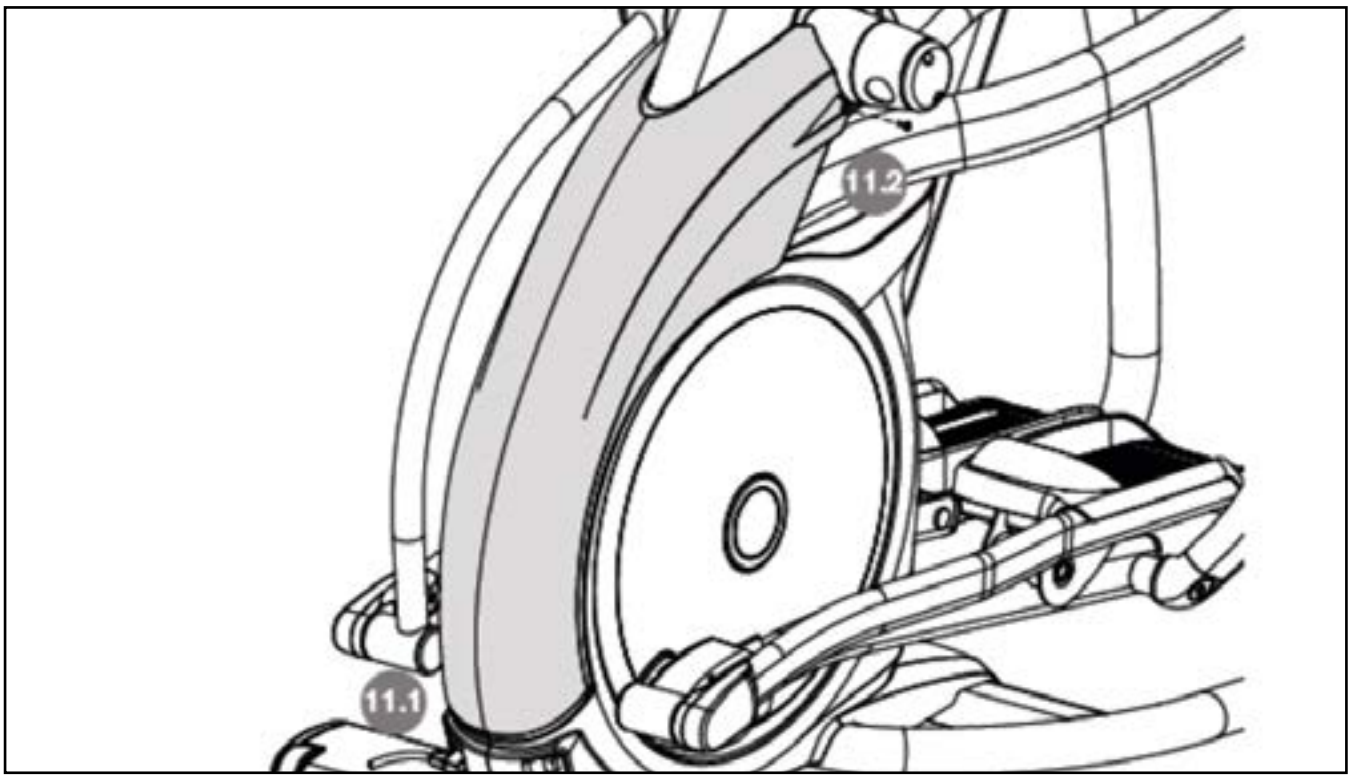


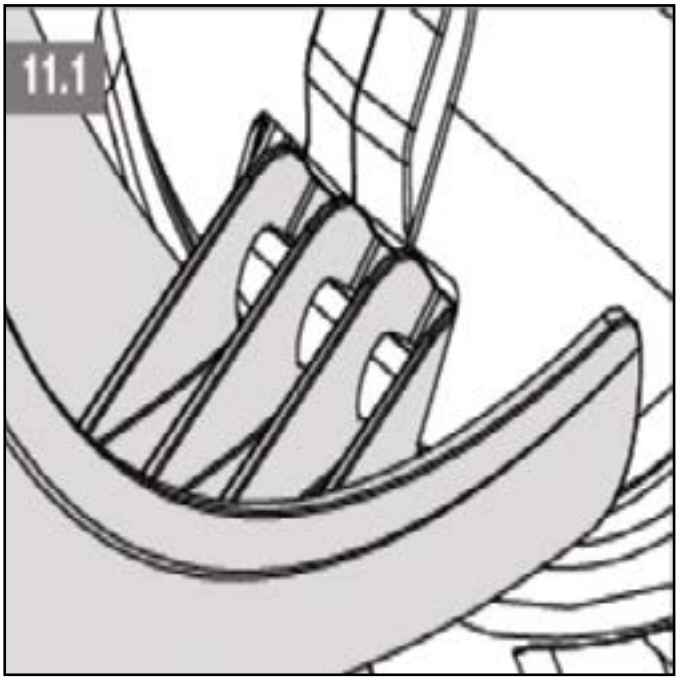


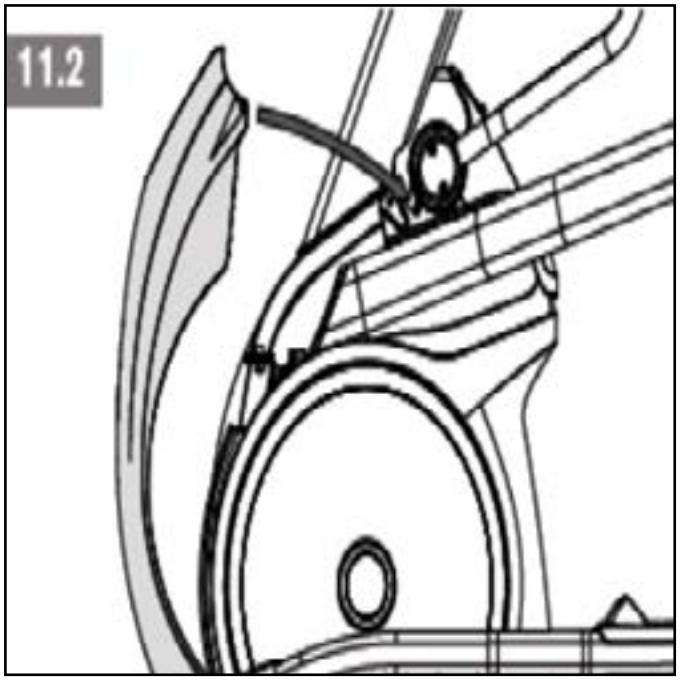




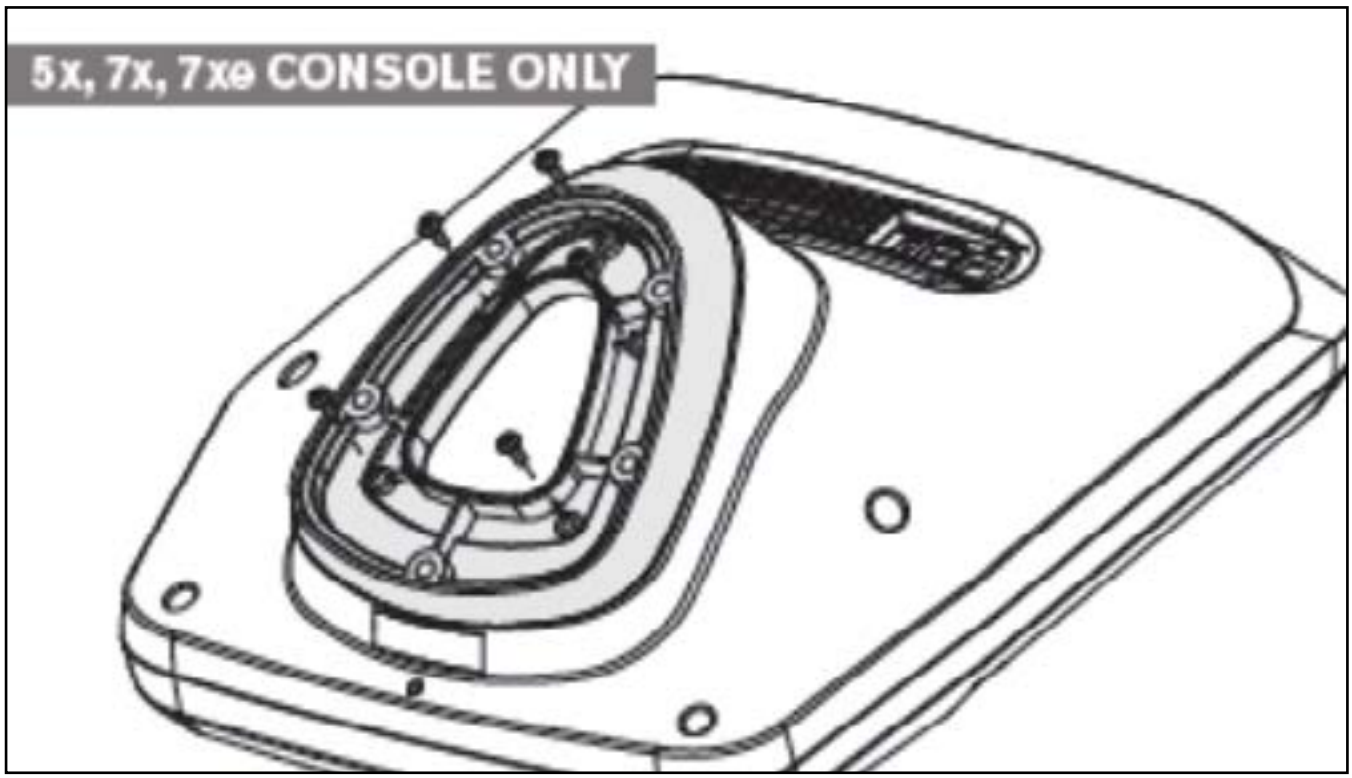
STEP 11 - PINK HARDWARE BAG

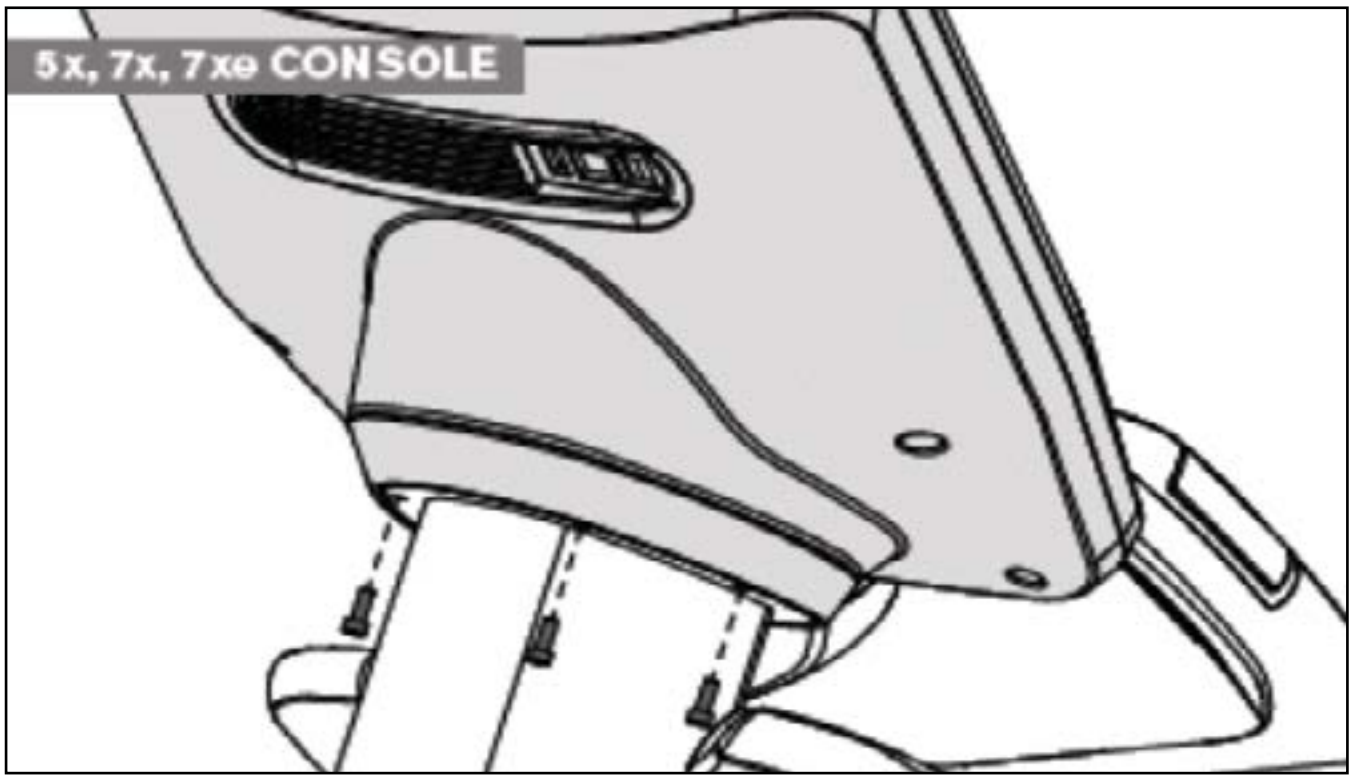






STEP 12 - PINK HARDWARE BAG





10.4 LEVELING THE SUSPENSION ELLIPTICAL

STABILIZING THE MATRIX SUSPENSION ELLIPTICAL

The Matrix Suspension Elliptical should be level for optimum use. Once you have placed your unit where you intend to use it, raise or lower one or both of the adjustable levelers located on the bottom of the frame. Use a 6mm Allen wrench through the access hole at the rear hinge joint on both sides (Figure A).

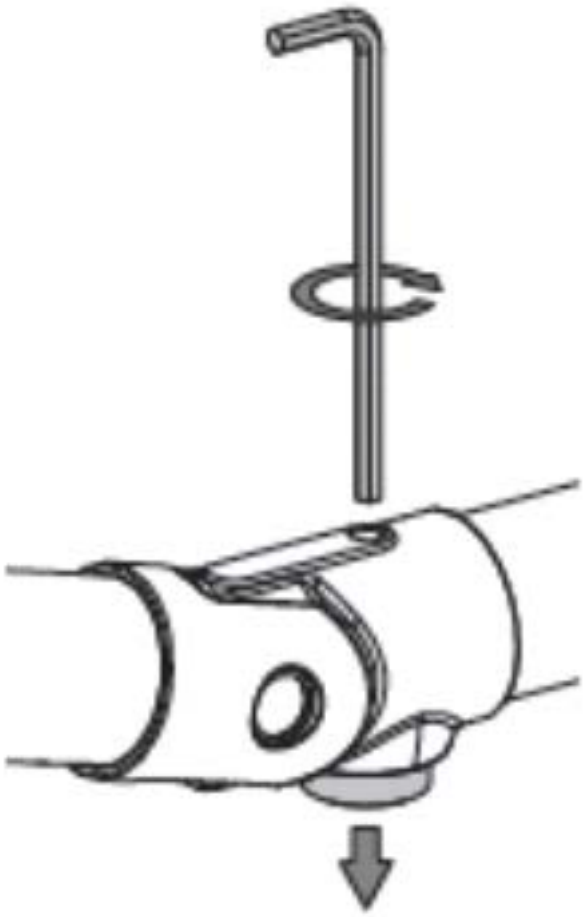


FIGURE A

10.6 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 CHANNEL UP and DOWN keys to move, ENTER key to enter this action in the Menu. Use the VOLUME UP and DOWN keys to select item and ENTER key to start / change / save this setting item in the sub-menu.
6. Use the CHANNEL UP and DOWN keys to scroll the cursor to Installation of the Menu, then press the ENTER key to enter the Installation sub-menu(Figure D).



FIGURE C



FIGURE D

7. Use the CHANNEL UP or DOWN keys to scroll down to Auto Scan (Figure E), then press the ENTER key to start the channel scan (Figure F).



FIGURE E



FIGURE F

10.6 TV PROGRAMMING INSTRUCTIONS - CONTINUED

Auto Scan (continued):

8. 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 Installation . Use the CHANNEL UP or DOWN keys to change the TV 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 8.



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 CHANNEL UP or DOWN keys to scroll to Channel Management the Menu. Then press the ENTER key to enter the Channel Management sub-menu.
3. Use the CHANNEL UP or DOWN keys to scroll to Hide / Show (Figure I). Then press the ENTER key to enter the Hide / Show sub-menu.
4. The Hide / Show 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.

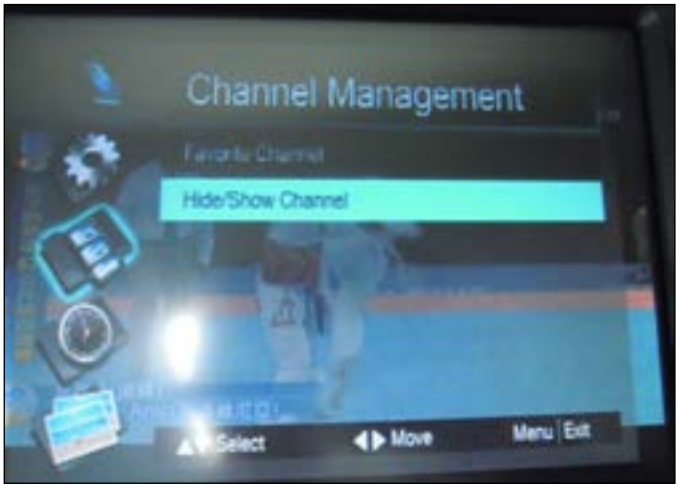


FIGURE I



FIGURE J

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 suspension elliptical, 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 suspension elliptical 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 suspension elliptical and wait 10 seconds, then turn the suspension elliptical 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 suspension elliptical 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.
10) Test the Suspension Elliptical for function as outlined in Section 9.21.

NOTES



MATRIX FITNESS SYSTEMS CORP.
1610 LANDMARK DRIVE COTTAGE GROVE WI 53527 USA
TOLL FREE 866.693.4863 www.matrixfitness.com FAX 608.839.1717

REV. 01

KO