MATRIX

A7XE-04 ASCENT TRAINER
SERVICE MANUAL

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

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.***
- ***Never operate the Ascent Trainer with the air opening blocked. Keep the air opening clean, free of lint and hair.***
- ***Do not carry this unit by it's supply cord or use the cord as a handle.***
- ***Close supervision is necessary when the Ascent Trainer 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.***
- ***Connect this Ascent Trainer to a properly grounded outlet only.***
- ***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 Ascent Trainer can now be self powered, but it recommended that the 7xe version of the Ascent Trainer be plugged in. If the A7xe is left in self powered mode, it will take approximately 30 seconds for the screen to load prior to every workout. 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 Ascent Trainer will be plugged in, follow the requirements below.

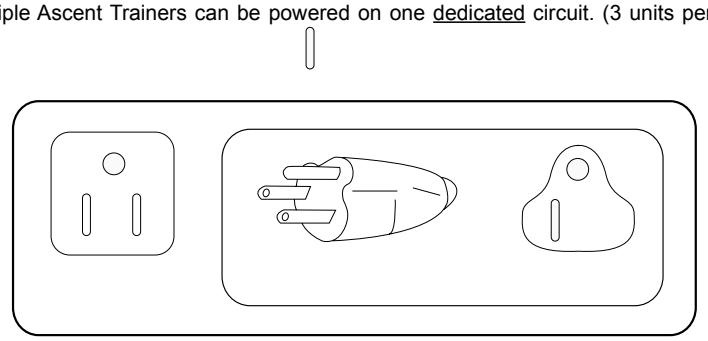
MATRIX DEDICATED CIRCUIT/ELECTRICAL REQUIREMENT INFO

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



GROUNDING INSTRUCTIONS:

The Matrix Ascent Trainer 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 Ascent Trainer 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 Ascent Trainer 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.
- LCD / LED or computer screen cleaner.
- 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 screen portion of the console (see Section 3.4).

MONTHLY:

1. Vacuum under and around the Ascent Trainer. If you need to move it, unplug the unit first.
2. Vacuum debris out of the foot pedals. Remove the rubber foot pad and clean under it (Figure A).
3. Apply Corrosion Block to the metal part of the iPod cable.



FIGURE A

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.
4. Lubricate the Acme screw on the incline motor (Matrix recommends using Superlube brand grease with PTFE {Teflon} additive).
5. Check the pedal foot pad for damage or wear. Replace as needed.

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.

3.5 AUTO CALIBRATION PROCEDURE

AUTO CALIBRATION PROCEDURE

After initial installation or replacement of the incline motor, auto calibration should be run.

1) Press ENTER, 2, 0, 0, 1, ENTER on the keypad to go into Engineering Mode.
2) Press CALIBRATION on the display.
3) Press AUTO CALIBRATION on the display.
4) Press START on the display.
5) This will run the Auto Calibration. If the calibration passes, it will say complete. Press the HOME key to return to the normal start screen.
6) If the calibration does not pass, contact Matrix Customer Technical Support at 866-693-4863 ext 3.

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 CONSOLE DESCRIPTION



The A7xe 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.

A7XE 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.

GLUTE TRAINING WORKOUT - This program was designed to increase your range of motion and target the thighs and glutes. By varying a high incline throughout the workout you can engage significant glute recruitment and enjoy a great workout. You will be asked to enter in a minimum resistance level and a maximum resistance level. The maximum resistance is applied at your peaks and the minimum resistance is applied in the valleys. Choose levels that are appropriate for you. A great recommended starting point is a Minimum Resistance Level of 1 and a Maximum Resistance Level of 8. After you are comfortable with this setting, try higher levels for both. Incline levels cannot be adjusted during this workout as it is an incline based workout.

TARGET HEART RATE - The Matrix Ascent Trainer 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 Ascent Trainer 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 Ascent Trainer. 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.

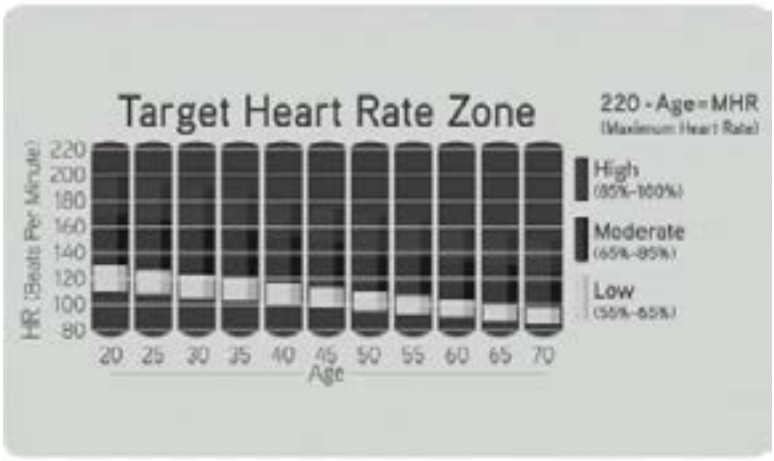
FITNESS TEST -The Cooper Fitness Test measures cardiovascular fitness and proves an estimated sub-maximal VO2 result. It is based on power output according to ACSM standards and was developed by the Cooper Institute© (www.cooperinstitute.org). User RPMs must remain between 60-80 RPM during the test. 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 Ascent Trainer'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 Ascent Trainer 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 - SERIAL NUMBER TAB



A7xe-02-C or A7xe-01-C - If the unit has the old MMM board, the CSafe Model should be set for MMM (even if the MMM console is replaced).

A7xe-03-C - If the unit has the LMM board or the unit is the new model with 1 lift motor, the CSafe Model should be set for On.

A7xe-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	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 - 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
	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 - 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.	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 Ascent Trainer.

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	Auto Calibration	This option calibrates the elevation parameters.	
	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
	Default Incline % Default: 10%	Starting incline level at each program start.	Range: 0% - 100%

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 - END POINTS TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
End Points	Tune Incline 1 Top: Top: 2.0	Sets the maximum end incline for incline motor 1.	Top: 0.1 - 25.5
	Tune Incline 1 Bottom: Bottom: 2.0	Sets the minimum end incline for incline motor 1.	Bottom: 0.1 - 25.5
	Tune Incline 2 Top: Top: 2.0	Sets the maximum end incline for incline motor 2.	Top: 0.1 - 25.5
	Tune Incline 2 Bottom: Bottom: 2.0	Sets the minimum end incline for incline motor 2.	Bottom: 0.1 - 25.5

6.8 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 Ascent Trainer.

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



A7xe-02 - This setting is for non-self powered frames (A5x-02-F).
A7xe-03 - This setting is for self powered frames (A5x-03-F).
A7xe-04 - This setting is for the new style Ascent Trainer (A5x-04-F). This setting should be used for the current model.

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

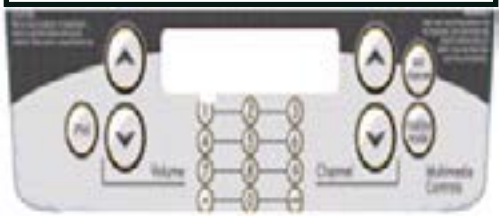
7.3 SERVICE MODE - TEST TAB



A7xe-02--C Keypad - Old keypad - Includes Quick Start Key



A7xe-03--C Keypad - Old keypad - Does NOT Includes Quick Start Key



A7xe-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



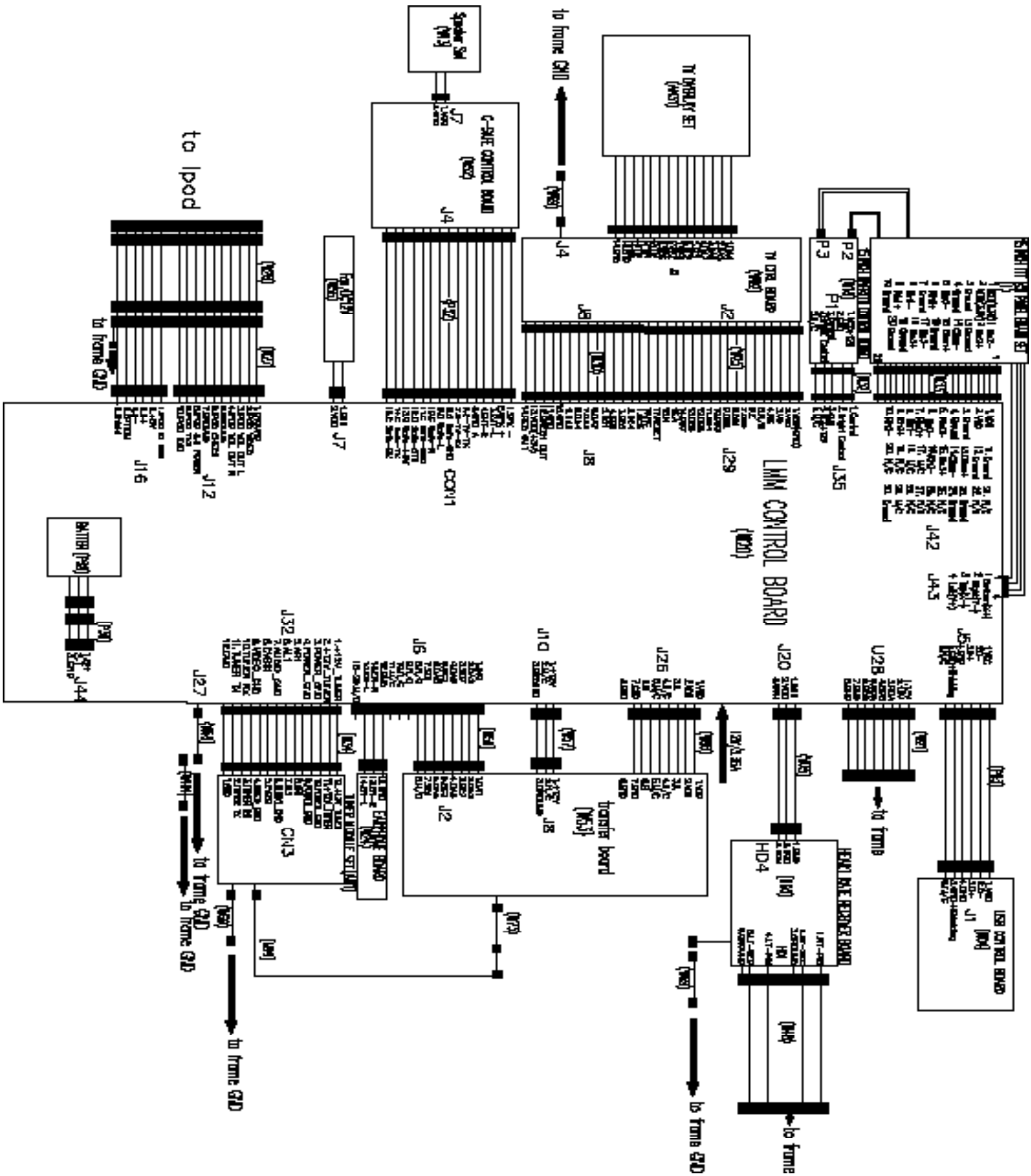
SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
	Log	This option allows the club to record key components replacement history.

7.5 SERVICE MODE - DATE & TIME TAB

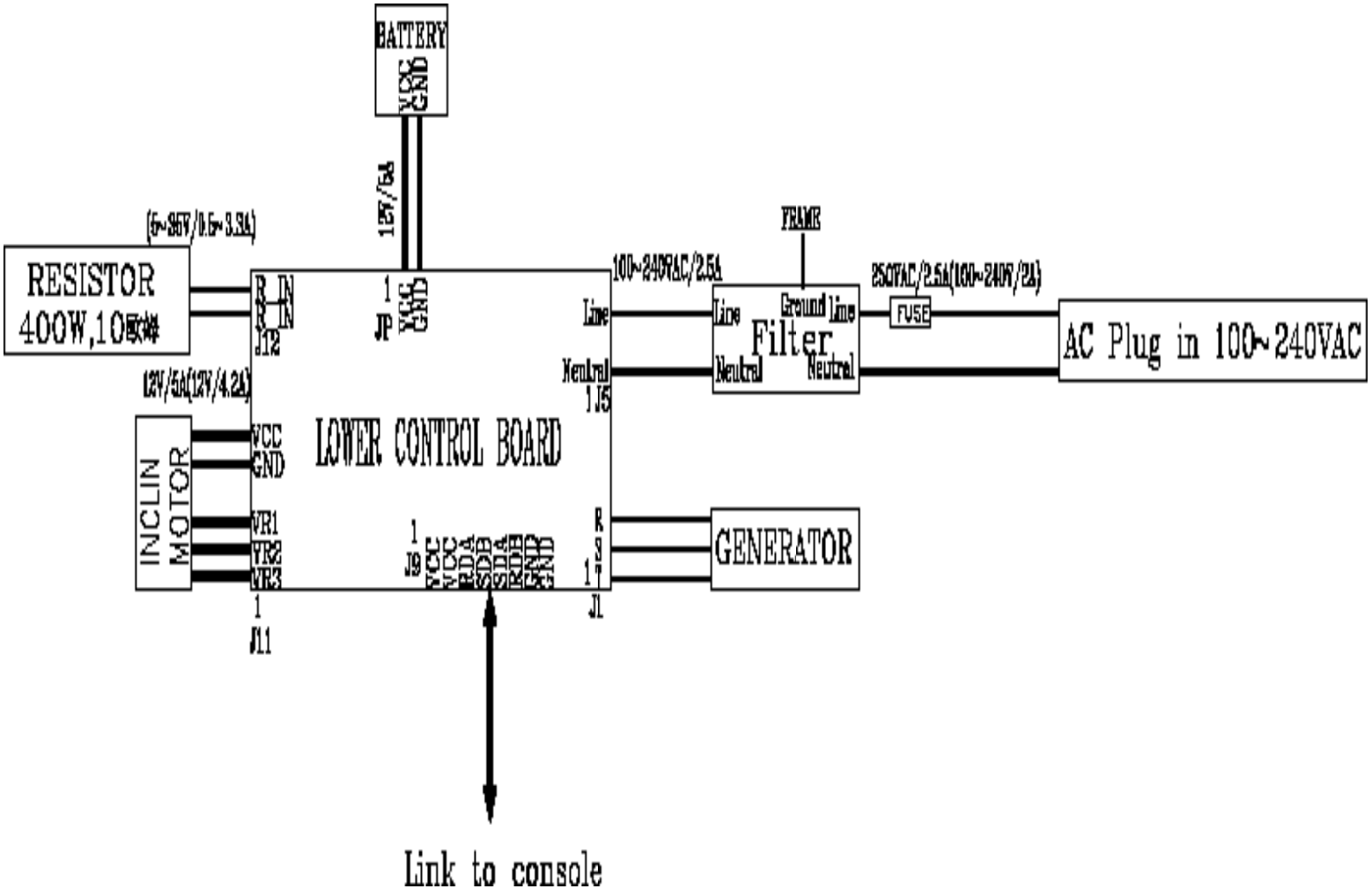


SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
	Date & Time	This option sets the current date and time of the machine.

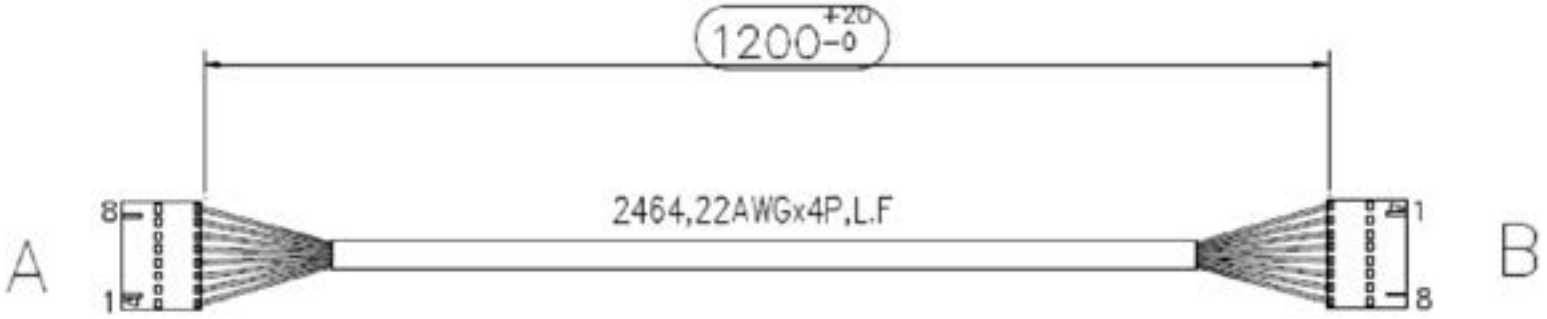
8.1 ELECTRICAL DIAGRAMS



8.1 ELECTRICAL DIAGRAMS - CONTINUED



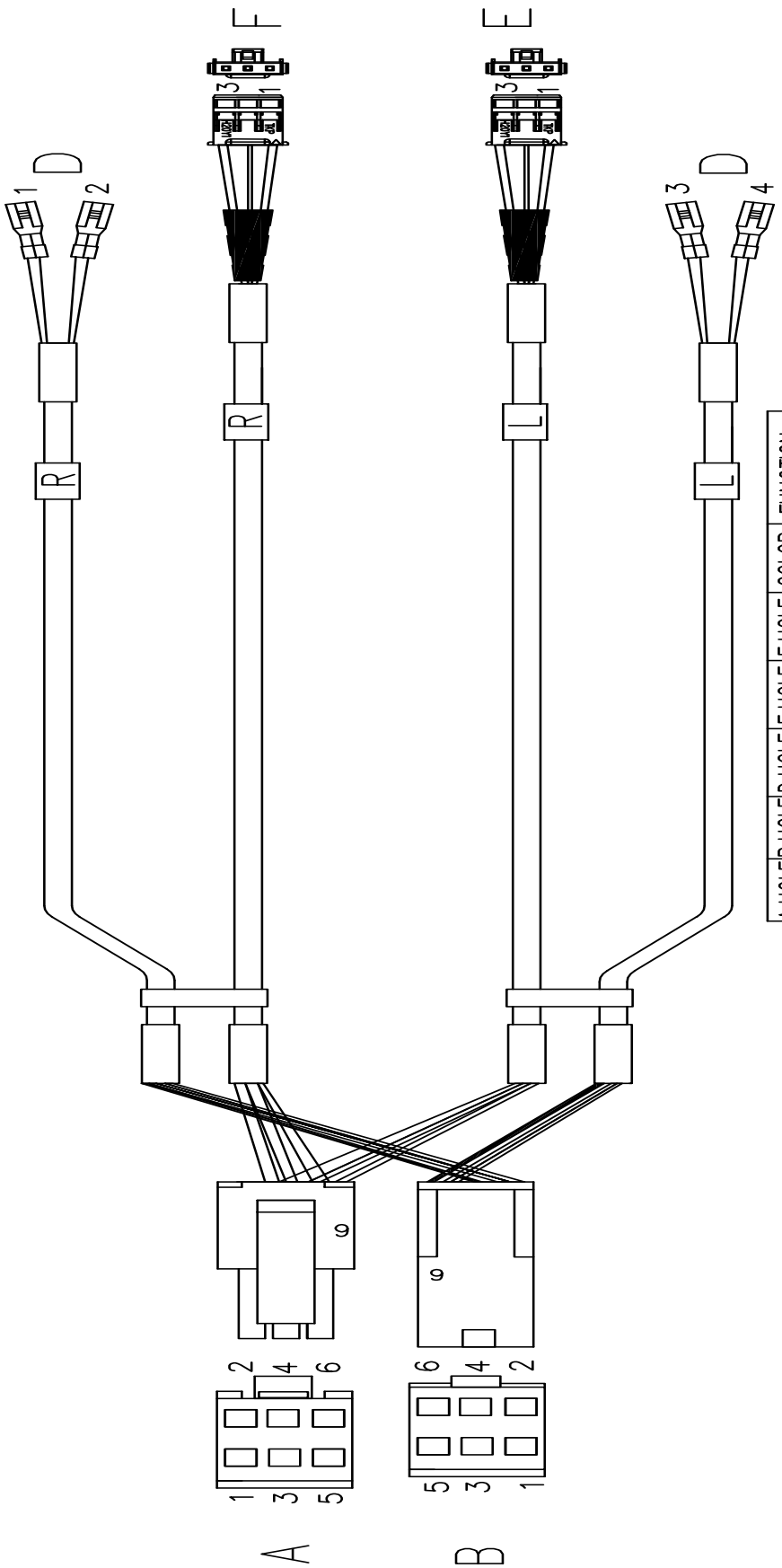
DIGITAL COMMUNICATION WIRE



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

8.1 ELECTRICAL DIAGRAMS - CONTINUED

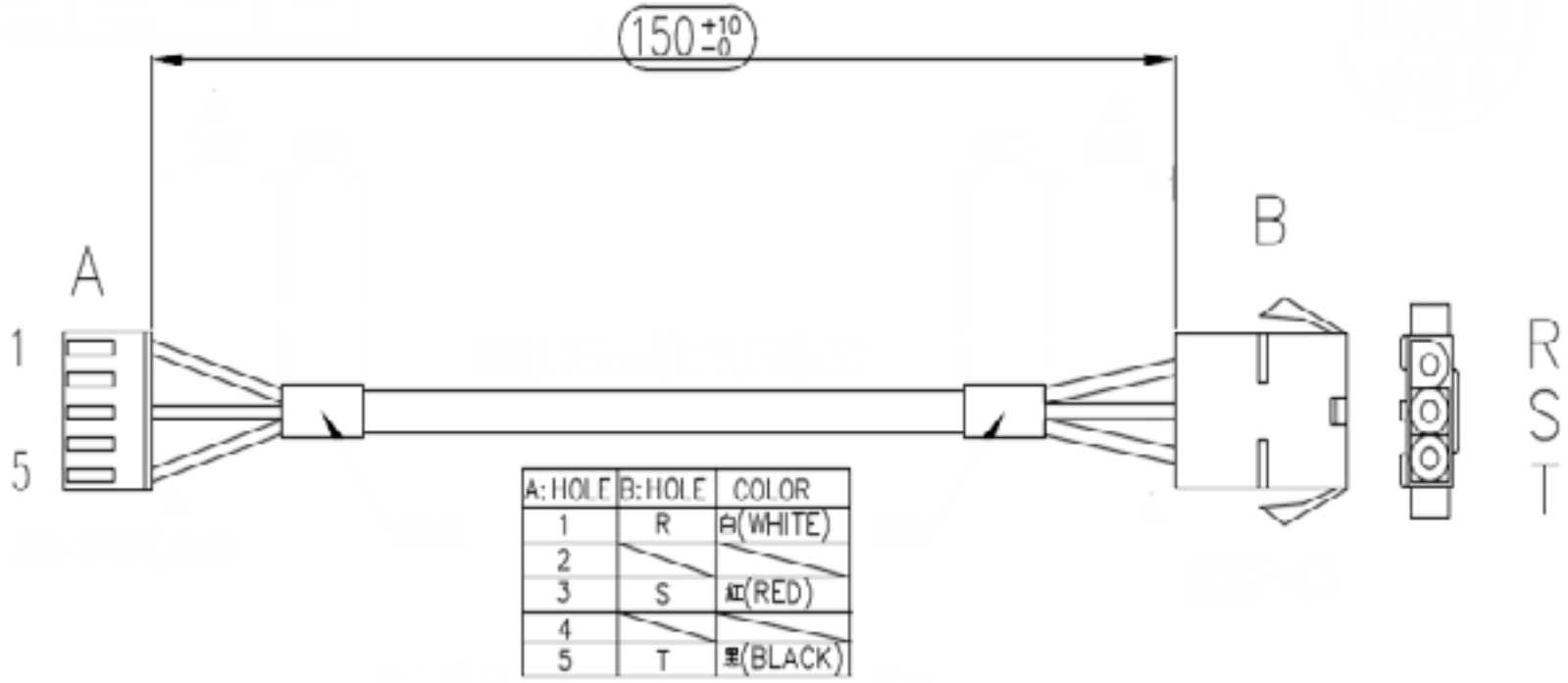
Hand Pulse Connecting Cable



A.HOLE	B.HOLE	D.HOLE	E.HOLE	F.HOLE	COLOR	FUNCTION
2						
	6			3		DA2(R-down)
			3			DA2(I-down)
4				1		SC2
		1			Red	Right Hand Pulse+
		2			White	Right Hand Pulse-
		3				Shield
3			2			DA1(I-UP)
				2		DA1(R-UP)
1						
5			1			SC1
		3			Red	Left Hand Pulse+
		4			White	Left Hand Pulse-
	4					
	5					
	6					
						Shield

8.1 ELECTRICAL DIAGRAMS - CONTINUED

ECB WIRE



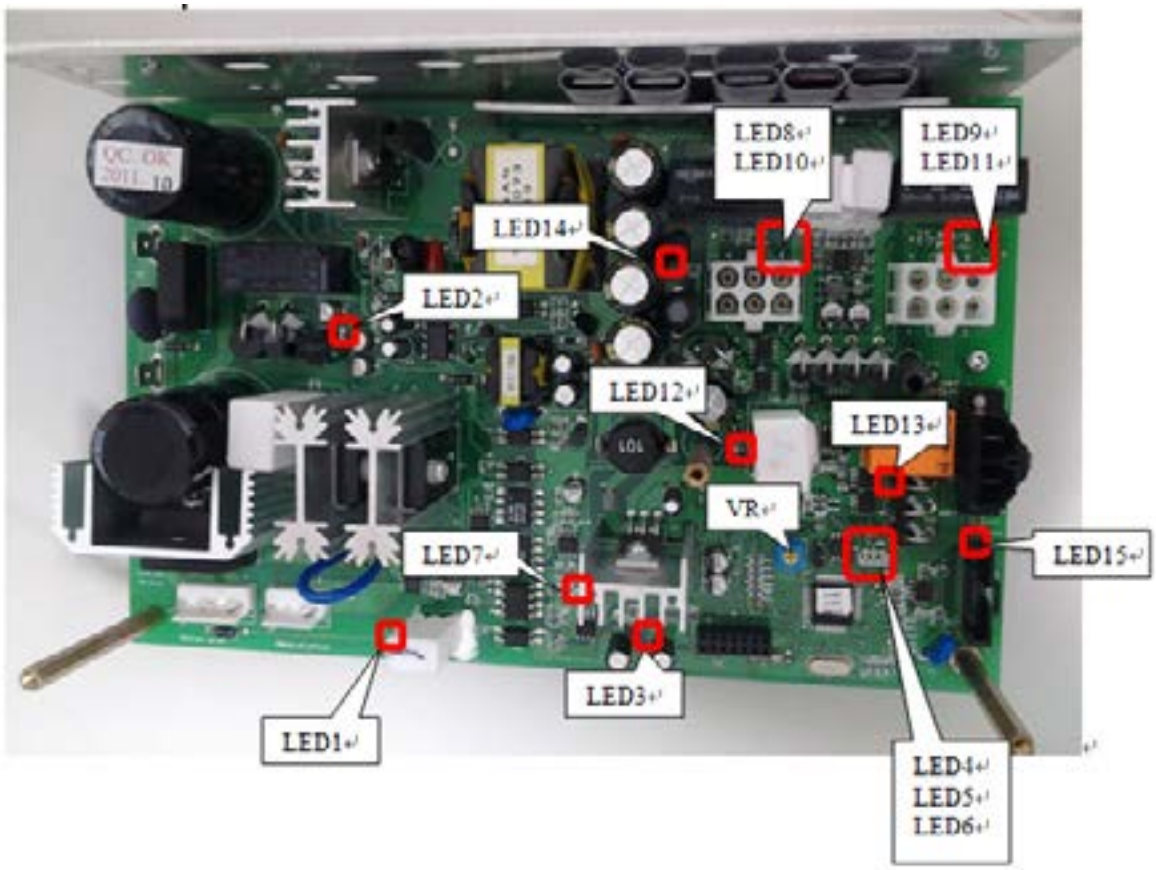
A: HOLE	B: HOLE	COLOR
1	R	白(WHITE)
2		
3	S	紅(RED)
4		
5	T	黑(BLACK)

POWER RESISTANCE WIRE



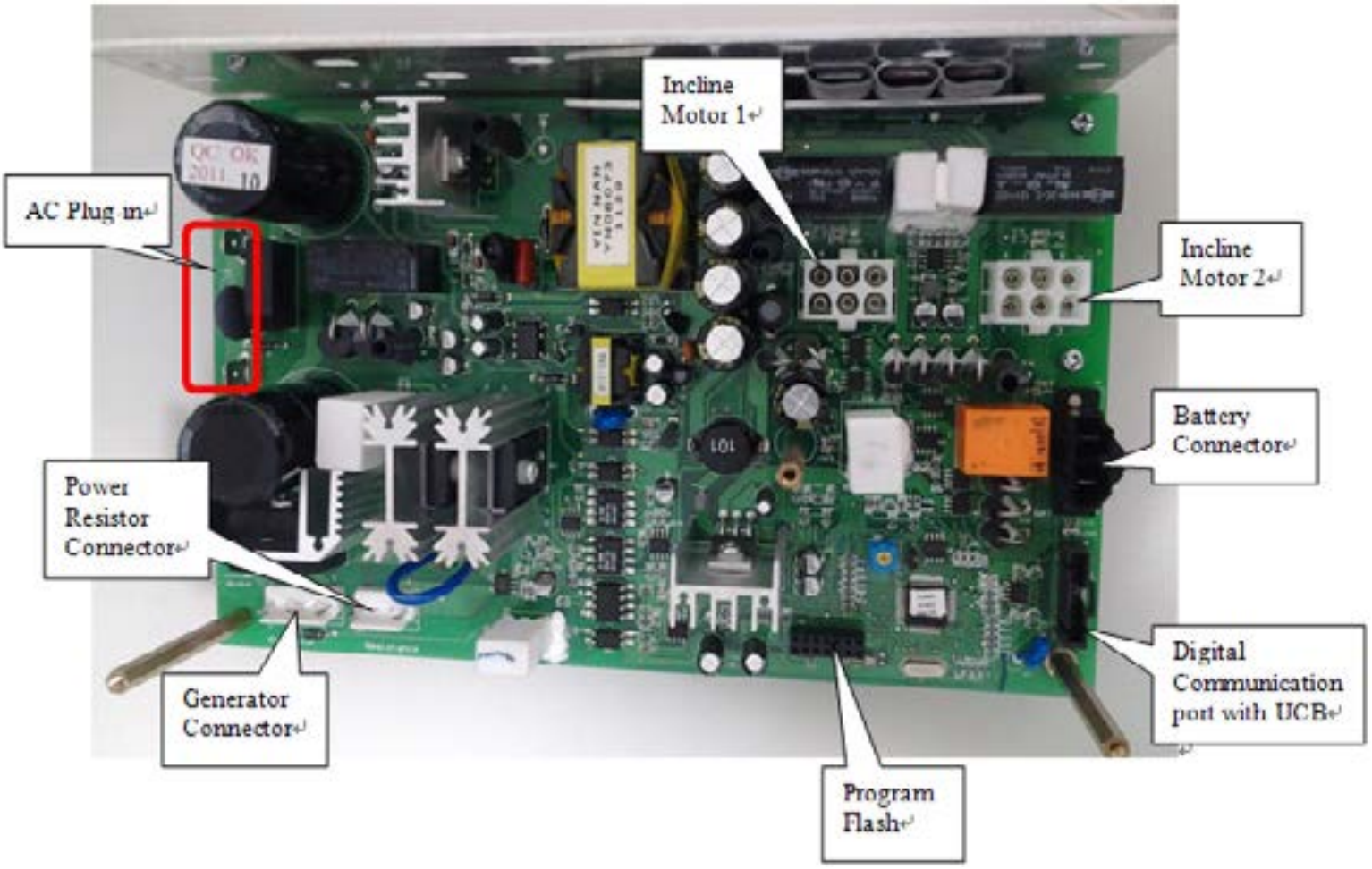
A: HOLE	COLOR	FUNCTION
1	WHITE	R_IN
2		
3		
4	WHITE	R_IN

8.2 LCB LED INDICATORS



LED #	Description
1	Generator RPM
2	AC Plug-in
3	Vcc(5V)
4	System Status
5	Error Status
6	Error Status
7	Resistance
8	Incline 1 Forward
9	Incline 2 Forward
10	Incline 1 Rearward
11	Incline 2 Rearward
12	Charge
13	Discharge
14	12V/6A(main power)
15	Console Power

8.3 LCB WIRING CONNECTIONS



ERROR CODE 04A0

1) SYMPTOM:

04A0 – PCB communication disconnected.

2) SOLUTION:

1) Check the console cable connection at the UCB and LCB (Figures A & B).
2) Replace the console cable.
3) Replace the console.

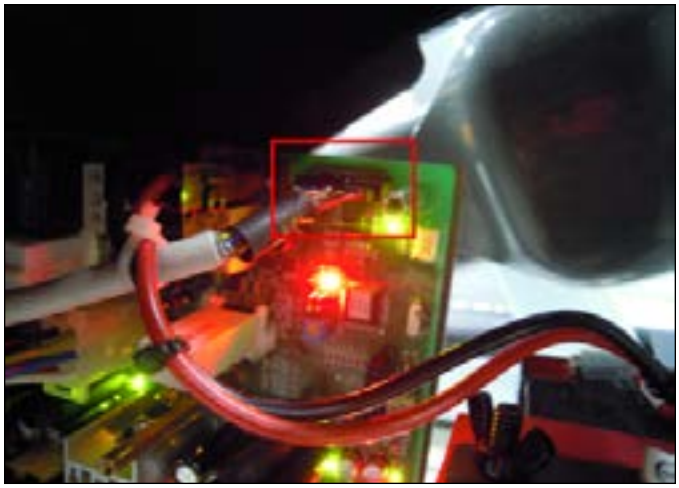


FIGURE A

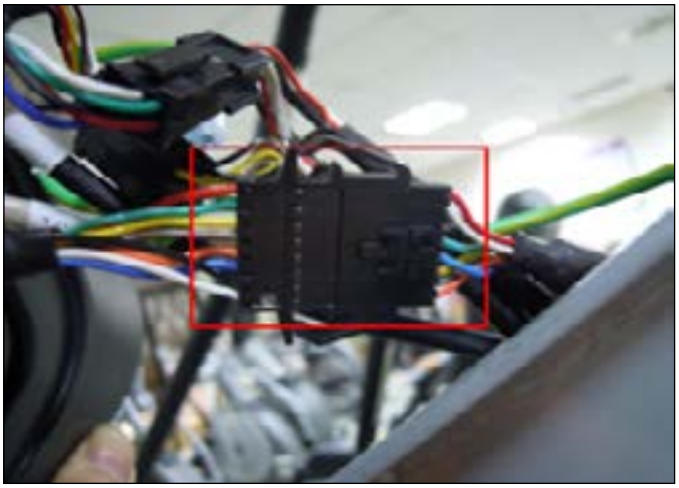


FIGURE B

ERROR CODE 04B0

1) SYMPTOM:
04B0 – LCB communication disconnected.

2) SOLUTION:
1) Check the console cable connection between the UCB and LCB (Figures A & B).
2) Replace the console cable.
3) Replace the LCB.

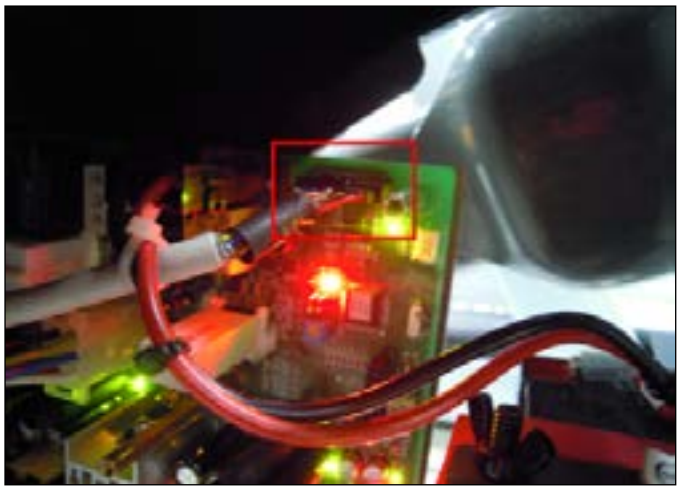


FIGURE A

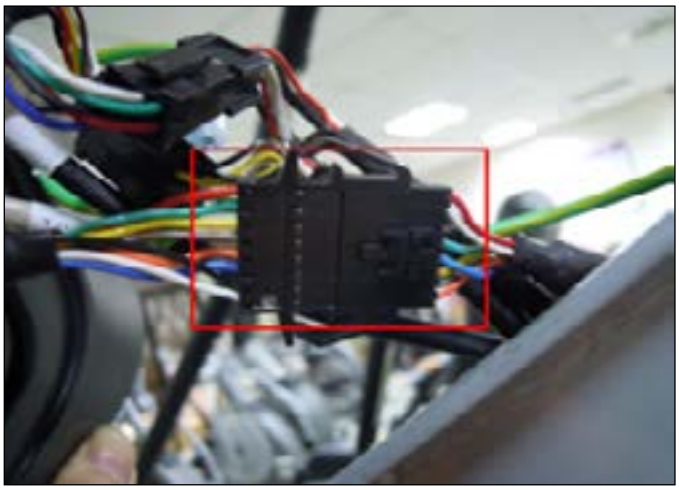


FIGURE B

ERROR CODE 0140 / 01AD

1) SYMPTOM:

0140 – PCB communication disconnected.
014D – Incline no action & Incline no current

2) SOLUTION:

1) Follow the instructions in Section 4.8 to run Auto Calibration (Figure A).
2) If the error code happens during Auto Calibration, the machine will still work, no need to do anything.
3) If the error code happens during a workout, replace the incline motor.



FIGURE A

ERROR CODE 01A1

1) SYMPTOM:

01A1 – Incline calibration error. It occurs when the calibration time is too long or the calibration distance is too short.

2) SOLUTION:

1) Follow the instructions in Section 3.5 to run Auto Calibration (Figure B).
2) Disconnect the incline tube from the incline frame (Figure A), then turn on the power.
   - If the console still shows 01A1, replace the incline motor.
   - If the console does not show 01A1, follow incline motor installation procedure in Section 9.13 to re-attach the incline motor.
3) Replace the LCB.

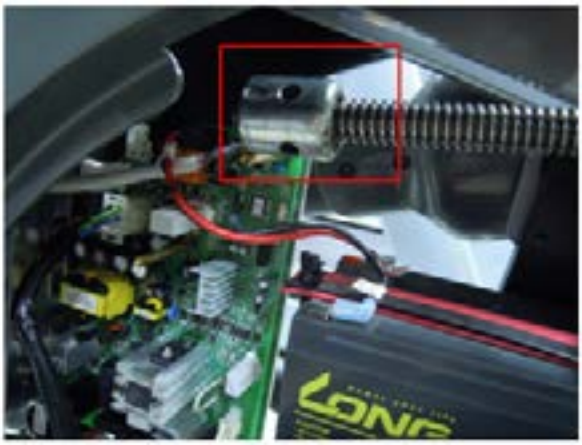


FIGURE A

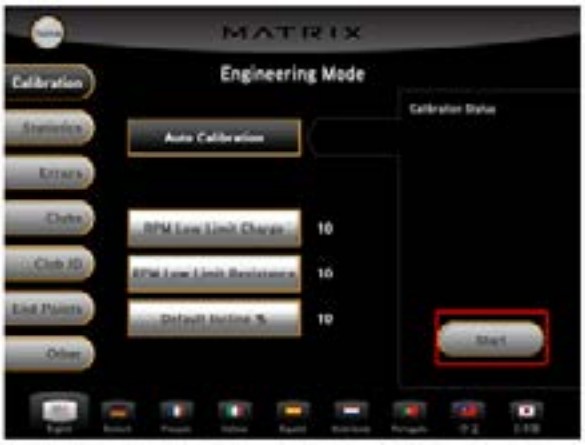


FIGURE B

ERROR CODE 0147

1) SYMPTOM:

0147 – Incline Motor is disconnected for 3 seconds.

2) SOLUTION:

1) Check the incline motor wire connection at the LCB (Figure A).
2) Check to see if the incline value changes on the display when INCLINE UP or DOWN keys are pressed (Figure B).
   - If there's no change, replace the incline motor.
   - If there's a change, replace the LCB.

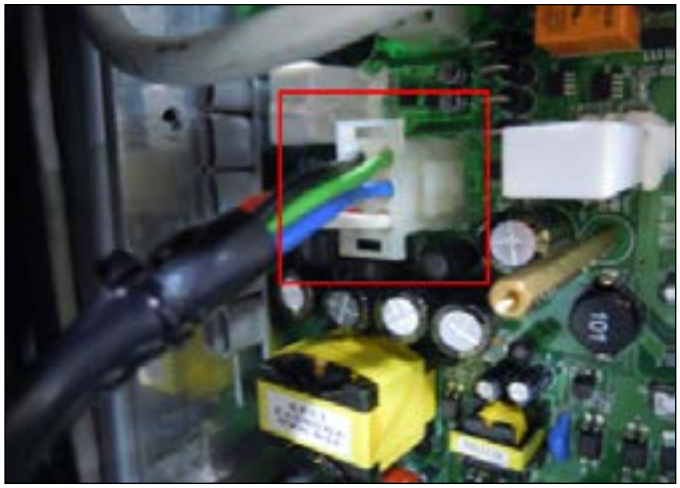


FIGURE A



FIGURE B

ERROR CODE 0148

1) SYMPTOM:

0148 – Incline motor over current.

2) SOLUTION:

1) Follow the instructions in Section 3.5 to run Auto Calibration (Figure B).
2) Disconnect the incline tube from the incline frame (Figure A), then turn on the power.
   - If the console still shows 0148, replace the incline motor.
   - If the console does not show 0148, follow the incline motor installation procedure in Section 9.13 to re-attach the incline motor.
3) Replace the LCB.



FIGURE A



FIGURE B

ERROR CODE 0149

1) SYMPTOM:

0149 – The resistance current is over 3.7A for 1 second.

2) SOLUTION:

1) Check if the resistance is short circuited by measuring amperage through the generator cable (Figure A).
   - If the resistance value is under 10 ohms, replace the generator.
   - If the resistance value is over 10 ohms, replace the LCB.



FIGURE A

ERROR CODE 01B4

1) SYMPTOM:

01B4 – Battery terminals reversed or check circuit error.

2) SOLUTION:

1) Check the connection of the wiring on the terminals of the battery. They should be black to black and red to red (Figure A).
2) Replace the LCB.



FIGURE A

ERROR CODE 02AB

1) SYMPTOM:
02AB – Machine Type Error.

2) SOLUTION:
1) Check if the console machine type is matched with the correct frame (Figures A & B).

Remarks: There are two types of A5x/7x-F as shown below, each with different machine type setting.

Machine type is A7xe-03



FIGURE A

Machine type is A7xe-04



FIGURE B

ERROR CODE 02B4

1) SYMPTOM:

02B4 – Resistance type error.

2) SOLUTION:

1) Check if the machine is matched with the correct resistance system (resistor or ECB) (Figures A & B).
2) Check if the console is matched with the correct frame.
3) Replace the LCB.
4)..Replace the console.

Resistor use on HUREA5x frame

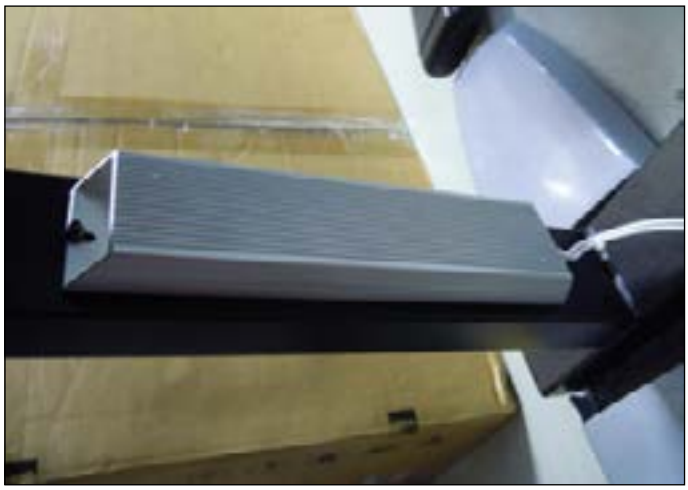


FIGURE A

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



FIGURE B

ERROR CODE 0248

1) SYMPTOM:

0248 –Battery disconnection or fail. (When 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 to see if the battery voltage is less than 6 VAC (Figure B).
3) If not, replace the battery.
4) If yes, replace the LCB.



FIGURE A



FIGURE B

ERROR CODE 014A / 0247

1) SYMPTOM:

014A – LCB charge circuit is abnormal.
0247 – LCB fail.

2) SOLUTION:

1) Replace the LCB.

8.16 TROUBLESHOOTING - NO RESISTANCE ISSUE

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 to see if the resistor wire has resistance (Figure B).
--If there is no resistance (ohms) reading, replace the power resistor.
--If there is resistance, replace the LCB.

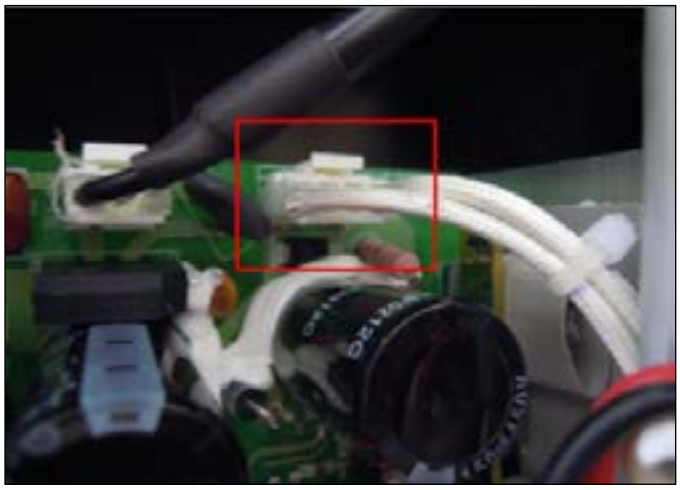


FIGURE A



FIGURE B

8.17 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 disk and check to see if LED15 is lit on the LCB. If it is not, verify power at the outlet. If the outlet is not outputting 120V, check the fitness room power.
- If LED 15 is still not lit after verifying the fitness room power, replace the power cord.

b. Check to see if LED 15 is lit on the LCB (Figure A).
- If LED 15 is not lit, check for incoming AC voltage at the LCB. Replace the power components as needed if the 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 upper control board (Figure B).
- If LED D18 is lit, check the switch on the IO board, it should be towards the right side (LCB_Power - Figure B).
- If LED D18 is not lit, check the console cable for connection at the LCB and console.

d. If LED D18 is not lit after checking the console cable connections, replace the console cable.
- If LED D18 is lit on the console, but there is still no power, replace the console.

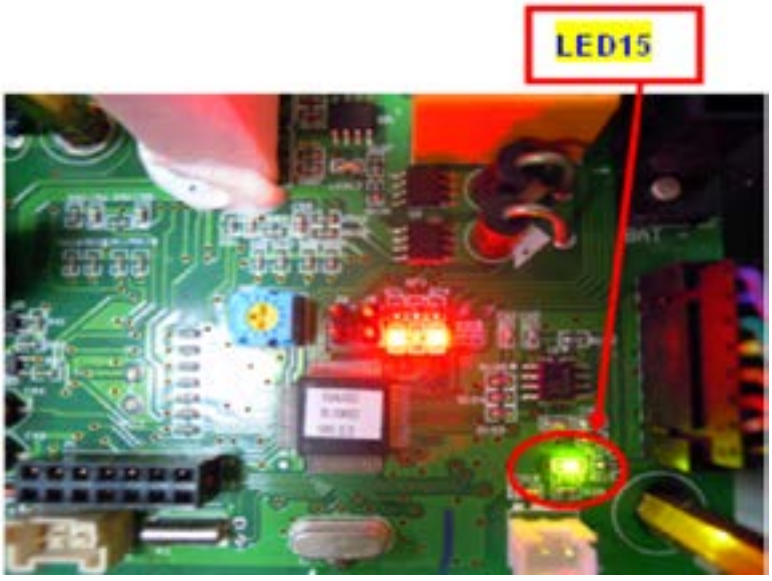


FIGURE A

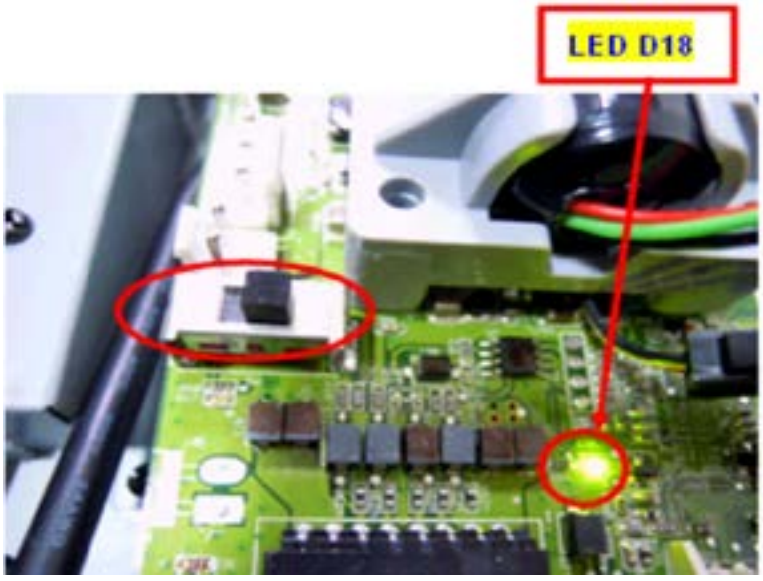


FIGURE B

8.18 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 Ascent 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

8.19 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 Ascent Trainer 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

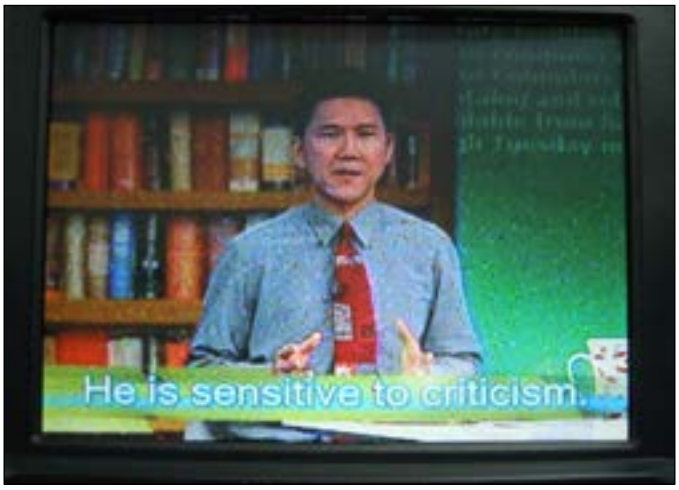


FIGURE B



FIGURE C

8.20 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

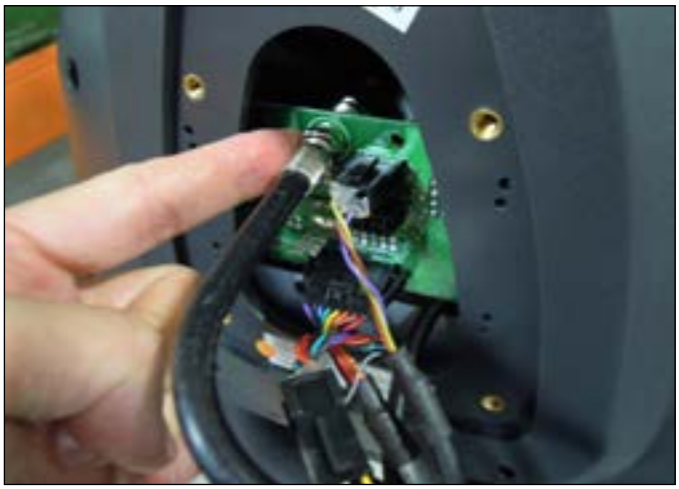


FIGURE B

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.

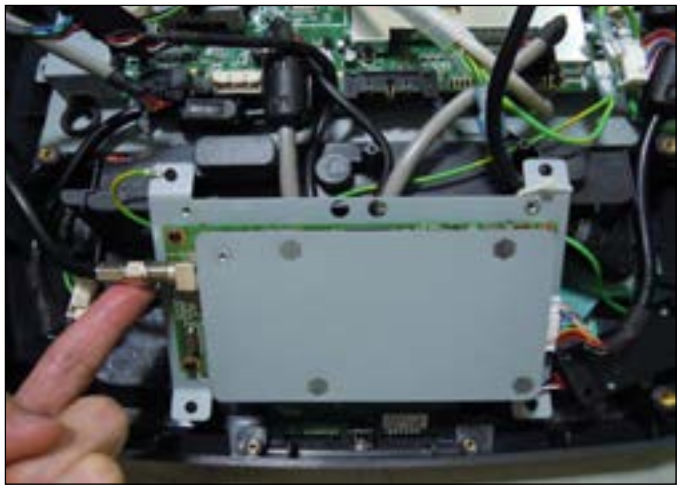


FIGURE C



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.

8.21 TV TROUBLESHOOTING - TV WILL NOT TURN ON

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

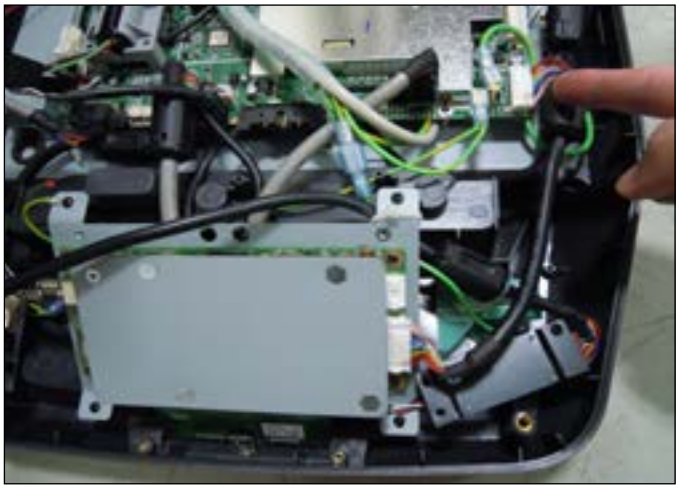


FIGURE A

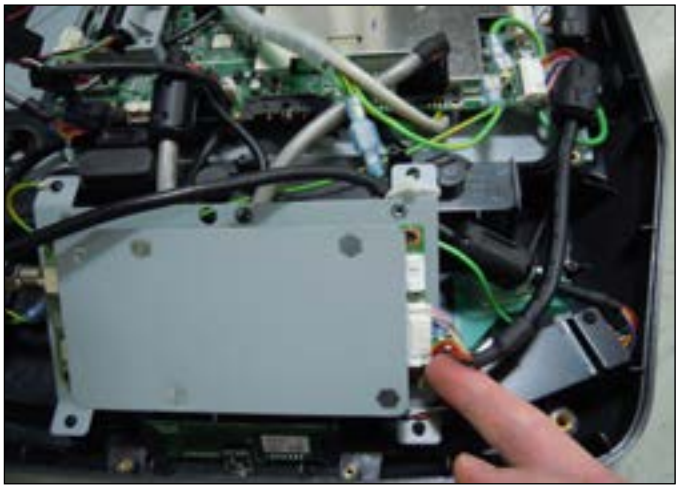


FIGURE B

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

8.22 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

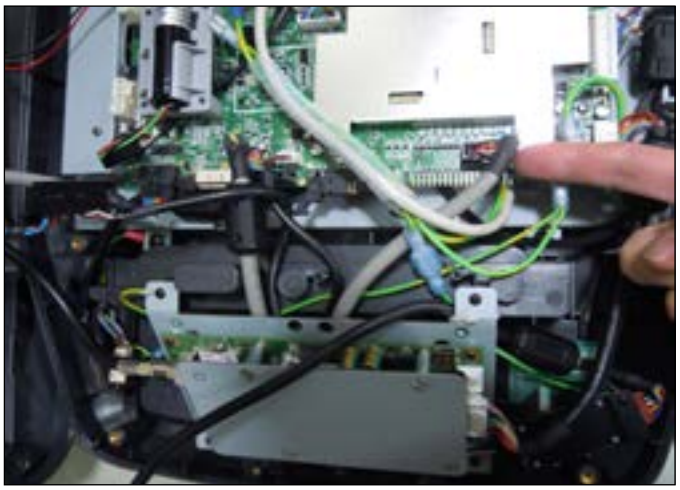


FIGURE B

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

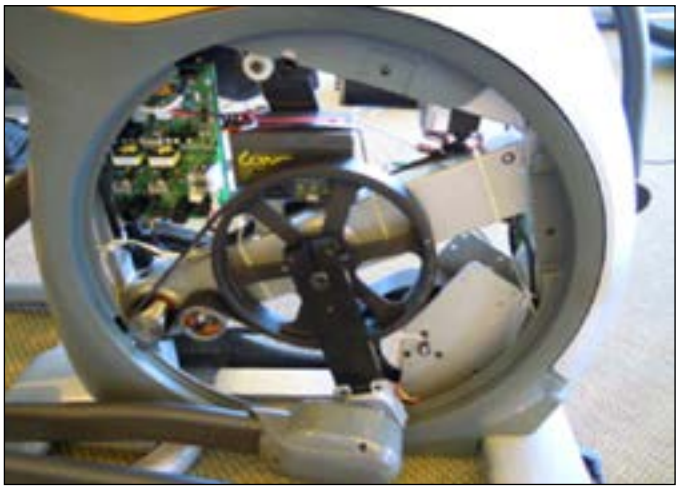


FIGURE D

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).

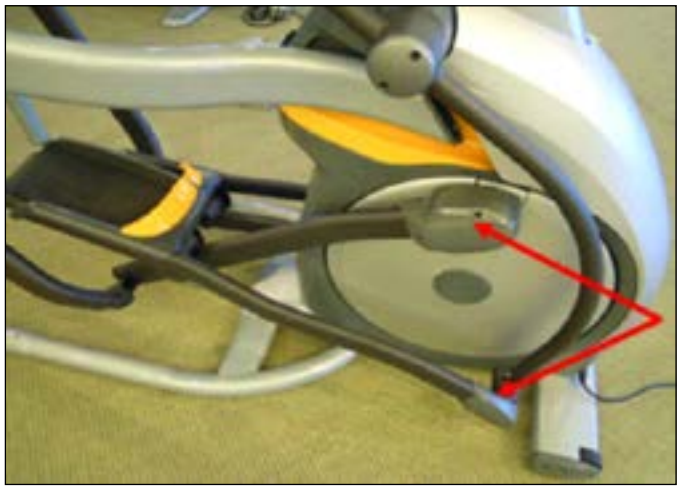


FIGURE A





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).

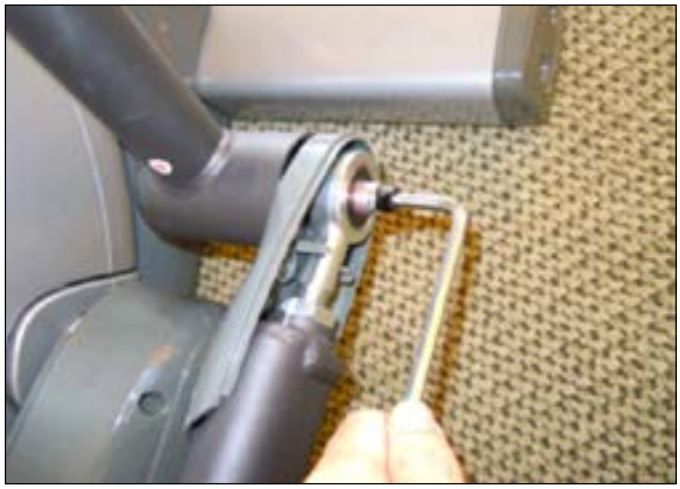


FIGURE C



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).

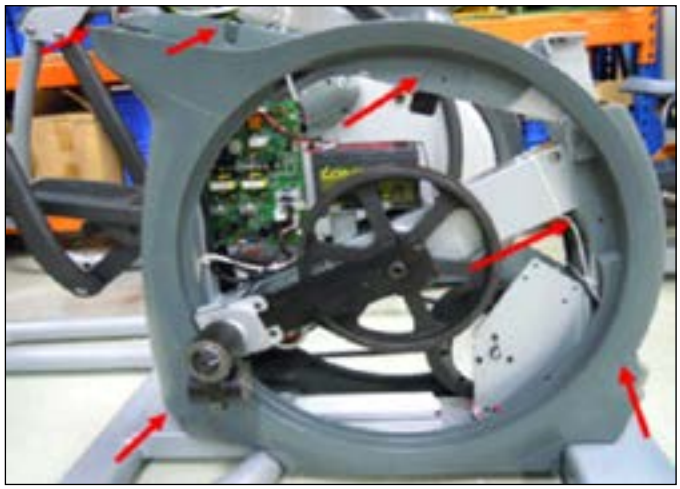


FIGURE M

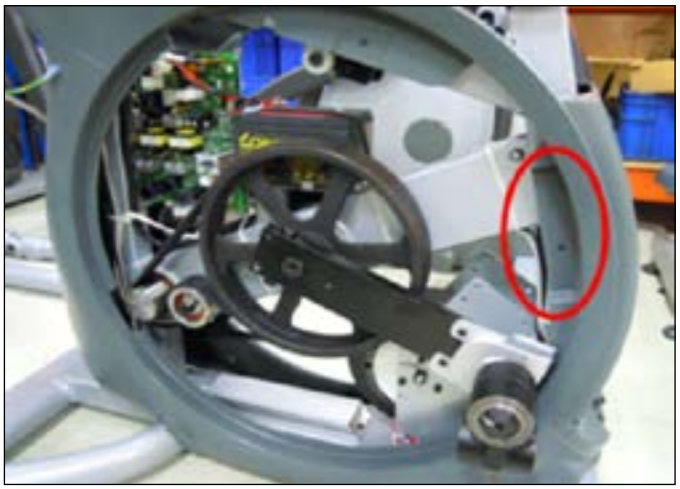


FIGURE N

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).

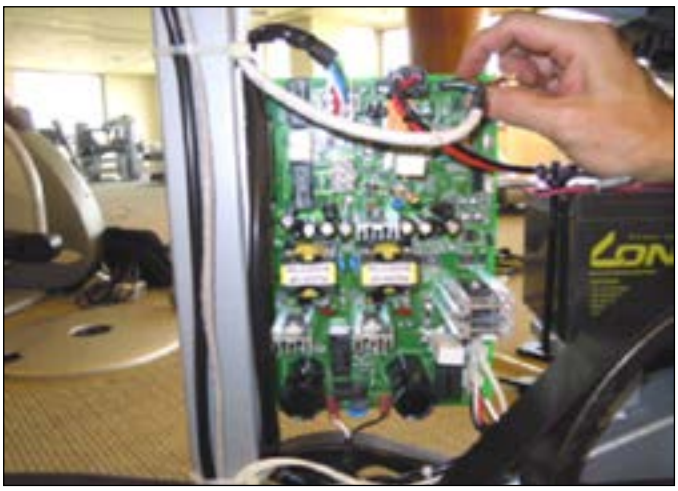


FIGURE A

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 Ascent Trainer for function as outlined in Section 9.22.

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

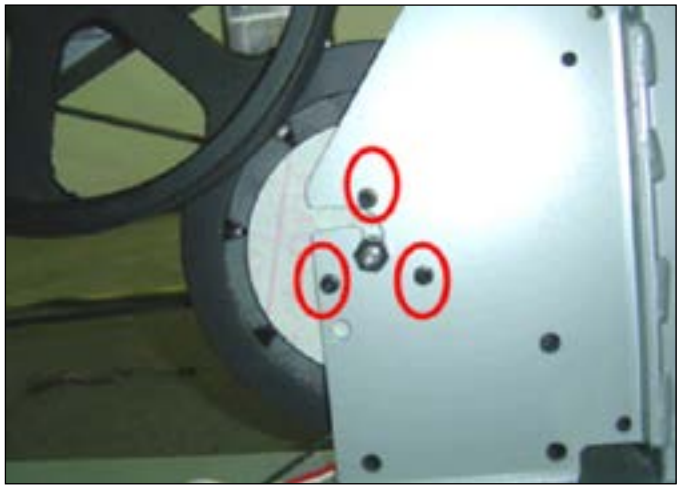


FIGURE D

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 Ascent Trainer for function as outlined in Section 9.22.

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).

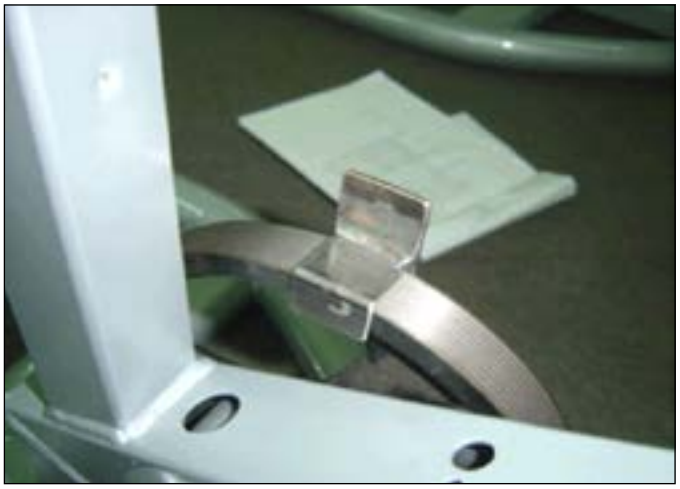


FIGURE A

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 Ascent Trainer for function as outlined in Section 9.22. .

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 Ascent Trainer for function as outlined in Section 9.22.

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

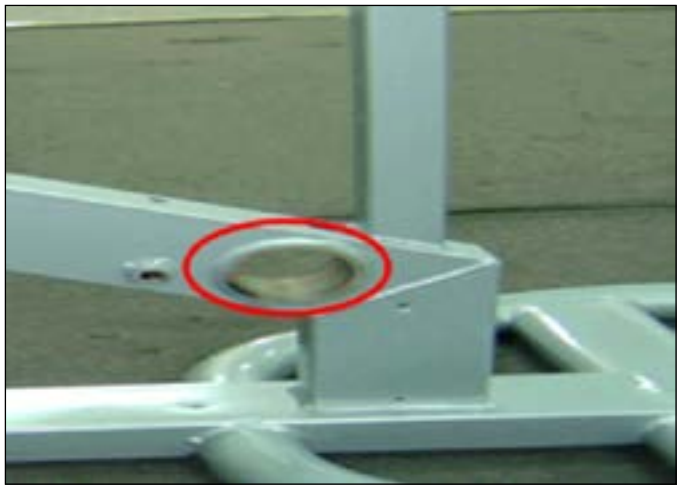


FIGURE D

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 Ascent Trainer for function as outlined in Section 9.22.

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).

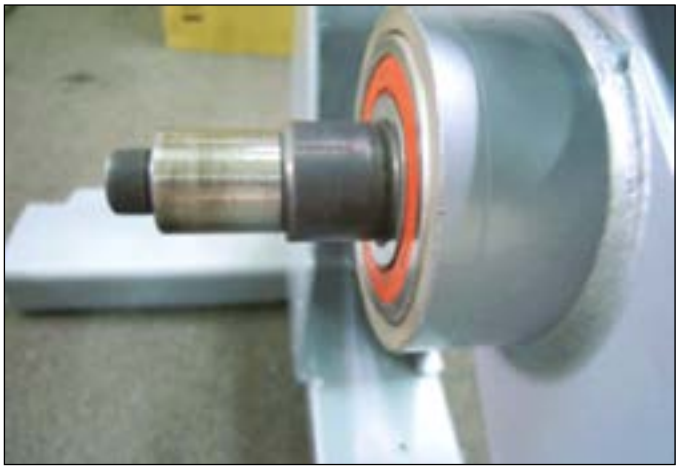


FIGURE C



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).

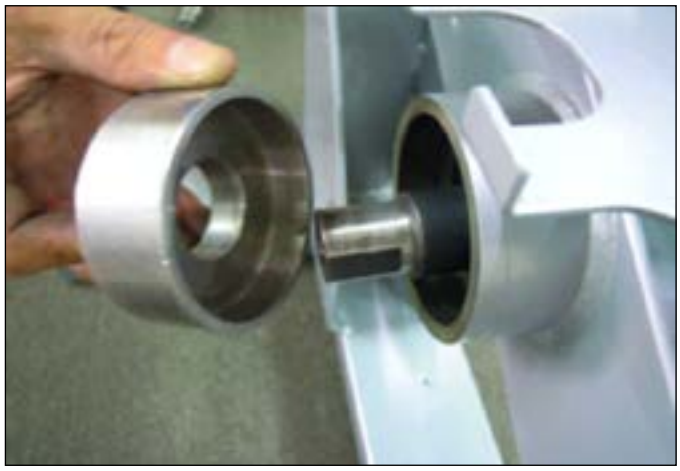


FIGURE I



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).

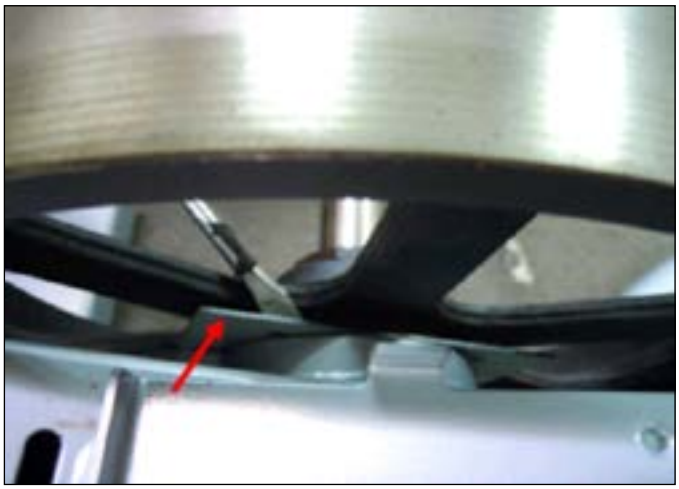


FIGURE M



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. Reverse Steps 1-2 to re-assemble the unit.
24) Test the Ascent Trainer as outlined in Section 9.22.

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).

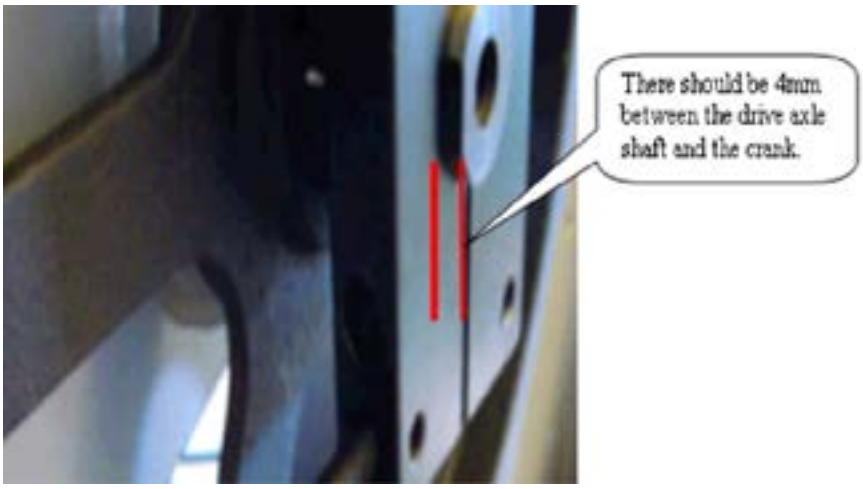


FIGURE C

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).

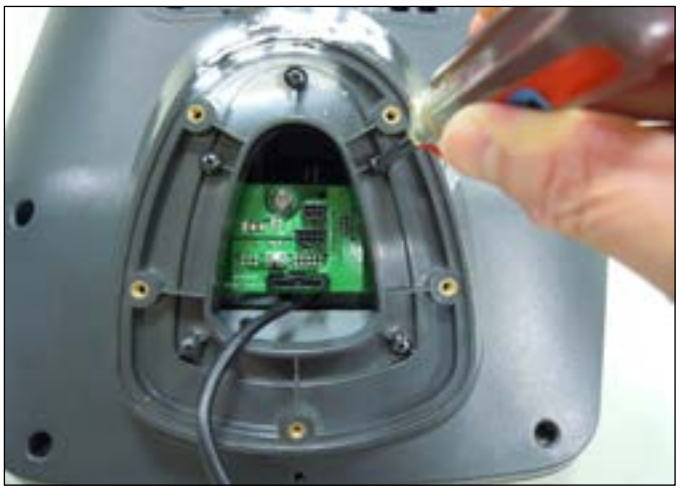


FIGURE C

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 Ascent Trainer for function as outlined in Section 9.22.

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

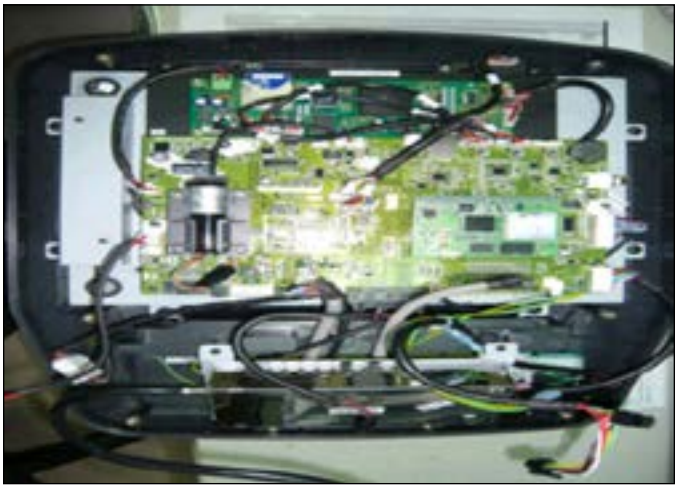


FIGURE B

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

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 Ascent Trainer for function as outlined in Section 9.22.

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 Ascent Trainer for function as outlined in Section 9.22.

9.13 INCLINE MOTOR REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks as outlined in Section 9.1.
3) Complete Steps 6-8 and 10 from Section 9.2 to remove the cup holder and top shrouds from the unit (the main side shrouds do not need to be removed).
4) Disconnect the incline motor ground wire from the frame and disconnect the incline motor power wire (Figures A & B). If unsure if the incline motor is the issue, plug in the new incline motor at this time to see if it is energized. If it is not, the issue is likely with the LCB.



FIGURE A



FIGURE B

5) Remove the spring clip to separate the incline motor from the frame (Figure C).
6) Remove the incline motor by loosening the pivot bolts on each side (Figure D - ***NOTE:*** Figure D shows the unit with the shrouds removed for clarity). ***NOTE: Prior to loosening the pivot bolts, secure the incline motor as it can fall once the pivot bolts are loosened.***



FIGURE C



FIGURE D

9.13 INCLINE MOTOR REPLACEMENT - CONTINUED

7) While the incline motor is out, the carriage rollers should be checked. Turn the rollers. The rollers should turn smoothly with only a small amount of friction (Figure E).
8) If the rollers need to be adjusted, loosen the horizontal bolts simultaneously first, then adjust the roller friction by adjusting the vertical screws simultaneously (Figure F).



FIGURE E



FIGURE F

9) Prepare the new incline motor for installation. The new incline motor should have the nut placed close to the end of the shaft (Figure G).



FIGURE G

9.13 INCLINE MOTOR REPLACEMENT - CONTINUED

10) Plug in the power wire of the new incline motor (with the motor still outside the unit). Plug in the unit. Press ENTER, 3, 0, 0, 1, ENTER to go to Service Mode. Scroll with the LEVEL UP or DOWN keys until Service 6 is displayed. Press ENTER to start Auto Calibration.
11) Turn off power immediately when the new motor has been driven to the limit switch at the TOP of the incline range during Auto Calibration.
NOTE: You are stopping power when the unit is 1/2 way through calibration.
12) Push the carriage towards the rear of the unit. There should be a gap of 8mm (+/- 2mm) between the carriage and the frame. Use an 8mm Allen wrench to maintain this spacing (Figure H - ***NOTE:*** Figure H shows a unit with the console mast removed for clarity).
13) Turn the nut on the incline motor until the screw holes in the nut line up with the screw holes on the carriage (Figure I). Tighten the screws loosened in Step 6 to attach the incline motor nut to the carriage. Torque these screws to 25 N-m.

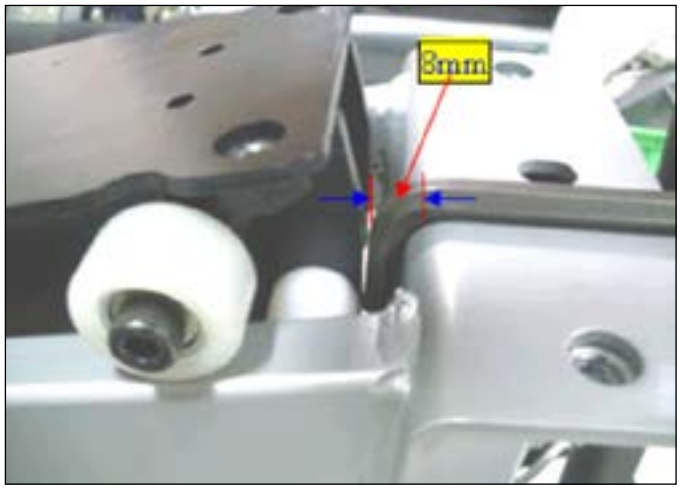


FIGURE H

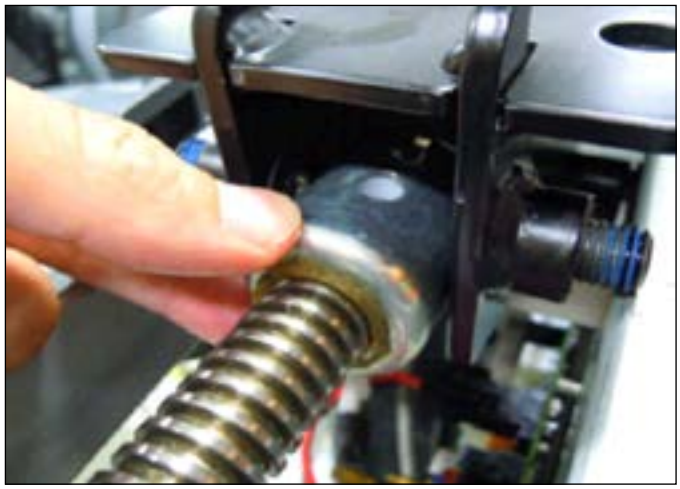


FIGURE I

14) Plug in the unit. Allow the incline to reset.
15) Press ENTER, 3, 0, 0, 1, ENTER to go to Service Mode. Start Auto Calibration. Allow Auto Calibration to completely run. Make sure that the incline motor carriage is not hitting the frame at the top or bottom of the movement. If any issues are seen, re-do Steps 10-13.
16) Reverse Steps 1-5 to re-assemble the unit.
17) Test the Ascent Trainer for function as outlined in Section 9.22.

9.14 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 Ascent Trainer for function as outlined in Section 9.22.

9.15 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 Ascent Trainer as outlined in Section 9.22.

9.16 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 Ascent Trainer for function as outlined in Section 9.22.

9.17 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 Ascent Trainer for function as outlined in Section 9.22.

9.18 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 Ascent Trainer for function as outlined in Section 9.22.

9.19 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 Ascent Trainer for function as outlined in Section 9.22.

9.20 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.

9.21 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 any resistance & elevation buttons and heart rate grip plates (Figures A - D).



FIGURE A



FIGURE B



FIGURE C



FIGURE D

9.22 TESTING THE ASCENT TRAINER

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. Enter into Virtual Active and test.

3) Program the TV channels (see Section 10.5).

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 on the console to make sure resistance is fully functional.

8) Press the ELEVATION UP and DOWN keys (fully incline and decline the machine) to make sure the incline motor function is fully operational.

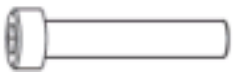
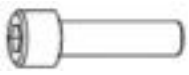
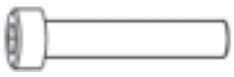
9) If the Ascent Trainer has had an incline motor replaced, or if this is the initial installation, calibrate the lift motor (see Section 3.5).

CHAPTER 10: ASCENT TRAINER SPECIFICATIONS AND ASSEMBLY GUIDE

10.1 ASCENT TRAINER SPECIFICATIONS

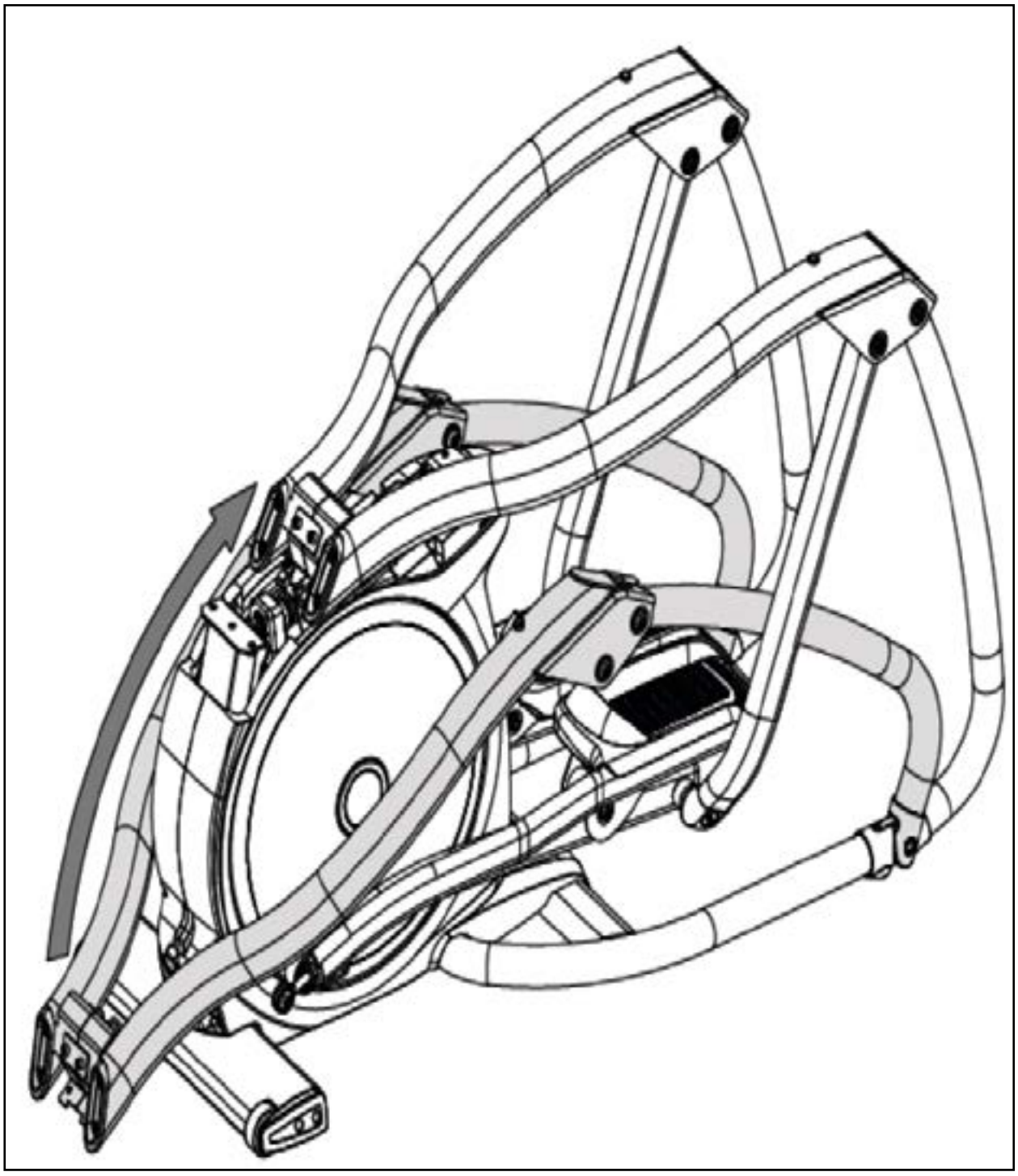
MODEL NAME	A-5x/7x
MODEL TYPE	A7XE ASCENT
FRAME PART #	A-5X/7X-04-F
CONSOLE PART #	HURESAC-7XE-04-C
FEATURES	
STRIDE LENGTH (IN)	20 - 24” / 50.8 - 61.0 CM
INCLINE RANGE	24% - 54% (15° RANGE)
CONTACT & TELEMETRIC HR SENSORS	YES
CUSHIONED FOOTPADS	YES - PREMIUM
Q-FACTOR	2.5” / 6.4 CM
HANDLEBAR DESIGN	MULTI-POSITION DUAL ACTION AND PREMIUM 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, INCLINE, 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	30
WORKOUTS	MANUAL, ROLLING HILLS, INTERVAL TRAINING, FAT BURN, GLUTE TRAINING, 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	445 LBS/202.7KG
SHIPPING WEIGHT	476 LBS/216.5KG

10.2 ASSEMBLY HARDWARE

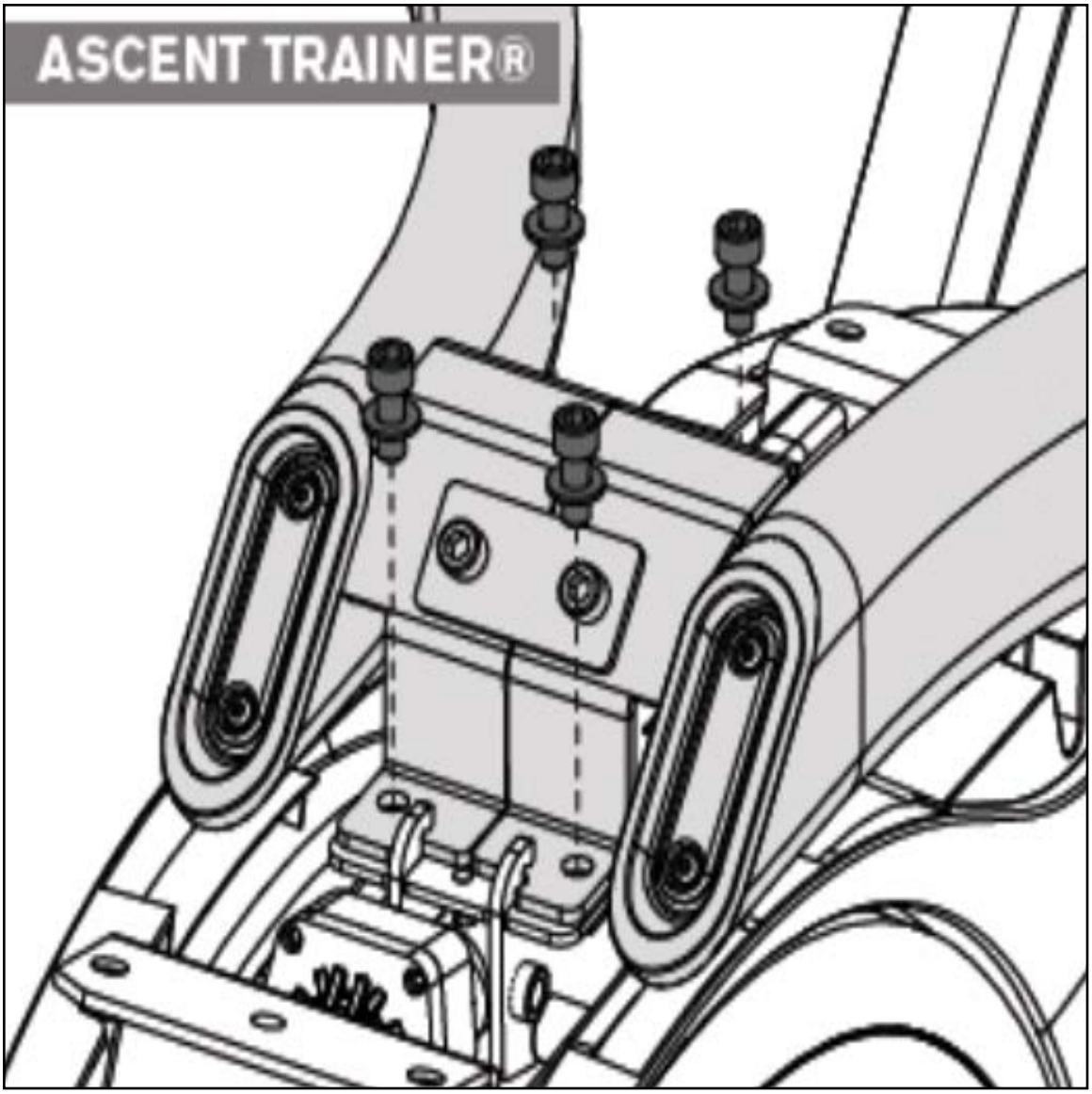
QUANTITY	SKETCH	DESCRIPTION	PACKAGE COLOR
4		SOCKET HEAD CAP SCREW (M10 X 1.5P X 25L) 10.9 GRADE MINIMUM	RED (2 BAGS)
4		FLAT WASHER (10.2 X 20 X 2.0T)	RED (2 BAGS)
1		SOCKET HEAD CAP SCREW (M10 X 1.5P X 100L) 12.9 GRADE MINIMUM	GREEN
2		FLAT WASHER (10.2 X 20 X 2.0T)	GREEN
1		HEX NUT (M10) 10.9 GRADE 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 ASCENT TRAINER ASSEMBLY STEPS

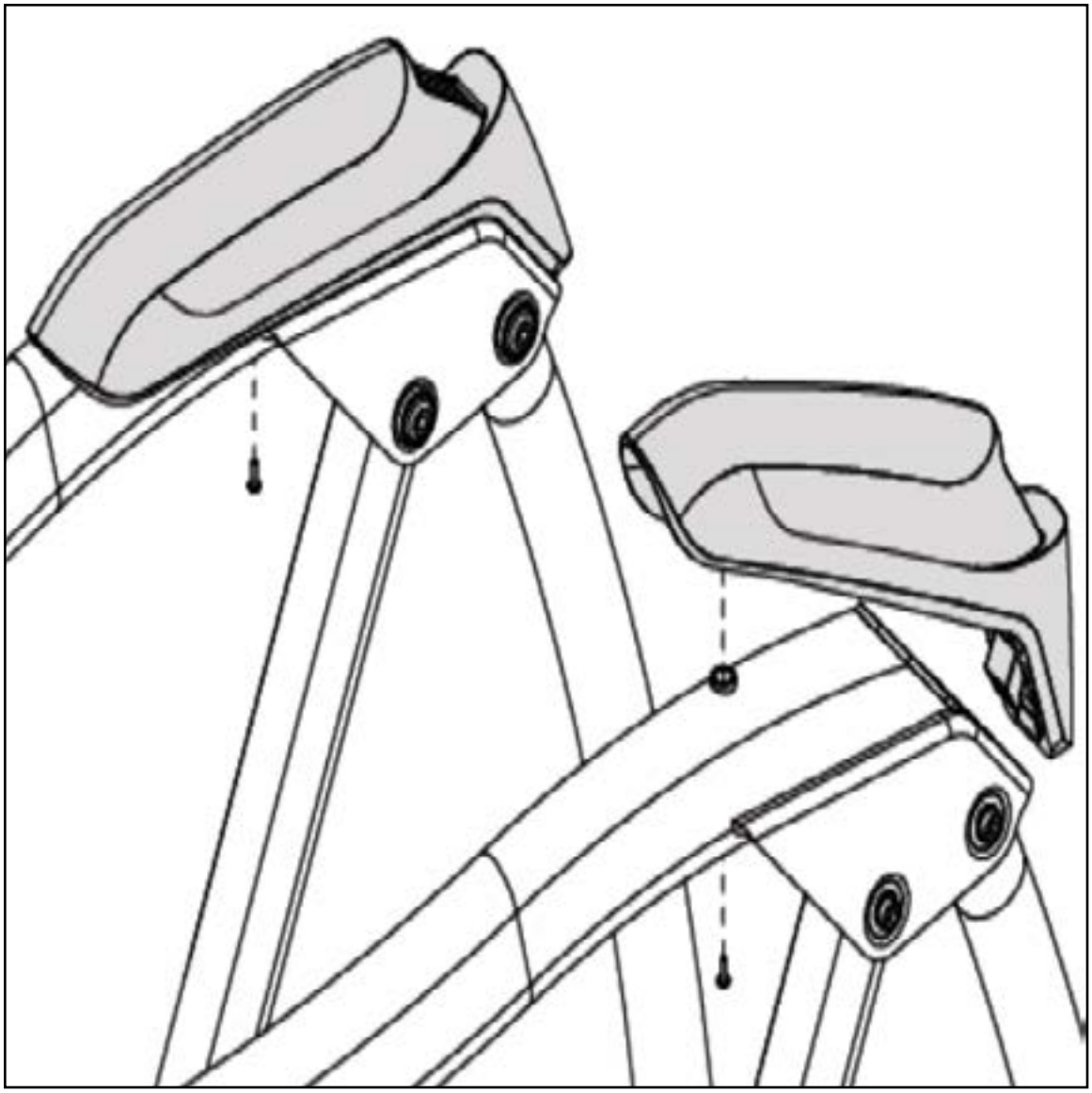
STEP 1



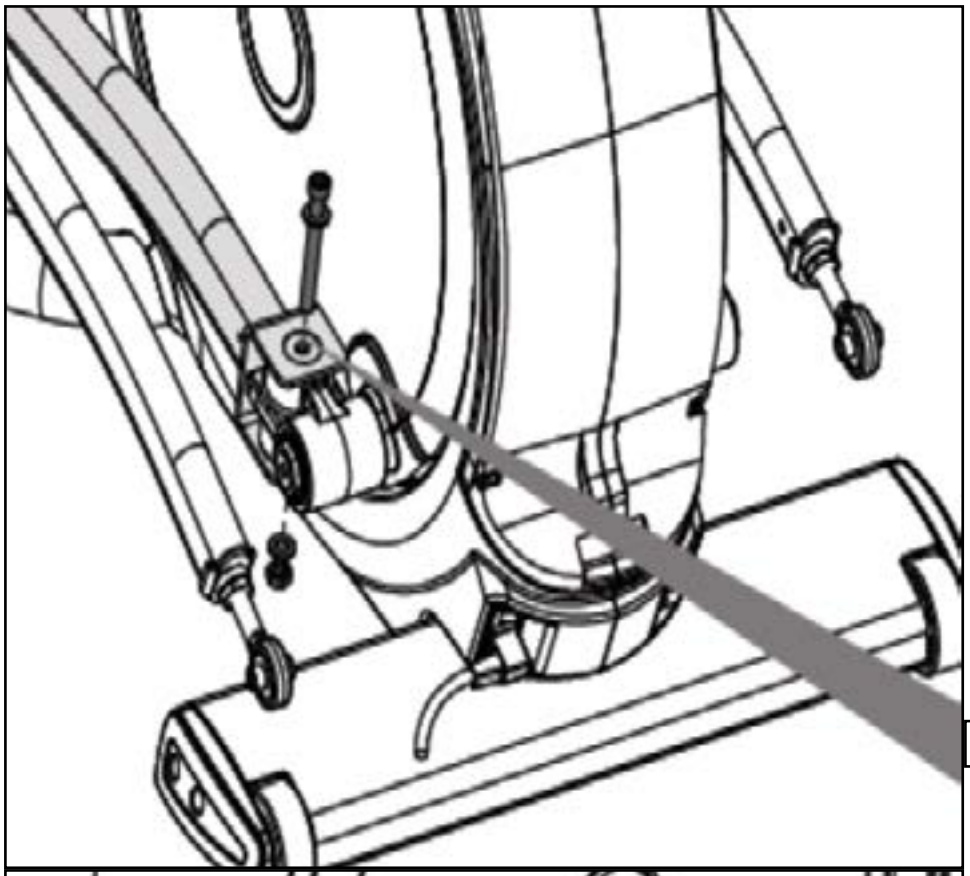
STEP 2 - RED HARDWARE BAG



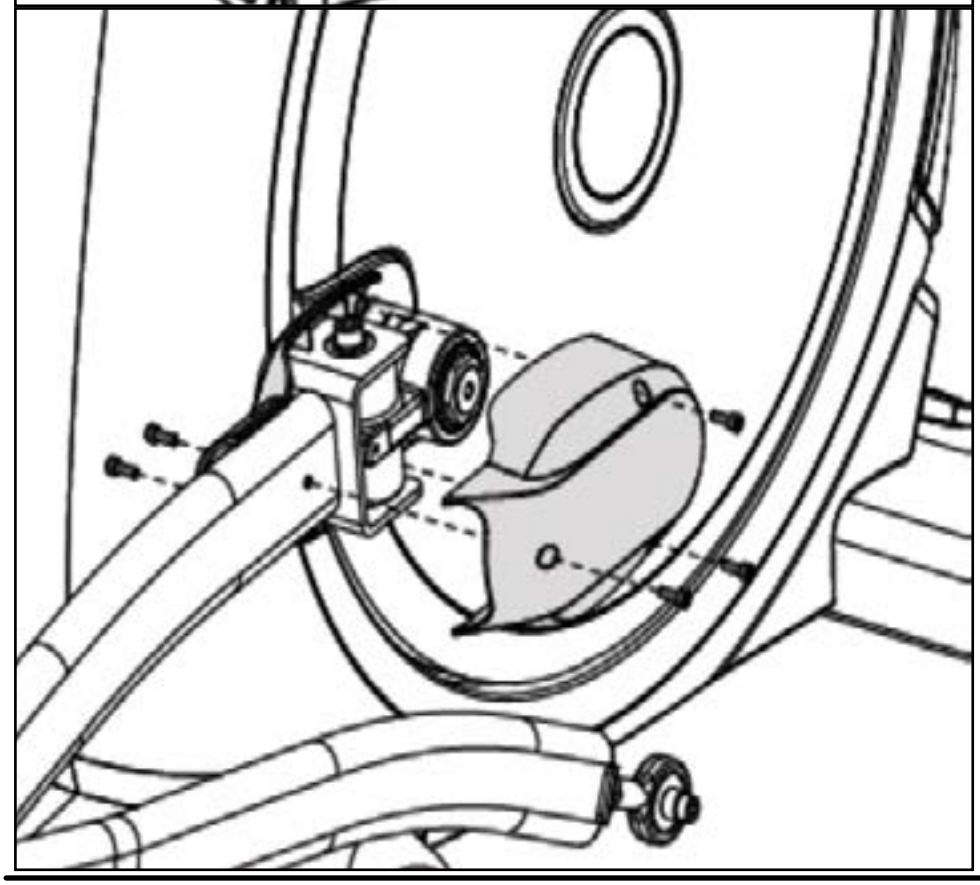
STEP 3 - PINK HARDWARE BAG



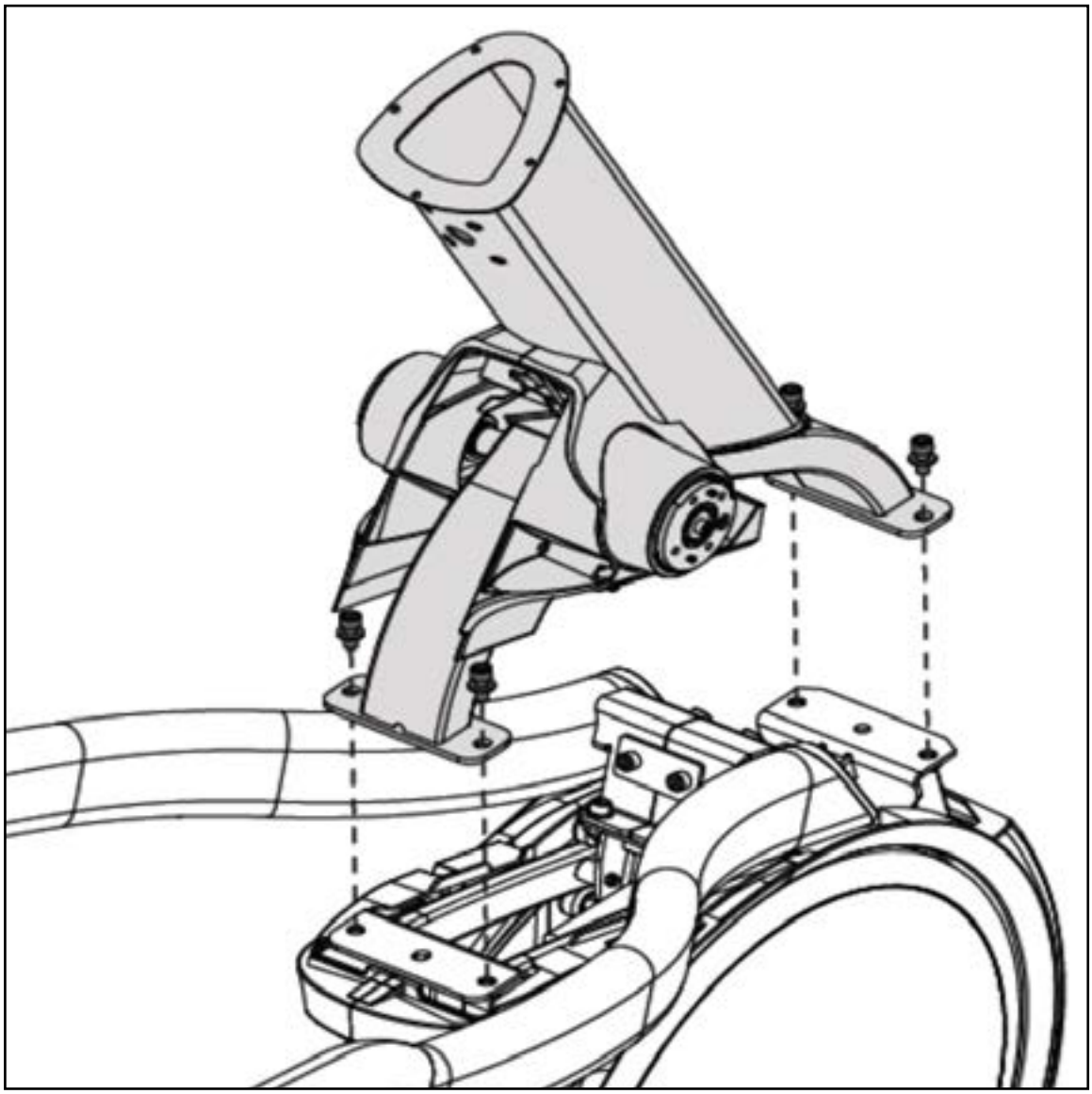
STEP 4 - GREEN / YELLOW HARDWARE BAG



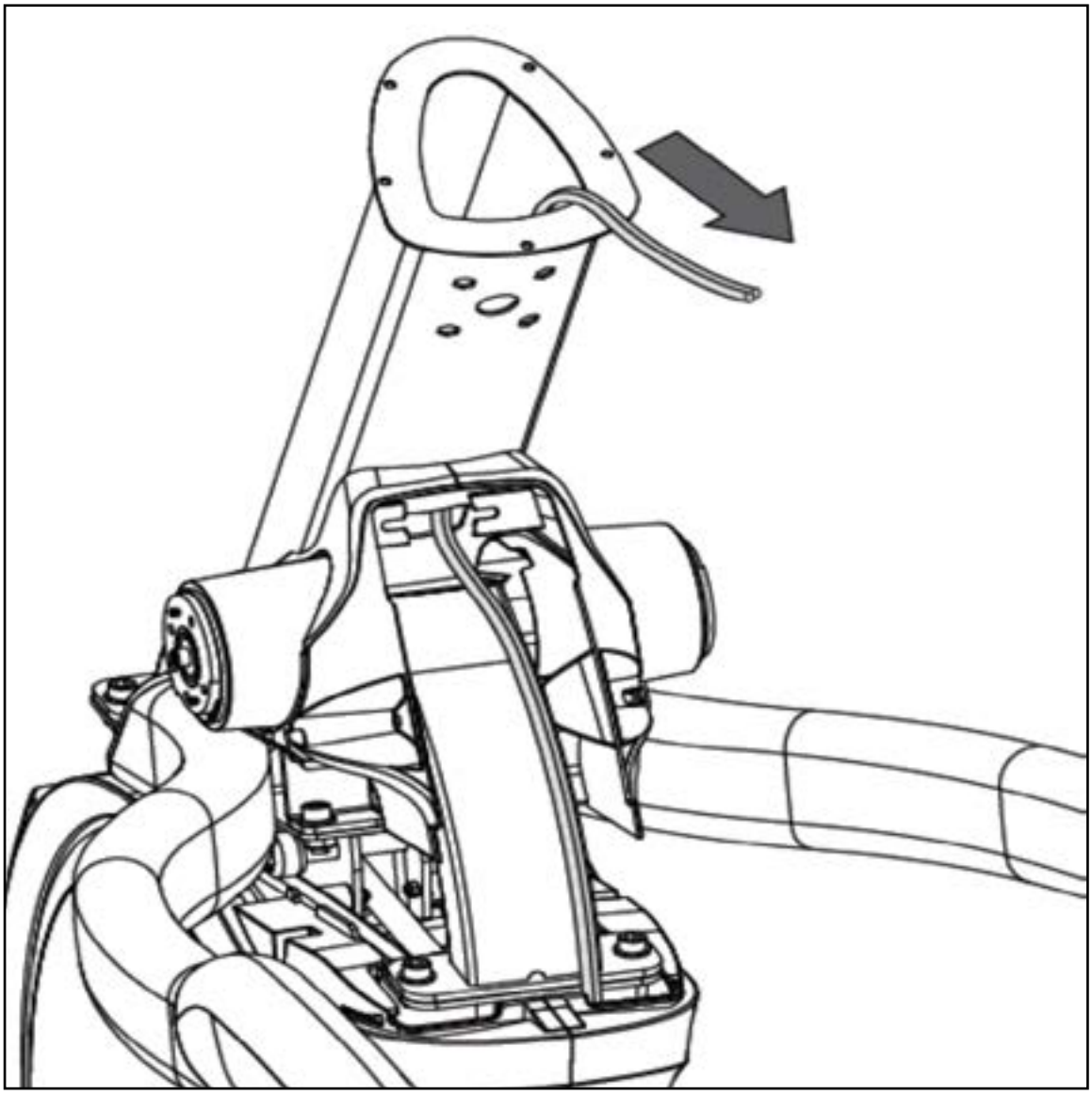
Torque this bolt to 80 N-m.



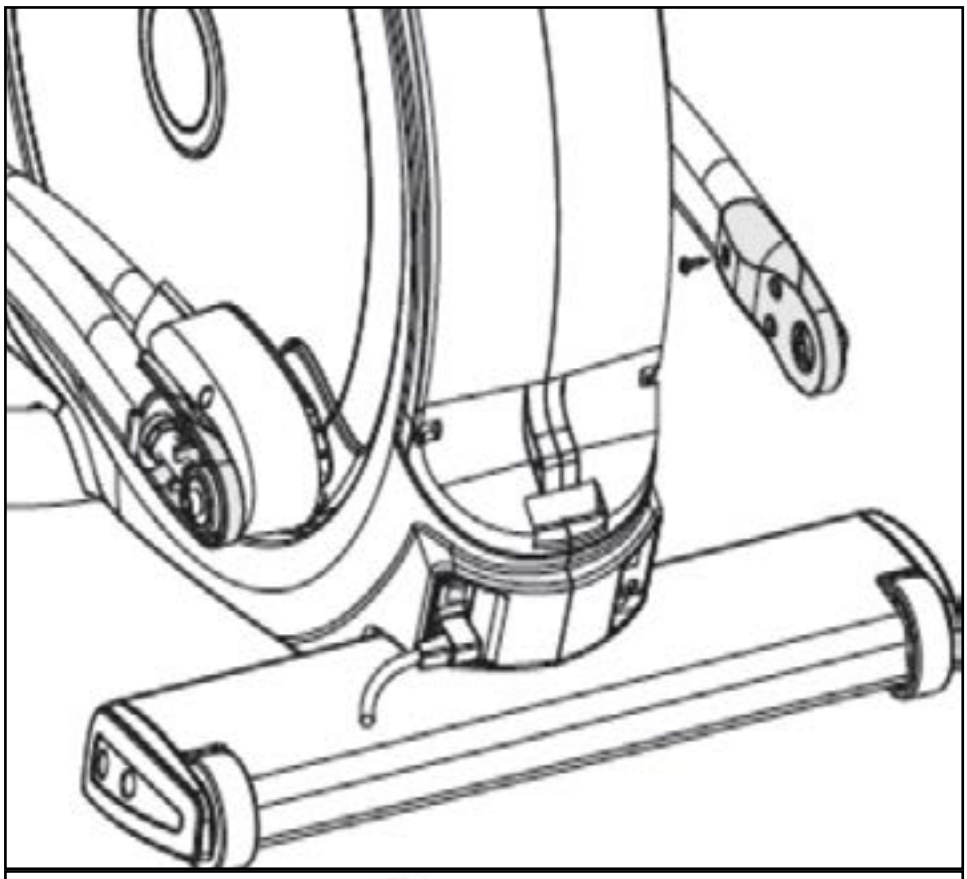
STEP 5 - RED HARDWARE BAG

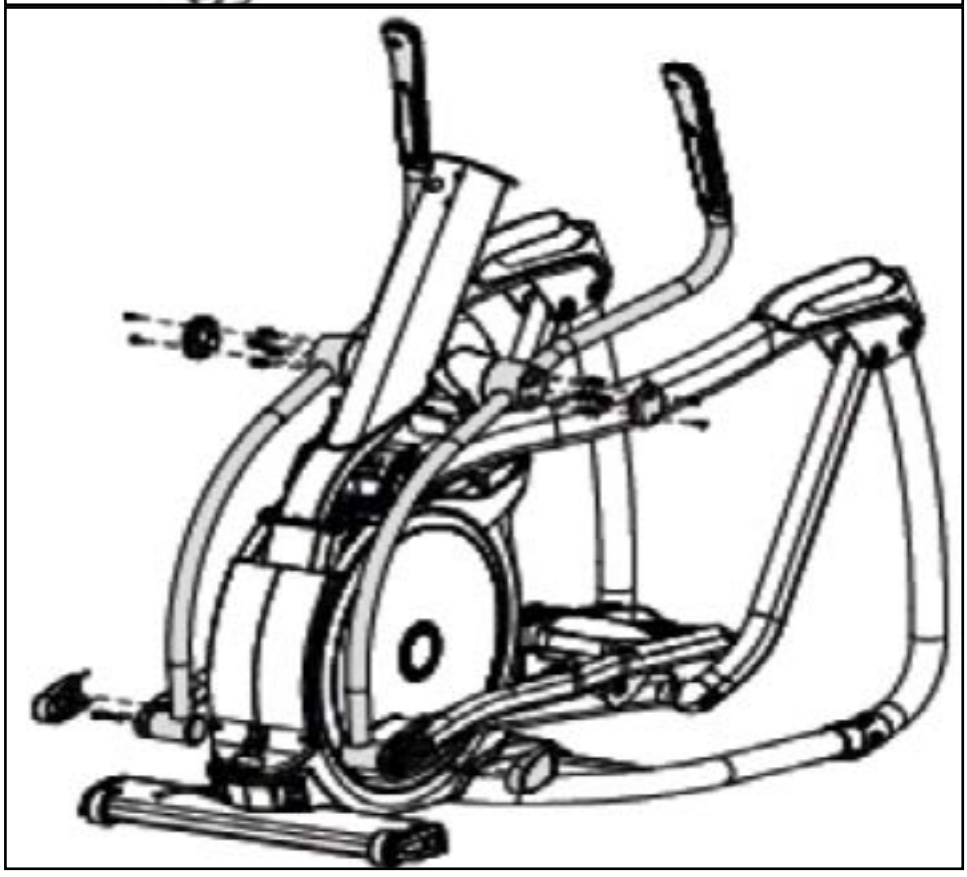


STEP 6



STEP 7 - BLUE / BLACK HARDWARE BAG

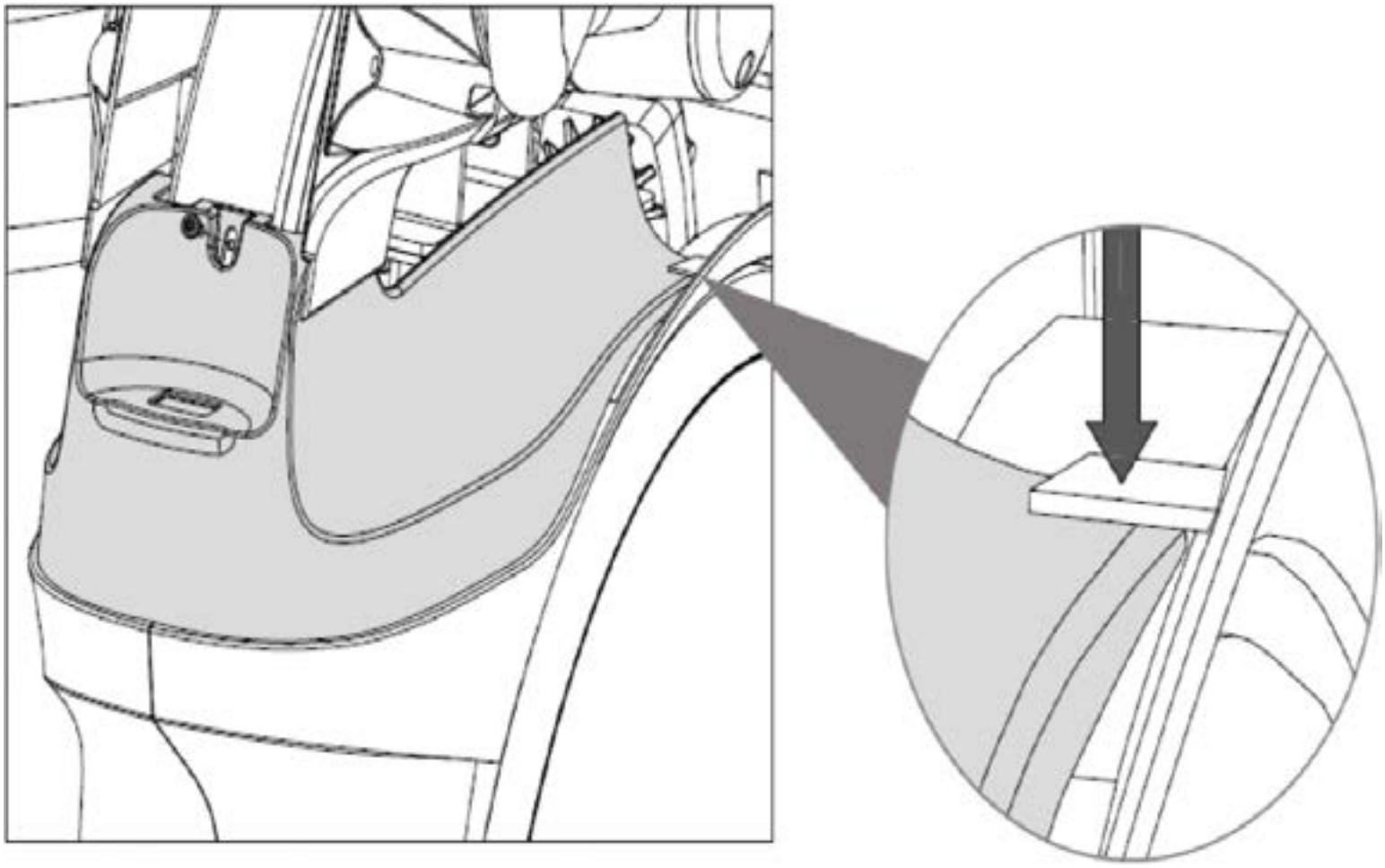




STEP 8 - WHITE HARDWARE BAG

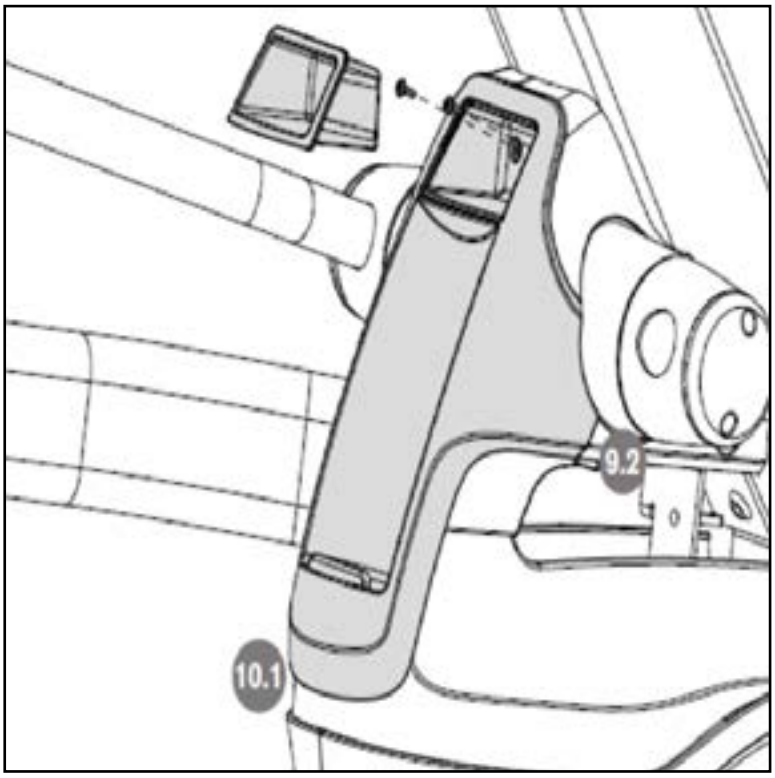


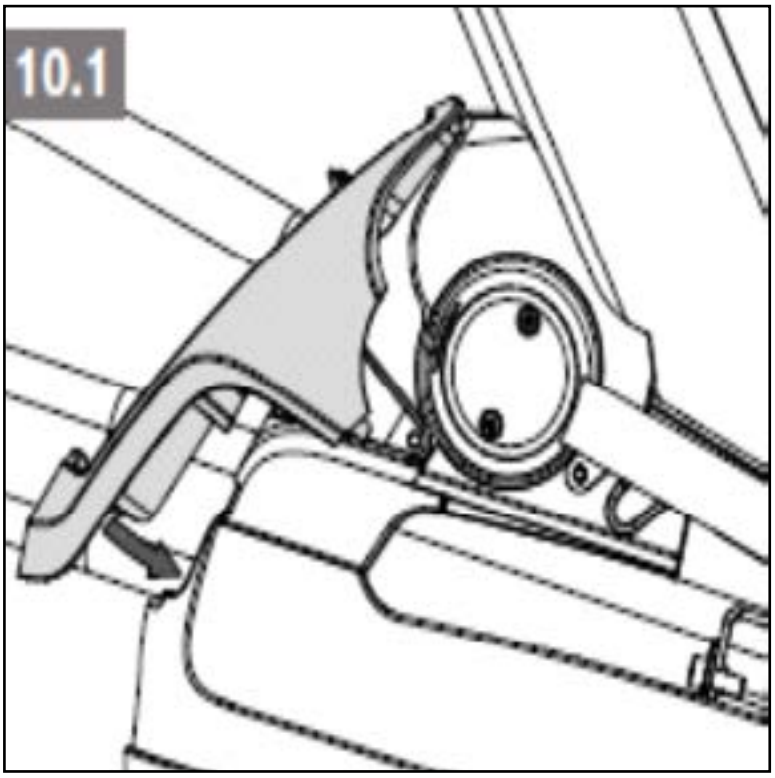
STEP 9 - PINK HARDWARE BAG

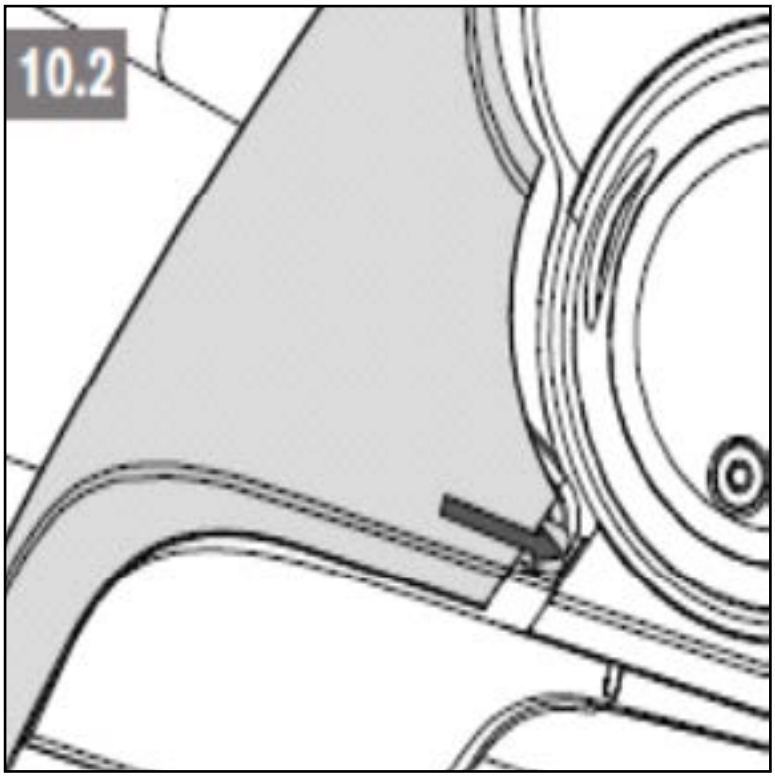


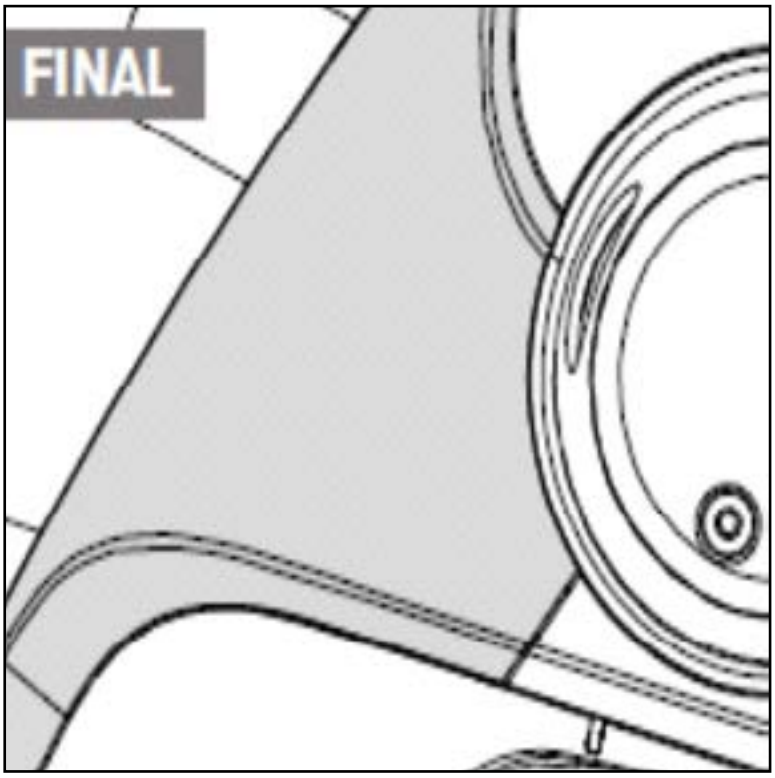
10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 10 - PINK HARDWARE BAG

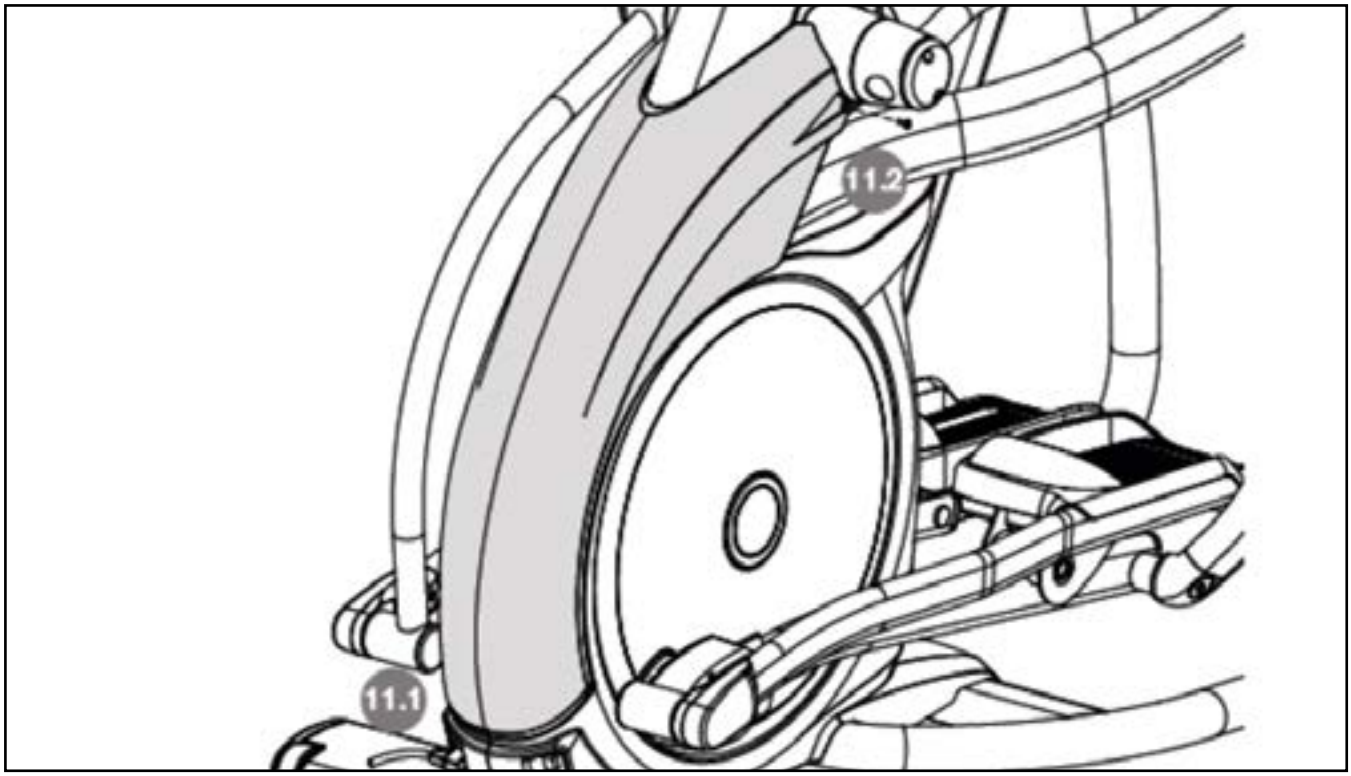


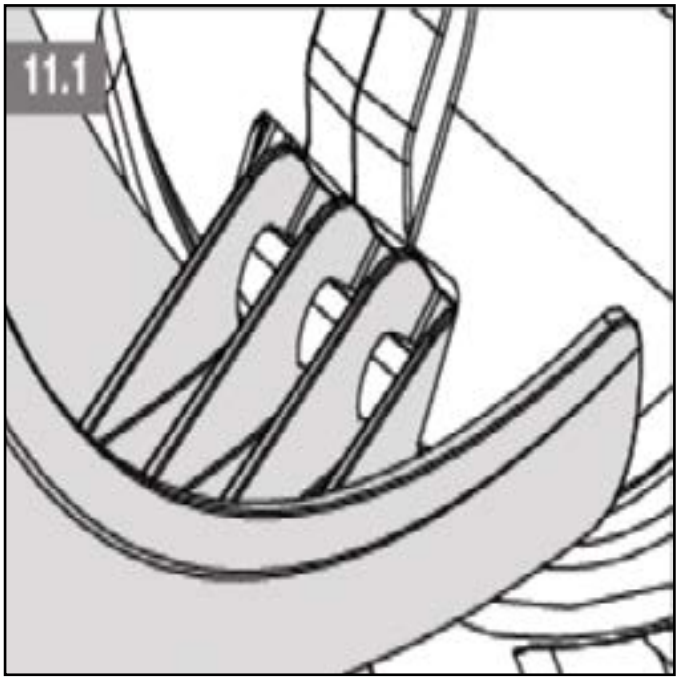


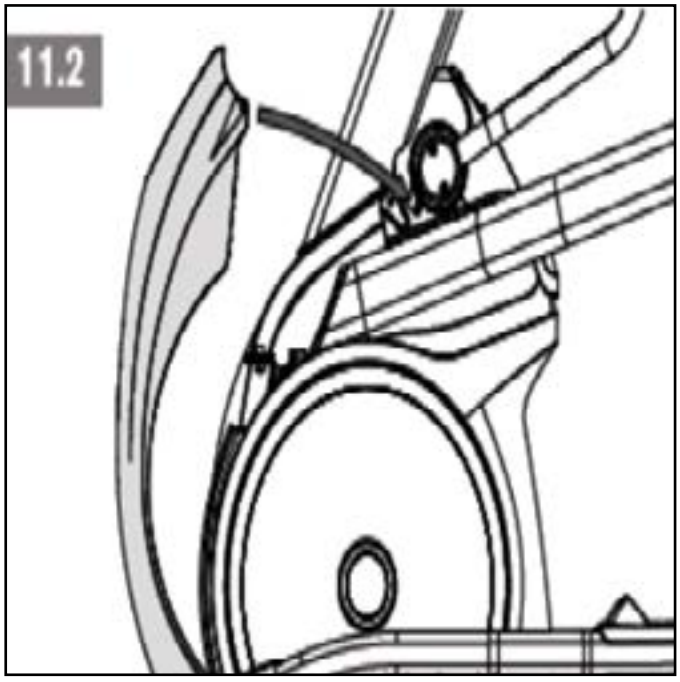




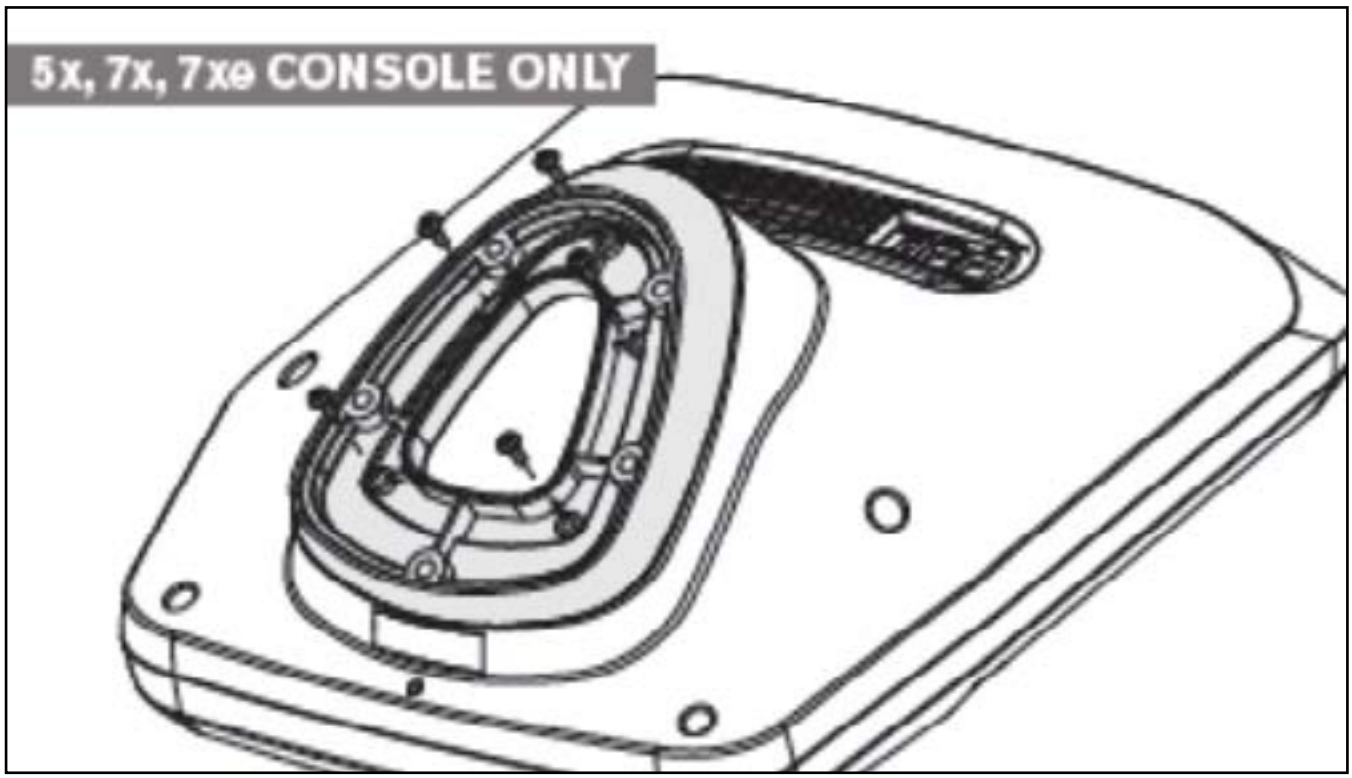
STEP 11 - PINK HARDWARE BAG

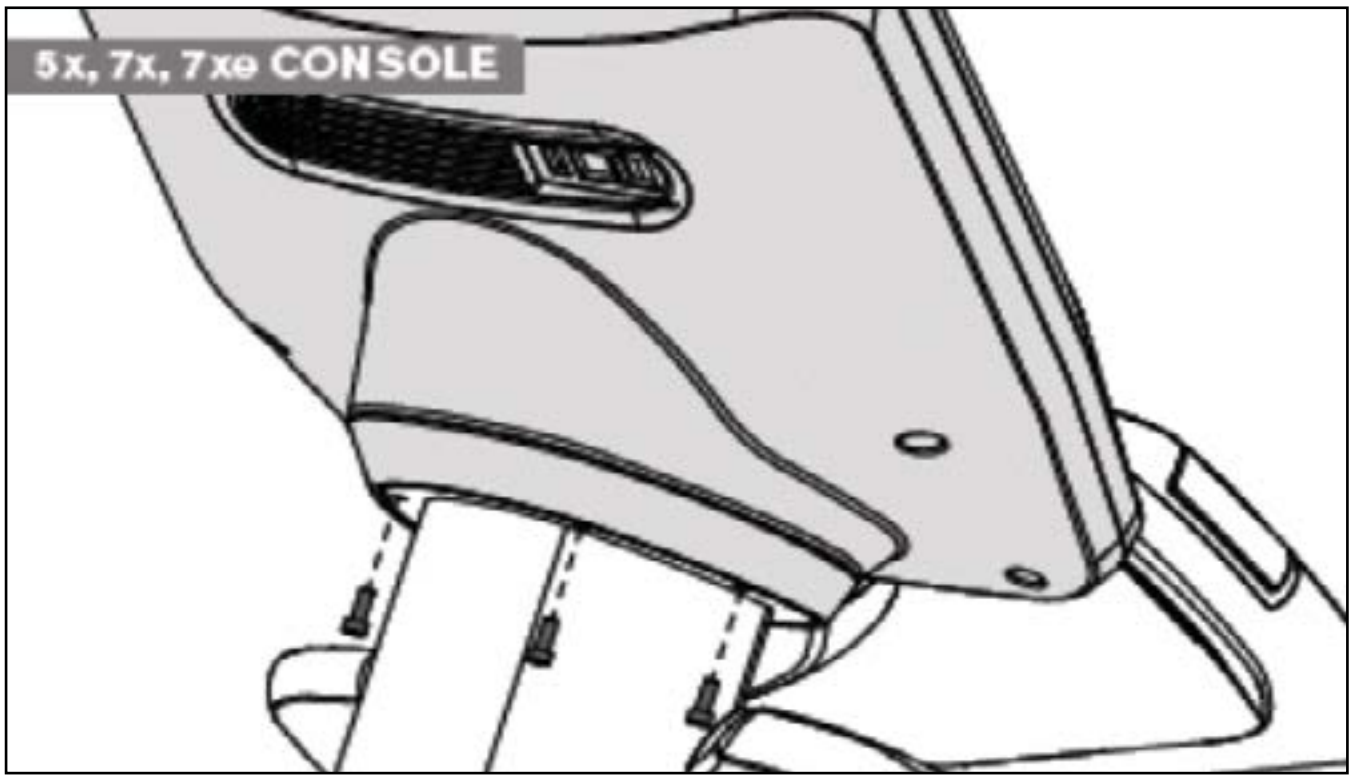






STEP 12 - PINK HARDWARE BAG





10.4 STABILIZING THE ASCENT TRAINER

STABILIZING THE MATRIX A7XE-04 ASCENT TRAINER

The Matrix Ascent Trainer 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).

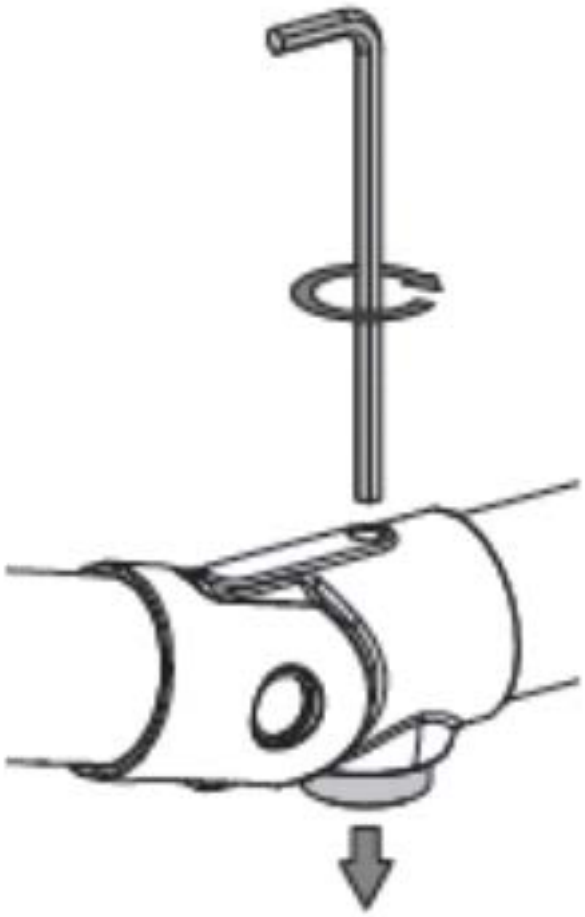


FIGURE A

10.5 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 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

10.5 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 ascent trainer, 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 ascent trainer 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 ascent trainer and wait 10 seconds, then turn the ascent trainer 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 ascent trainer 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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