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A3X-02 SINGLE INCLINE MOTOR ASCENT TRAINER SERVICE MANUAL

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CHAPTER 1: SERIAL NUMBER LOCATION

1.1 SERIAL NUMBER LOCATION



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 equipment.***
- ***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.***

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.2 ELECTRICAL REQUIREMENTS

The Matrix Ascent Trainer can now be self powered or can be plugged in. If the A3x is left in self powered mode, it will take approximately 15 seconds for the screen to load prior to every workout. If the Ascent Trainer will be plugged in, follow the requirements below.

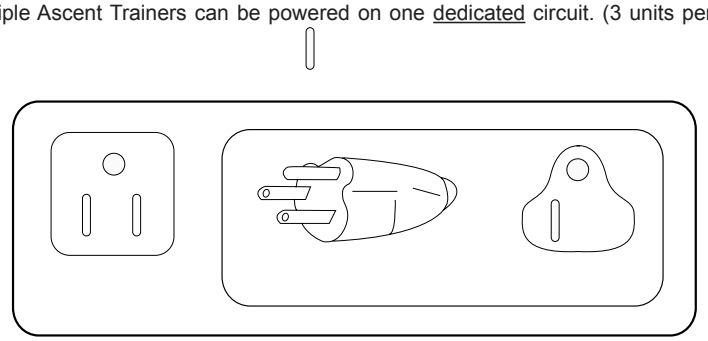
MATRIX DEDICATED CIRCUIT/ELECTRICAL REQUIREMENT INFO

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.

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.1 RECOMMENDED CLEANING TIPS

Preventative maintenance and daily cleaning will prolong the life and look of your MATRIX Ascent Trainer.

Please read and follow these tips.

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

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.

3.3 CARE AND MAINTENANCE INSTRUCTION

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

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

Please find the worksheet sample for our equipment provided in this manual and make copies as needed. Keep them up to date as the required service / maintenance items are performed. It is critical that you also log the accumulated (total) amount of miles or running hours on the equipment each time service or maintenance is performed.

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

DAILY MAINTENANCE ITEMS

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

2) 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).

YEARLY MAINTENANCE ITEMS

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

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 CONSOLE DESCRIPTION



WORKOUT KEYS Simple program view and selection buttons.

GO: One touch Start.

ENTER: To confirm each program setting.

UP / DOWN INCLINE: Easy information and incline selection.

UP / DOWN LEVEL: Easy information and level selection.

UP / DOWN TIME: Easy information and time adjustment.

STOP: Ends workout and shows workout summary data.

COOL DOWN: Puts the Ascent Trainer into Cool Down Mode.

TOGGLE DISPLAY: Allows the user to select what information is displayed on each of the 3 windows on the console. Press and hold to enable / disable scrolling.

4.2 WORKOUT SETUP STEPS - MANUAL

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.

1) Start pedaling and press the GO key to begin your workout. 2) The display will read 3, 2, 1, Begin and then the program will start.

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.

1) Start pedaling, press the MANUAL key.
2) Select Level by using the UP or DOWN LEVEL keys and press ENTER.
3) Select Time by using the UP or DOWN LEVEL keys and press ENTER.
4) Select Weight by using the UP or DOWN LEVEL keys and press ENTER.
5) The display will read 3, 2, 1, Begin and then the program will start.

4.3 WORKOUT SETUP STEPS - LEVEL BASED PROGRAMS

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.

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

1) Start pedaling, press the workout button of choice.
2) Select Time by using the UP or DOWN LEVEL keys and press ENTER.
3) Select Weight by using the UP or DOWN LEVEL keys and press ENTER.
4) Select Level by using the UP or DOWN LEVEL keys and press ENTER.
5) The display will read 3, 2, 1, Begin and the program will start.

4.4 WORKOUT SETUP STEPS - USER DEFINED PROGRAMS

RANDOM - There are 20 workout profiles in Random Mode. The profile will change every time random is pressed. Choose the random workout desire, then start similar to a level based program.

FIT TEST - The Fitness Test measures cardiovascular fitness and provides an estimated sub-maximal VO2 result. It based on power output according the ACSM standards and was developed by the Cooper Institute (www.cooperinstitute.com).

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 complete.

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

4.5 WORKOUT SETUP STEPS - HEART RATE CONTROL

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.

1) Start pedaling and press the TARGET HEART RATE key.
2) Select Age by using the UP or DOWN LEVEL keys and press ENTER.
3) Select Target HR Percentage by using the UP or DOWN LEVEL keys and press ENTER.
4) Select Time by using the UP or DOWN LEVEL keys and press ENTER.
5) Select Weight by using the UP or DOWN LEVEL keys and press ENTER.
6) The display will read 3, 2, 1, Begin and the program will start.

Heart Rate Protocols:

- Heart rate is within 10 BPM (beats per minute) of target, upper LED display will show a heart.
- Heart rate is greater or less than 10 BPM of target, resistance level will increase or decrease every 10 seconds.
- Heart rate is greater than 14 BPM of target, resistance level will drop to 30%.
- Heart rate is greater than 10 BPM of target, lower LED will display "WARNING HR ABOVE TARGET".
- Heart rate is greater than 20 BPM of target, the program will immediately end.

4.6 WORKOUT SETUP STEPS - CONSTANT WATTS

CONSTANT WATTS - Constant Watts is a unique program that allows you to vary your cadence or RPM and the machine's resistance will adjust accordingly to your selected goal. The quicker you stride, the less resistance for the goal selected. The braking system is adjustable in normal programs except for Constant Watts. For the Constant Watts program, the braking is not adjustable.

1) Start pedaling and press the CONSTANT WATTS key.
2) Select desired Watts by using the UP or DOWN LEVEL keys and press ENTER.
3) Select Time by using the UP or DOWN LEVEL keys and press ENTER.
4) Select Weight by using the UP or DOWN LEVEL keys and press ENTER.
5) The display will read 3, 2, 1, Begin and the program will start.

4.7 AUTO CALIBRATION INSTRUCTIONS

AUTO CALIBRATION PROCEDURE

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

1) Press and hold both LEVEL keys for 3-5 seconds. Manager Mode should appear on the display.
2) Press the LEVEL UP or DOWN key until the display reads Engineering Mode. Press ENTER.
3) Press the LEVEL UP or DOWN key until the display reads Auto Calibration. Press ENTER.
4) This will run the Auto Calibration. If the calibration passes, it will say complete. Press and hold the STOP key to return to the normal start screen.
5) If the calibration does not pass, contact Matrix Customer Technical Support at 866-693-4863 ext 3.

CHAPTER 5: MANAGER MODE

5.1 USING MANAGER MODE

The Manager's Custom Mode allows the club owner to customize the Ascent Trainer for the club.

1) To enter Manager Mode, press and hold down the LEVEL UP and DOWN keys. Continue to hold down these two keys until the display reads Manager and hit ENTER (Figure A).

2) To scroll through the list of options in Manager Mode, use the LEVEL UP and DOWN keys. Each of the custom settings will show on the display.

3) To select a custom setting, press the ENTER key when the desired setting is shown.

4) To change the value of the setting, use the LEVEL UP and DOWN keys.

5) To confirm and save the value of the setting, press the ENTER key.

6) To exit the setting without saving, press the BACK key.

7) Press and hold the STOP key for 3-5 seconds to return to normal operation.



FIGURE A

5.2 MANAGER MODE OVERVIEW

CUSTOM SETTING	DEFAULT	MINIMUM	MAXIMUM	DESCRIPTION
Maximum Time	60 min	10 min	99 min	Sets the total run time of any program.
Default Time	30 min	10 min	Maximum Time Setting	Workout time when GO is pressed or when no time is selected during program set up.
Default Age	30	10	100	Starting age when GO is pressed or when no age is selected during program set up.
Default User Weight	150 lbs / 68 kg	60 lbs / 27 kg	400 lbs / 180 kg	Weight used for program calorie expenditure calculations.
Accumulated Distance	N/A	0	99,999 Miles	Total distance for all programs.
Accumulated Time	N/A	0	999,999 hours	Total time for all programs displayed in hours.
Software Version	N/A	N/A	N/A	Current version of console software.
Sound Mode	On	On	Off	Turns the chime on / off when a button is pressed.
Out of Order	Off	On	Off	Locks the machine when out of order.
Gender	Male	Male	Female	Determines the gender of the user when not selected during program set up.
Language	English	English	English	Sets the language for the console. Select between English, Spanish, German, French, Italian, Portuguese, Finnish, Japanese, Swedish, and Dutch.
Speed / Distance Mode	Mile	Mile	Kilometer	Displays distance in miles or kilometers.
Default Level	1	1	20	Starting resistance when GO is pressed or when no level is chosen in a manual program.
Default Incline	10	0	100	Starting incline when a program starts.
Incline Reset	On	On	Off	This is a software feature that resets the console incline to 0 degrees of incline once the unit is inactive for 30 seconds. During incline reset, movement can be stopped by pressing any console key. The console will display "hold select to resume".

CHAPTER 6: ENGINEERING MODE

6.1 USING ENGINEERING MODE

To enter Engineering Mode, hold the LEVEL UP and DOWN keys for 3-5 seconds until Manager appears on the middle LED display. Press the LEVEL UP or DOWN key to scroll to Engineering. Press ENTER to go into Engineering Mode.

CUSTOM SETTING	DEFAULT	OPTIONS	DESCRIPTION
Disable Errors	No	Yes or No	No - Shows A-C class error codes. Yes - Shows only C class error codes.
Speed Units	Mile	Mile or Kilometer	Set for Mile or Kilometer.
Machine Type	A3x	A3x / H3x / U3x / R3x / E3x / S3x	Set the Machine Type for A3x.
Power Save Time	30 Seconds	30-60 Seconds	Power saving time for the self powered frame.
Pause Time	30 Seconds	15 - 120 Seconds	For non self powered frames only. Not used on this model.
Serial Number	N/A	N/A	Serial Number input is available for both the Console and Frame. Use the number keys and UP / DOWN LEVEL keys to enter Engineering Mode. Due to the limited LED charactors, 2 layers are used to enter the serial number. First Layer: - PPPPP V - PPPPP is the product name. - V is the version. If the version is A, just leave this blank. Second Layer - YY MM nnnnn. - YY is the year (11, 12). - MM is the month (e.g. 08, 09, 10). - nnnnn is the actual serial number. Use the UP / DOWN LEVEL keys to navigate the layers and the number keys to input the serial number. The product name is dependent on the Machne Type setting. For example, the console is EP605 with ver. A and the manufactured date is 2011.08 with 98765. The frame is EP306 with ver. A and the manufactured date is 2011.06 with 12345. Their serial numbers are: Console SN: EP605 1rst layer, 110898765 2nd layer. Frame SN: EP306 1rst layer, 110612345 2nd layer.
Sleep Time	Off	Off or On (1-30 Minutes)	If there is no use of the machine over a period of time, the console LEDs will turn off (go into sleep mode).
Audio Souse	Off	Off / TV / PC TV / Remote TV	Sets the audio of the console to the type of TV attached.
Incline Tuner	Top 97.5 Bottom 2.5	Top 74.5-99.9 Bottom 0.1-25.5	Adjusts the min / max ends of the incline. DO NOT USE THIS SETTING UNLESS YOU ARE A QUALIFIED TECHNICIAN.

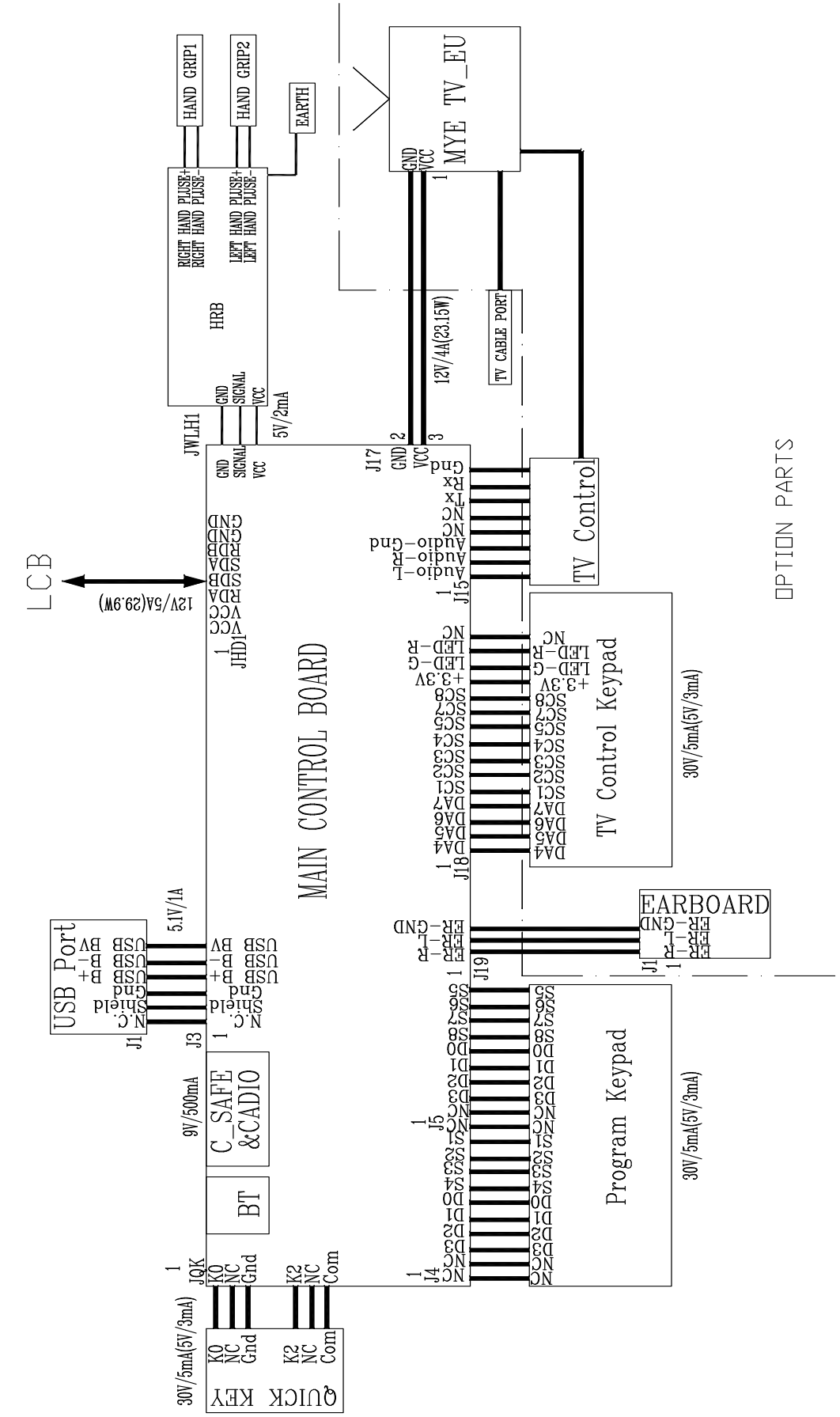
CHAPTER 7: SERVICE MODE

7.1 USING SERVICE MODE

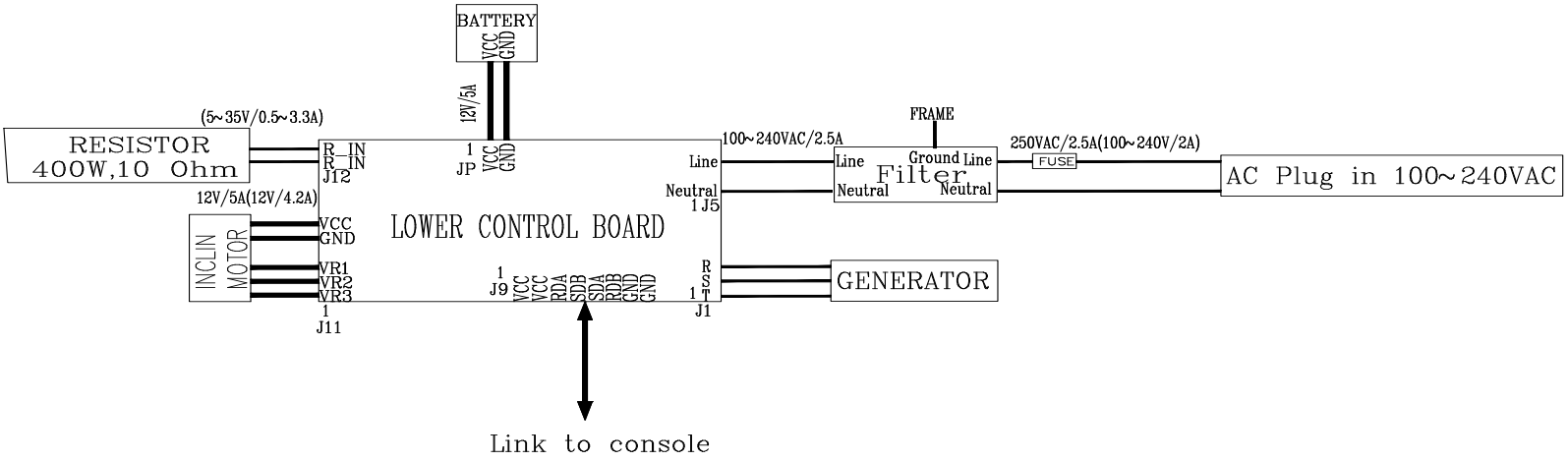
To enter Service Mode, hold the LEVEL UP and DOWN keys for 3-5 seconds until Manager appears on the middle LED display. Press the LEVEL UP or DOWN key to scroll to Service. Press ENTER to go into Service Mode.

CUSTOM SETTING	DEFAULT	OPTIONS	DESCRIPTION
Service 1	Display Test		Press the ENTER key repeatedly to check each set of LEDs on the display sequentially.
Service 2	Keypad Test		Press any key and the display should show the corresponding message.
Service 3	Distance / Time	Distance: Mile 0 - 99999 Kilometer 0 - 160898 Time: 0 - 999999	Manually sets the Accumulated Distance and Time.
Service 4	CSafe / RF Test		Press the ENTER key to test CSAFE. Press the ENTER key again to test the RF.
Service 5	Error Log		Shows the last 10 errors. Press and LEVEL UP and DOWN for 3 seconds to clear the errors.
Service 6	Current Time Display		Displays the current time
Service 7	Export and Import Parameter		Export Parameter - Export the engineer parameters to a USB device. Import Parameter 1 - Imports the engineer parameters to a USB device except serial number, accumulated distance and time. Import Parameter 2 - Imports the engineer parameters to a USB device.
Service 8	Auto Calibration		Press the ENTER key to implement Auto Calibration.

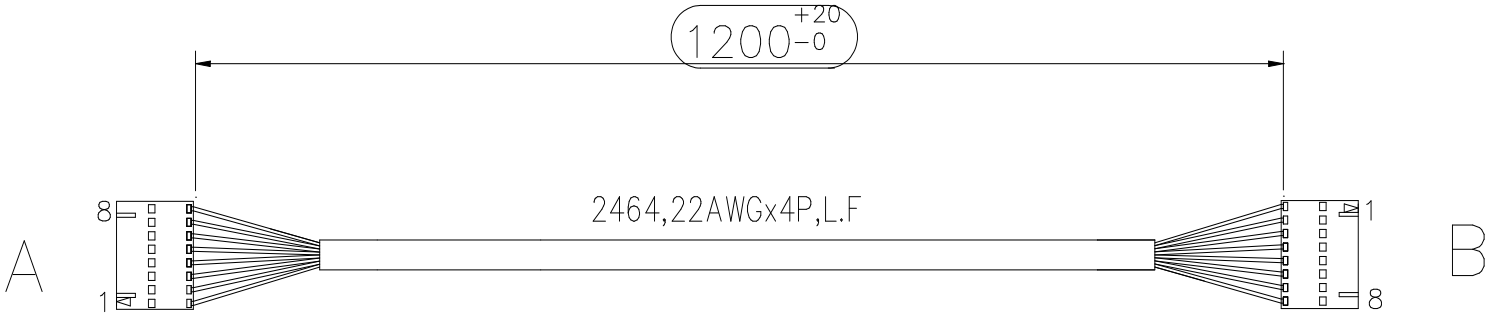
8.1 ELECTRICAL DIAGRAMS



8.1 ELECTRICAL DIAGRAMS - CONTINUED



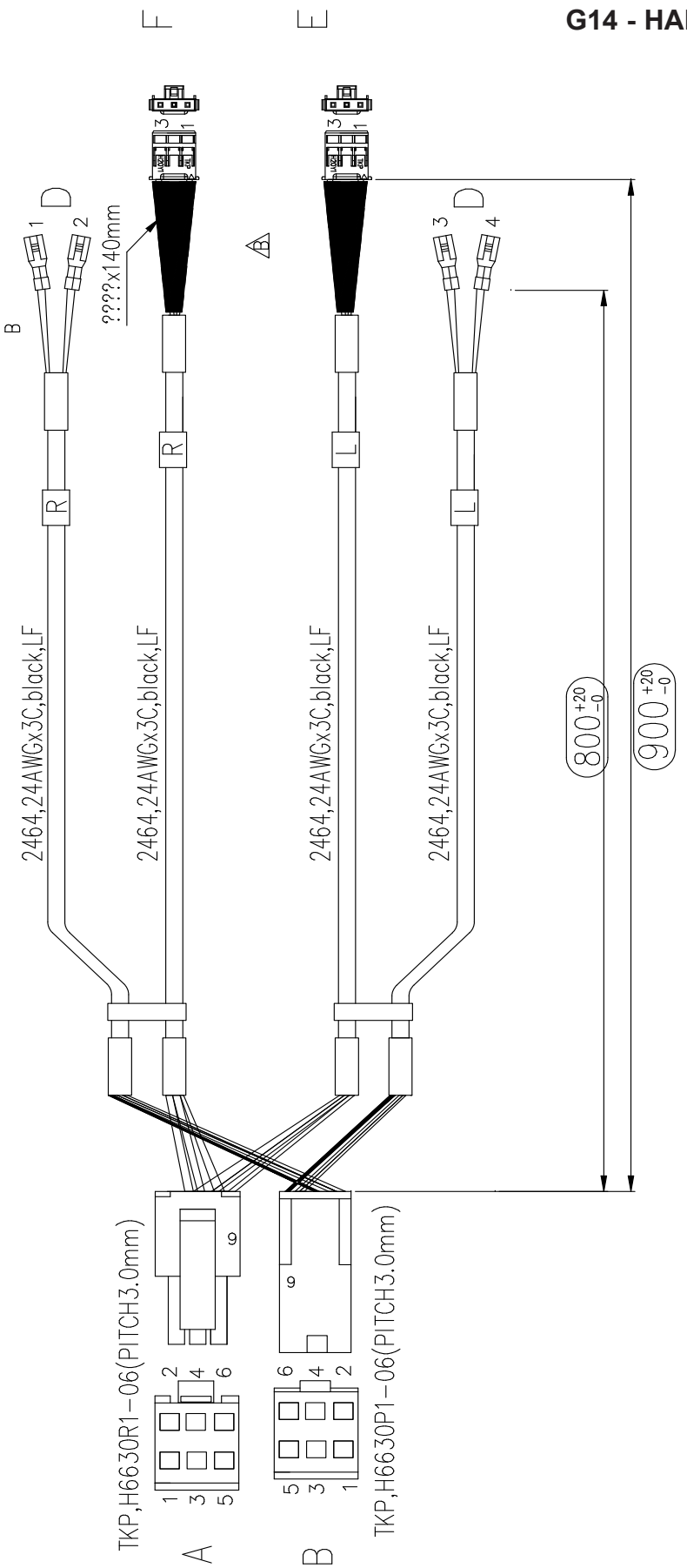
P21 - DIGITAL COMMUNICATION WIRE



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	

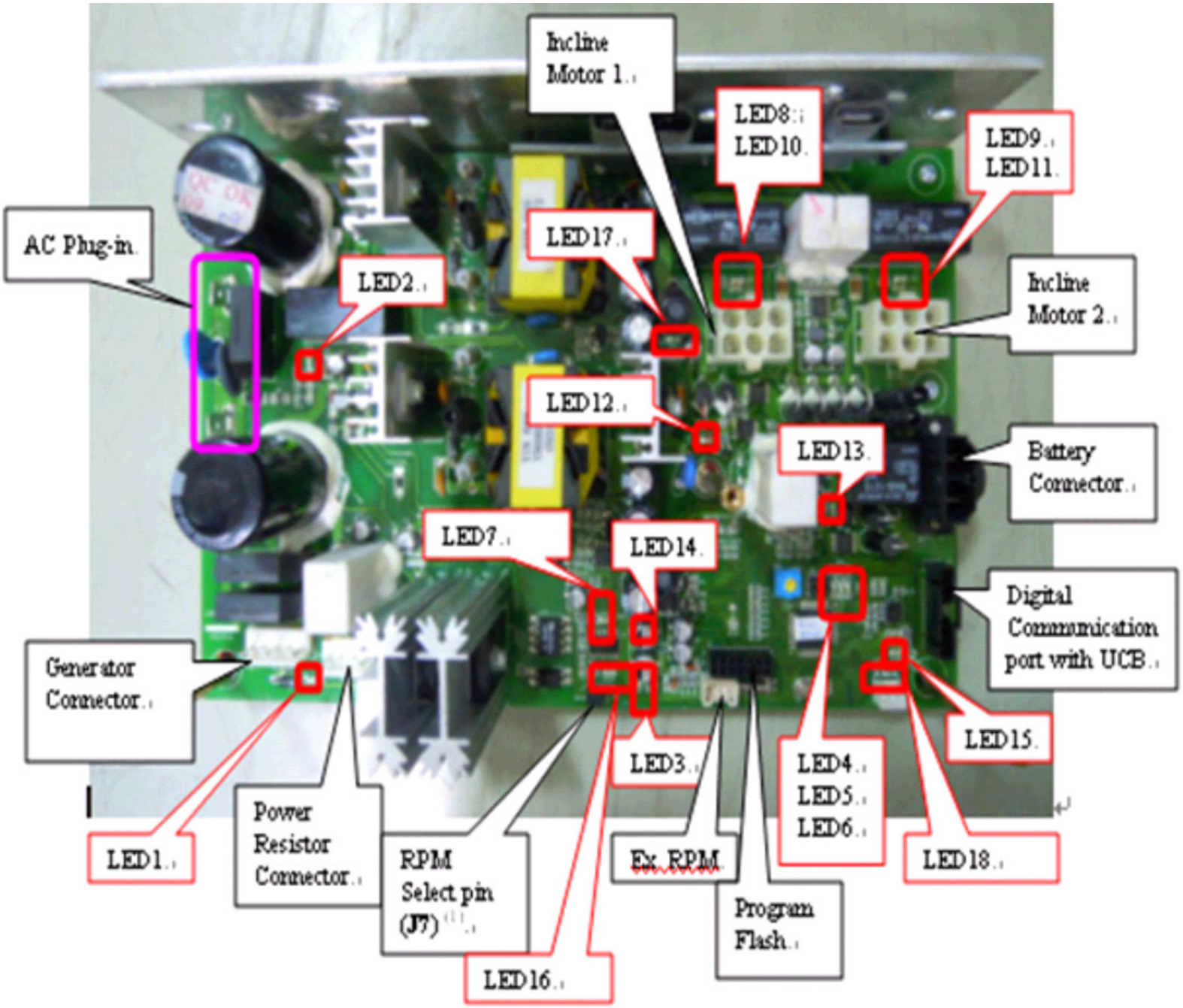
8.1 ELECTRICAL DIAGRAMS - CONTINUED

G14 - HAND PULSE CONNECTING WIRE



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

8.2 LCB ERROR INDICATORS



LED	DESCRIPTION
LED 1	Generator RPM
LED 2	AC Plug In
LED 3	Vcc (5V)
LED 4	System Status
LED 5	Error Status
LED 6	Error Status
LED 7	Resistance
LED 8	Incline 1 Forward
LED 9	Incline 2 Forward

LED	DESCRIPTION
LED 10	Incline 1 Rearward
LED 11	Incline 2 Rearward
LED 12	Charge
LED 13	Discharge
LED 14	12V / 6A (main power)
LED 15	Console Power
LED 16	E_RPM (external)
LED 17	15V / 8A (charge power)
LED 18	Cool Fan

LED	PULSES / SECOND	DESCRIPTION
LED 4	2 times	Set for Self Powered System
	1 time	Set for AC Plug In System
LED 5	2 times	Class B Error
	1 time	Burn In
	0.5 times	Class A Error
LED 6	2 times	Class C Error
	0.5 times	Burn In
	Bright	NO Resistance Offset.
LED 16	Bright	No Use
	Pulse	Use

8.3 CONSOLE ERROR CODES

CODE	DESCRIPTION	SOLUTION
0x0140	When the UCB implements an incline command, the incline has no action for 5 seconds.	Replace the Incline Motor or LCB.
0x0142	The incline position has a difference of over 30% and is not reduced within 3 seconds.	Look for misalignment of the Incline Motor, replace if needed.
0x0145	Self powered units only - incline stops when the LCB battery capacity is too low or the RPMs are not high enough (<70 RPM).	Replace the LCB.
0x0441	When the UCB implements a command, the LCB is not receiving.	Check the console cable connections, update the LCB software, or replace the LCB or UCB as needed.
0x01A0	Left incline motor disconnected for 3 seconds.	Check the connection of the left incline motor cables at the LCB. Replace the left incline motor or LCB as needed.
0x01A1	Incline calibration is over 80 seconds or does not complete.	Replace the LCB or Incline Motor
0x01A7	The incline is short circuited or over current.	Look for misalignment of the Incline Motor, replace if needed.
0x01AC	Generator or resistor has an open circuit, short circuit, or the current is over 3.7 Amps for 1 second.	Check the connection of the generator and resistor, replace the generator or resistor as needed.
0X01AE	Battery over charge current or battery short circuit	Replace the LCB.
0X01AF	The power resistor is disconnected.	Check the connection of the resistor at the LCB. Replace the LCB if needed.
0x01B2	The incline motor has no action or current.	Replace the incline motor.
0x0201	LCB battery low voltage (battery voltage < 11.2V).	Plug in the machine for AC charge. Temporarily stop using incline.
0x0247	LCB fail (flash data error).	Replace the LCB.
0x0248	Battery disconnection or fail (the battery voltage is less than 8V)..	Check that the battery is connected. If it is, replace the battery.
0x02AB	Machine type error.	Set the Machine Type and LCB.
0x02B4	Resistance type error.	Set the Machine Type and LCB.
0x03A5	Failed to load program.	Usually means the software file is corrupt. Try upgrading the software or replace the console if needed.
0x03A6	Failed to run program.	Usually means the software file is corrupt. Try upgrading the software or replace the UCB if needed.
0x03A7	Failed to load VA package files.	Check to see if the SD card is mounted correctly and that there are no corrupt video files present. Replace the VA board if needed.
0x03A8	Machine type setting is not matching the LCB.	Set the correct Machine Type for the console and LCB in Manager Mode.
0x04A0	If the LCB does not return a message to the UCB within 3 seconds.	Check the console cable connections, replace the LCB or UCB as needed.
0x04B0	UCB no communication response.	Check the connections of the console cable at the console and LCB. Replace cc, UCB, or LCB as needed.

8.4 ERROR TROUBLESHOOTING - 0140 / 01B2

ERROR CODE 0140 or 01B2

1) SYMPTOM:

a. 0140 - Incline motor operation has failed.
b. 01B2 - The incline motor has no action or current.

2) SOLUTION:

a. Run Auto Calibration (see Section 4.8), then check the LCB LEDs. If the incline LED is not a solid light (only one LED will show a solid light at a time), replace the LCB (Figure A).
b. If the LCB incline LEDs are solid, use a multi meter to check the fuses. They should have an ohm reading of 0 (Figures B & C).
c. If the LCB incline LEDs are solid, and the fuses check out ok, run auto calibration.
- If calibration fails, replace the incline motor.

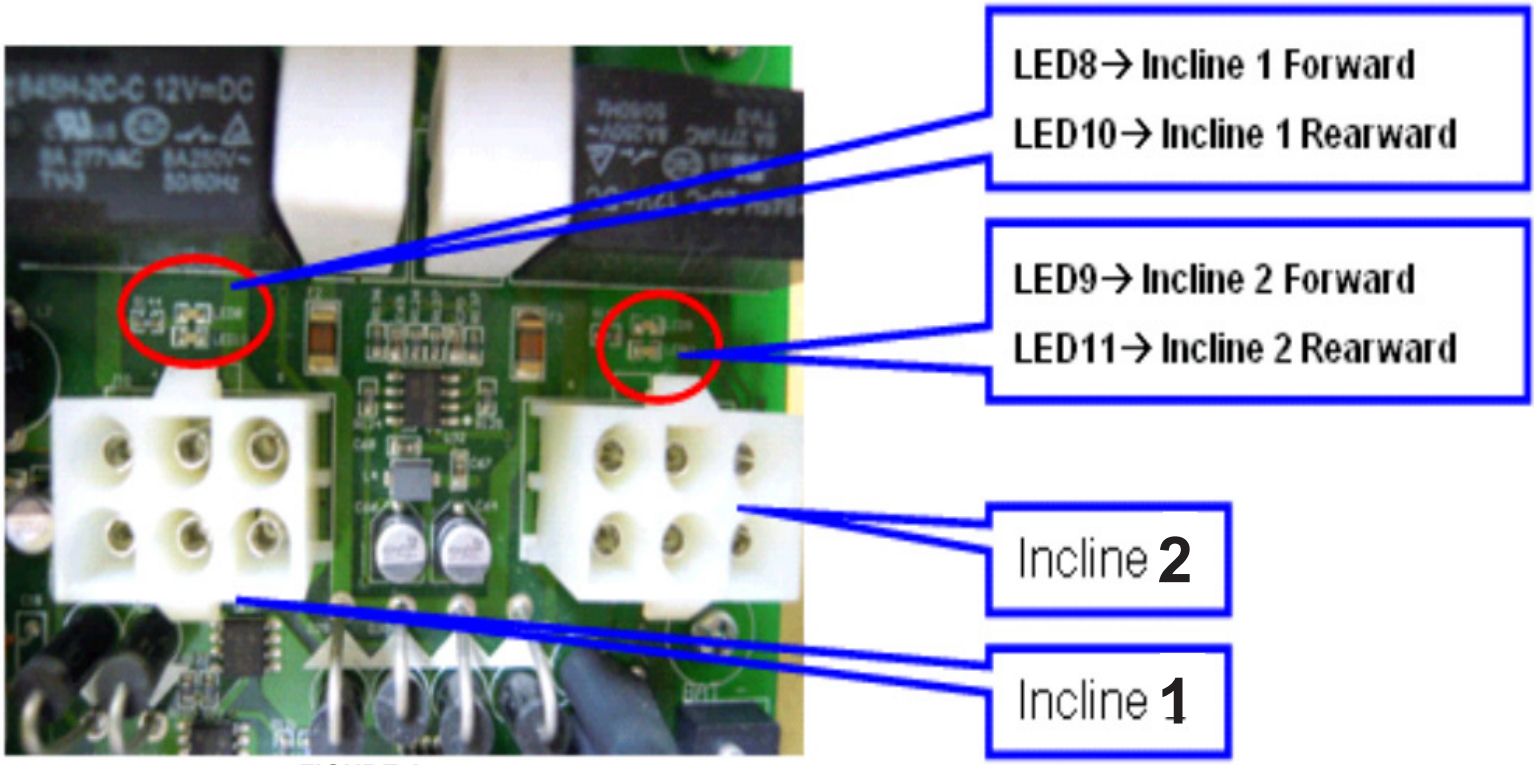


FIGURE A

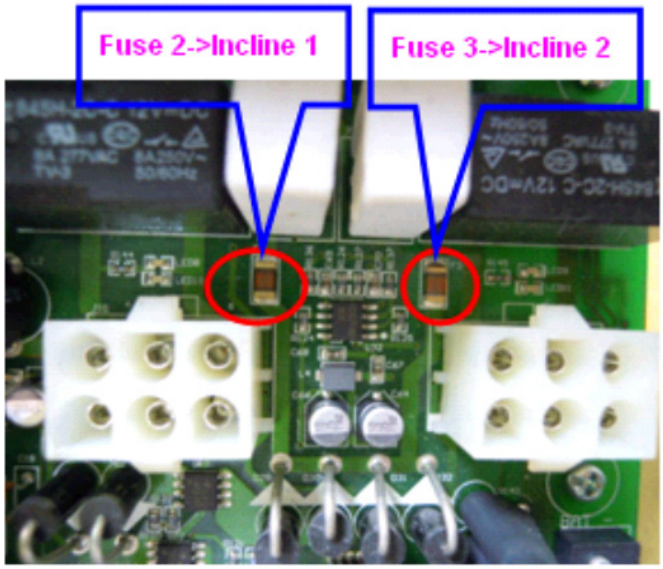


FIGURE B

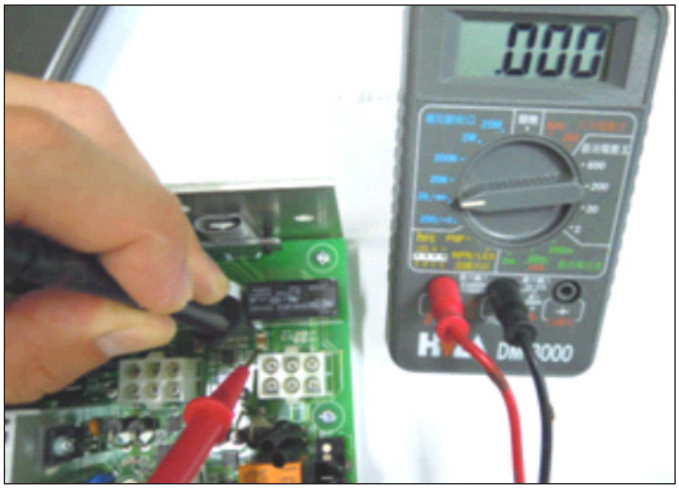


FIGURE C

ERROR CODE 01A0

1) SYMPTOM:

a. 01A0 - Incline motor disconnected.

2) SOLUTION:

a. Check the Machine Type in Service Mode.
b. Check the connection of the incline motor at the LCB.
c. Run auto calibration (see Section 4.8).
d. If auto calibration fails, re-enter Engineering Mode and again go to Calibration.
- Measure the incline VR value (Figure A) by measuring across the Blue / Orange and Brown / Orange wiring in the incline motor wire harness. The VR range should be 0.5k - 9.5k ohms (for example if the circuit is open or shorted). If the VR is outside of this range, replace the incline motor.
e. If the incline motor does not resolve the issue, replace the LCB. ***NOTE***: Run auto calibration if the incline motor or LCB is replaced.



FIGURE A

8.6 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 1 is lit on the upper control board (Figure B).
- If LED 1 is not lit, check the console cable for connection at the LCB and console.

d. If LED 1 is still not lit after checking the console cable connections, use a multi-meter to check pins 1 and 3 on the console cable. There should be approximately 12V present. If necessary, replace the console cable.
- If LED 1 is lit on the console, but there is still no power, replace the UCB.

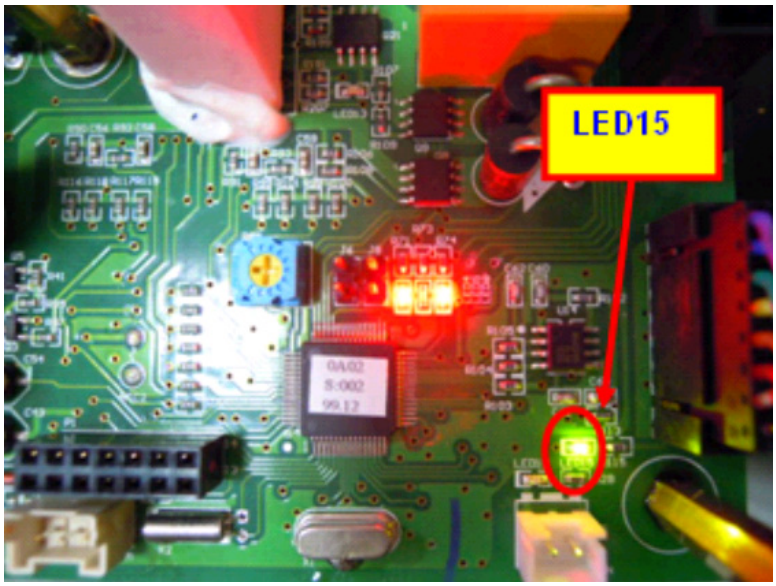


FIGURE A

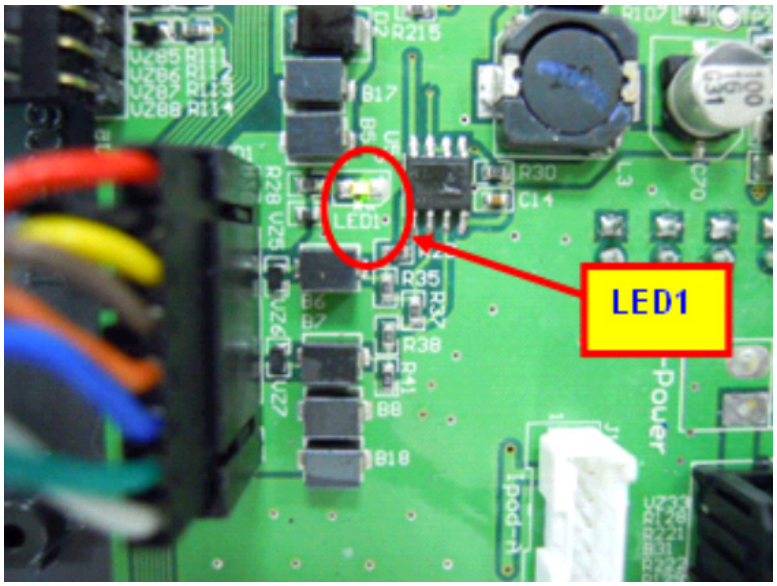


FIGURE B

8.7 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 UCB.



FIGURE A



FIGURE B

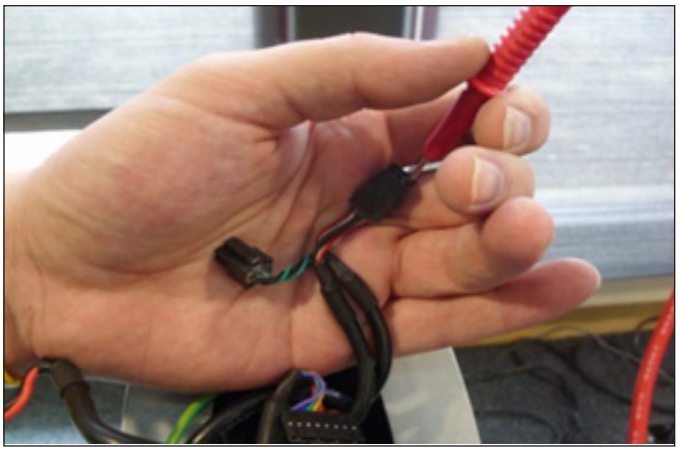


FIGURE C



FIGURE D

RPM ISSUES OR THE CONSOLE DOES NOT RECORD DISTANCE

1) SYMPTOM:

a. RPM Issues
b. The console does not record distance.

2) SOLUTION:

a. If the unit is resetting after 30 seconds despite pedaling, verify that INCLINE RESET is in the on position in Manager Mode.
b. Select a different program and check to see if RPM is displayed. If RPM is shown in a different program, update the console software.
c. Remove the right side disk and check to see if LED1 (labeled Generator RPM) on the lower control board flashes when the main drive pulley is turned.
- If LED 1 does not flash, check the socket connection at the LCB. Replace the LCB if this connector is bad.
- If LED1 still does not flash, check the generator cable. Measure the resistance across 3 wires (White-Red, Red-Black, & Black-White). The resistance should be approximately 13 ohms (Figure A). Replace the generator if the resistance is not near 13 ohms.
- If LED 1 is flashing, check to see if there is a jumper wire inserted into the J7 port on the left side of the LCB (Figure B). If this jumper is missing, replace the LCB.
d. If the generator and LCB do not resolve the problem, replace the UCB.



FIGURE A

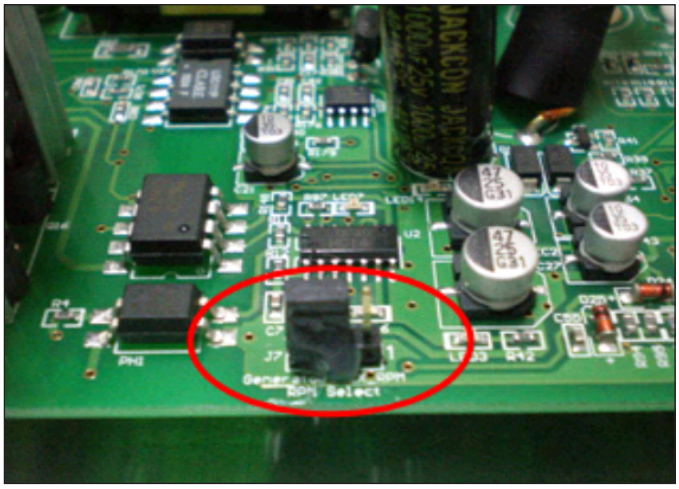


FIGURE B

8.9 ENTERTAINMENT TROUBLESHOOTING - OVERVIEW

1. Sections 8.9 - 8.12 will help with diagnosing problems with TV and entertainment related equipment that is produced by Matrix Fitness Systems.
2. The A3x-02 Ascent Trainer has the capability of adding an external 15" TV with a bracket. A Matrix brand external TV will look similar to the TV in Figure A. Your control keypad should look similar to Figure B. If your equipment looks different contact Matrix or the manufacturer of your TV equipment if known.



FIGURE A



FIGURE B

3. Verify how your TV is mounted, compare your machine to Figure C which shows an external 15" TV directly mounted to a unit with a 3x console.



FIGURE C

4. For Matrix produced and mounted equipment you can use the information outlined in this section to help with any connection and power issues you may have. If you have questions that are specific to the TV alone (settings, programming, menu options, etc) please see the entertainment owner's manual.

8.10 ENTERTAINMENT TROUBLESHOOTING – PICTURE FUZZY OR UNCLEAR

1. Remove the TV back cover (Figure A) Using a verified good piece of coax cable, hook the coax directly to the TV jack. This bypasses internal connections for your machine or TV stand (Figure B).



FIGURE A



FIGURE B

2. If this does not clear your picture the issue is with the club's signal. Make sure that the coax has a signal strength of at least 10db.
3. If Step 1 does clear your picture, check the internal cables and fittings inside your machine. Make sure you have no damage (kinks, cuts etc) and no stray wires or poor fittings on the ends of the cables anywhere that the coax cable is connected (Figures C & D). Fittings should have a clean flush connector and no stray aluminum strands touching the center conductor. Replace or repair any suspect cables.

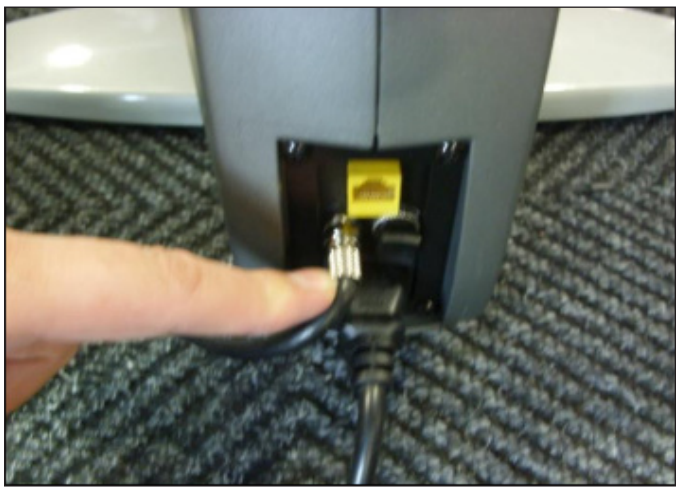


FIGURE C



FIGURE D

4. If nothing is visibly wrong with any of the cables, fittings, or connectors replace the internal coax cables and connectors with known good parts.

8.11 ENTERTAINMENT TROUBLESHOOTING -TV WILL NOT TURN ON

1. If you have no picture at all check to see if you have any status lights on your entertainment keypad or TV. Status lights should be red when off or in standby mode, and green when the TV is powered on. If you have lights of any color skip to Section 8.19.
2. Remove the TV back cover (Figure A) and check the connection of the TV power wire at the TV (Figure B). Also check the TV power wire connection at the console (Figure C).



FIGURE A



FIGURE B

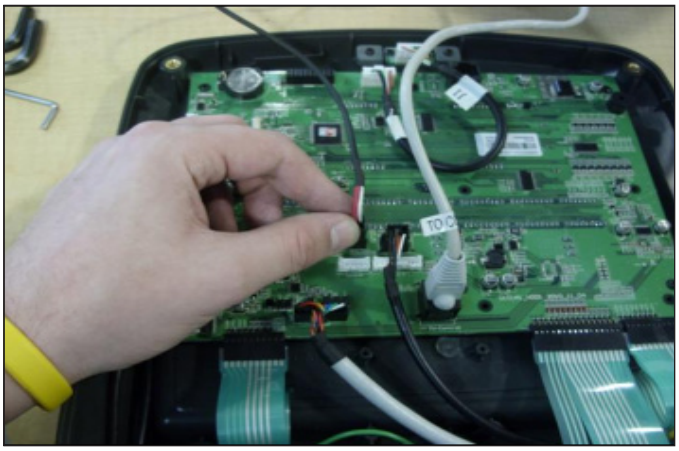


FIGURE C

3. After you have verified all connections are secure and a problem still exists verify power at the outlet (Figure D). If the outlet is not outputting 120 Volts, check fitness room power.
4. If internal TV power wire connections are good, verify 12 Volts power at the TV power wire where it plugs into the TV (wire in Figure B, shown with multi - meter in Figure E). If 12 Volts are present, the issue is likely with the TV itself, contact Matrix Customer Service.

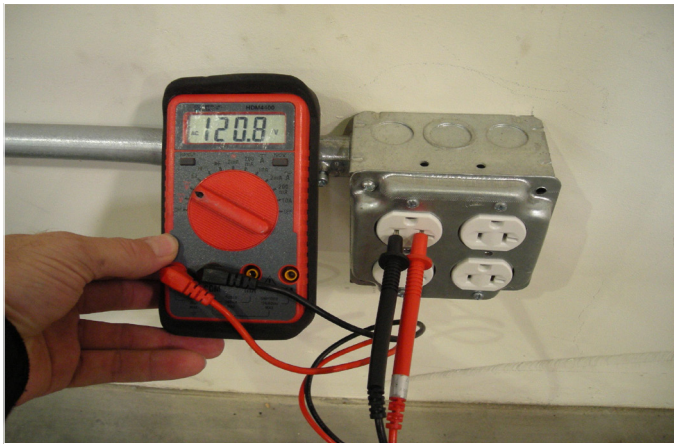


FIGURE D

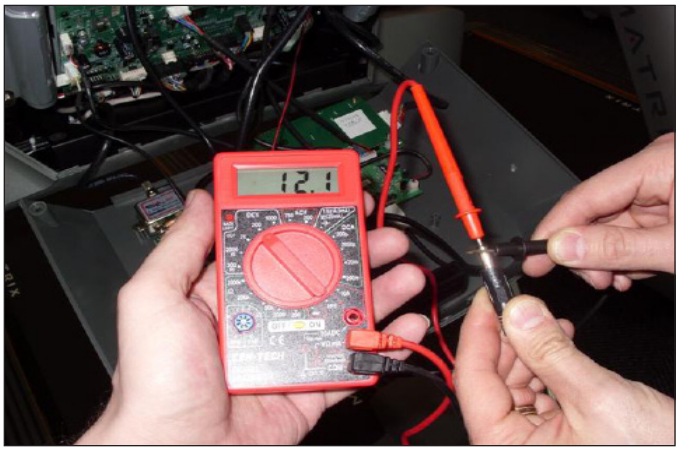


FIGURE E

8.12 ENTERTAINMENT TROUBLESHOOTING - CONTROLLER ISSUES

1. If you have status lights on the TV, but the On / Off button gives no response, disconnect and then re-connect the power to the treadmill from the wall. Attempt to turn on the TV again using the On / Off button.
2. If the TV does not power on check the TV keypad connection at the console (Figure A).
3. Also check the connection of the TV controller wire at the TV (Figure B) and the console (Figure C).
4. If the TV does not power on with the TV keypad, attempt to power on the TV using the small handheld remote that came with the TV (Figure D) (Used for changing menu and other settings). If the TV will function with the handheld remote, replace the TV keypad. If the TV will not function with handheld remote it is likely an issue with the TV itself, contact Matrix Customer Technical Support.

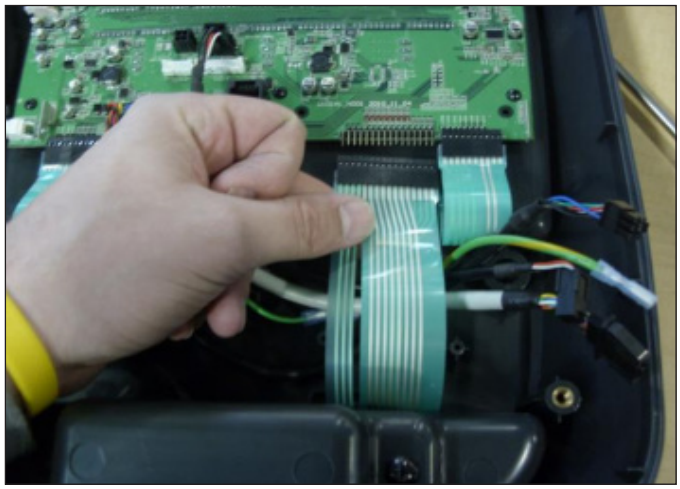


FIGURE A



FIGURE B

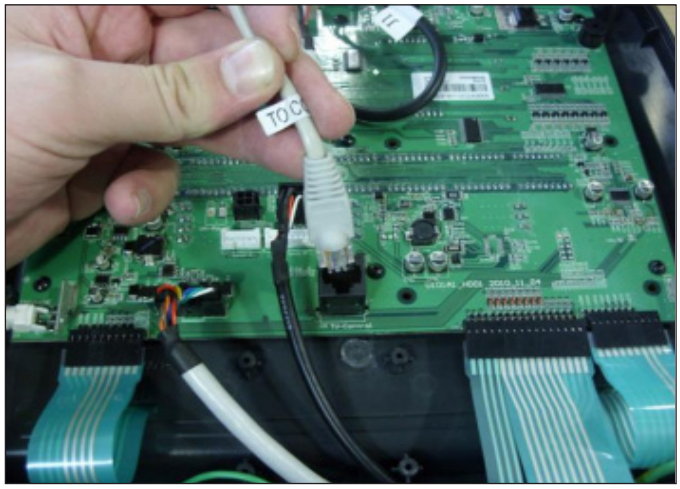


FIGURE C



FIGURE D

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

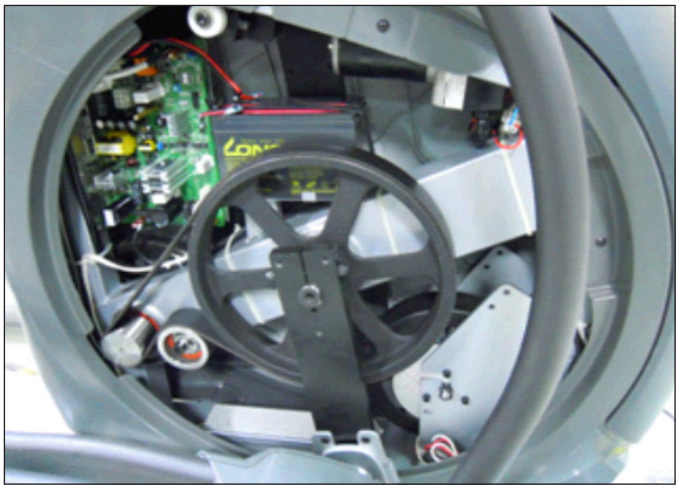


FIGURE D

4) Reverse Steps 1-3 to install a new disk. ***NOTE:*** There is a tab on the disk that should be lined up with a slot on the crank cover (Figure E). The 3 screws removed in Step 2 should be torqued to 25 N-m.

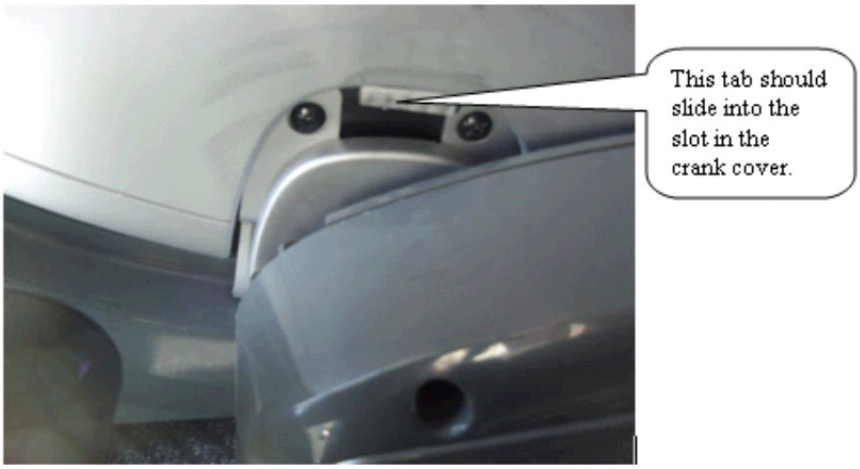


FIGURE E

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).

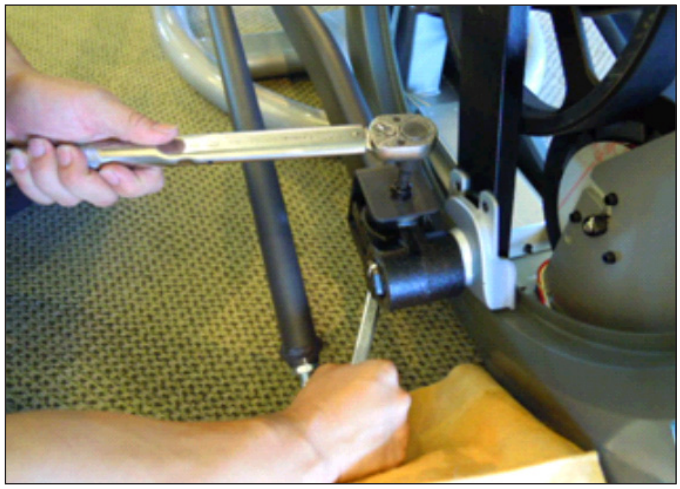


FIGURE E

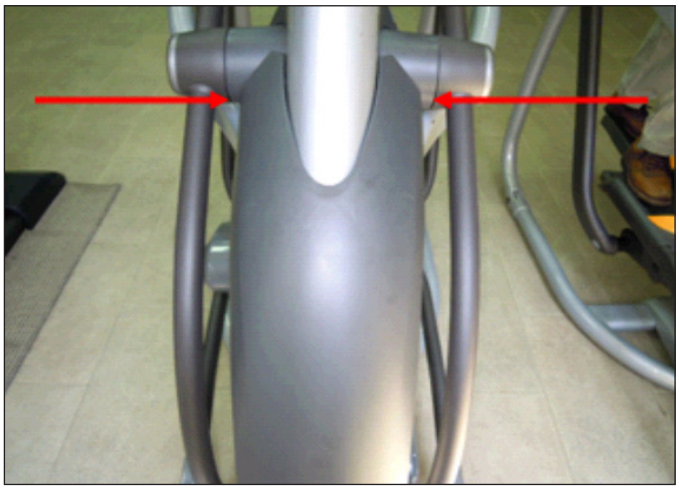


FIGURE F

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).

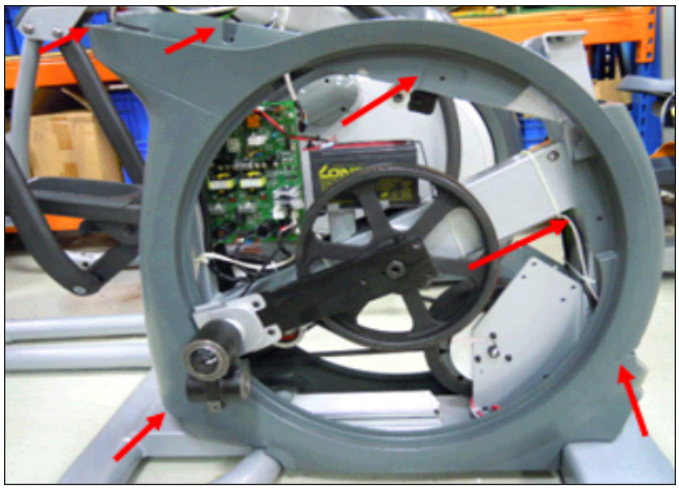


FIGURE M

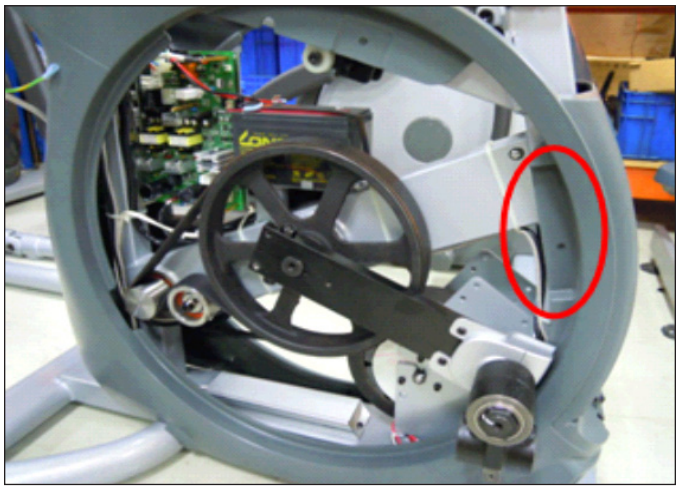


FIGURE N

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

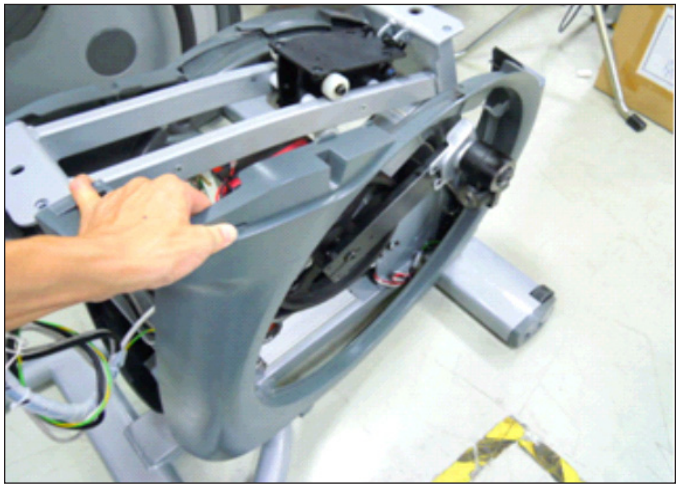


FIGURE O

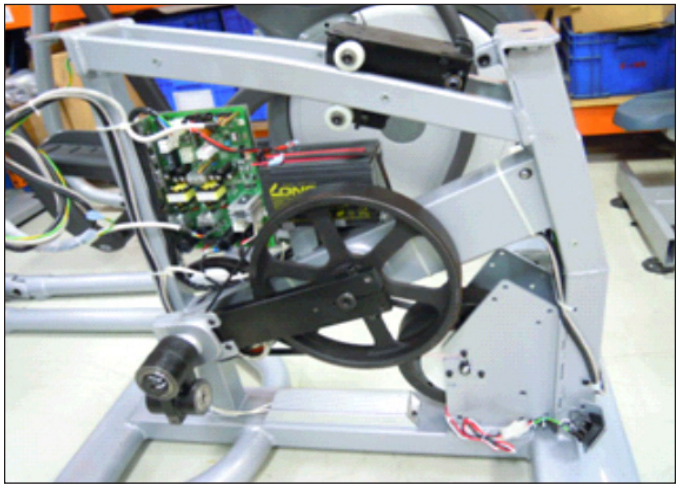


FIGURE P

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).

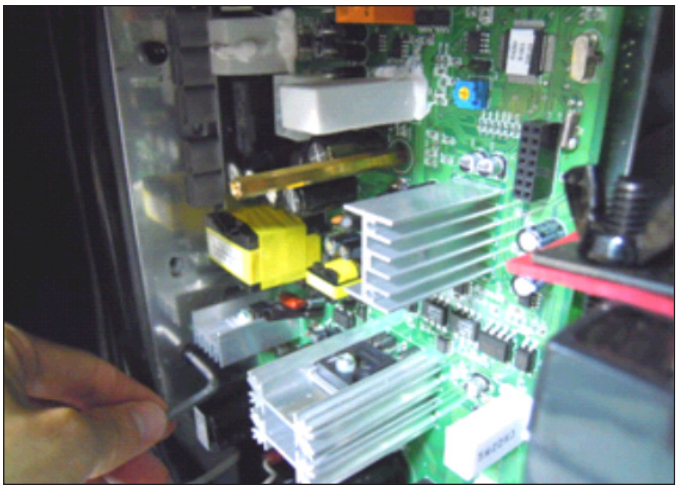


FIGURE B

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

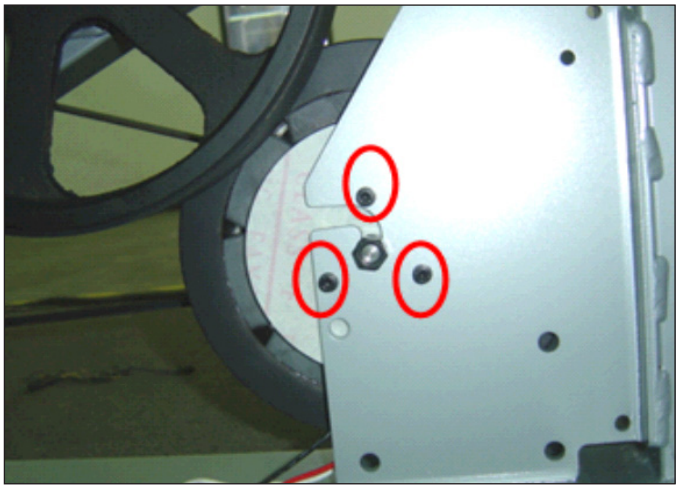


FIGURE D

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).

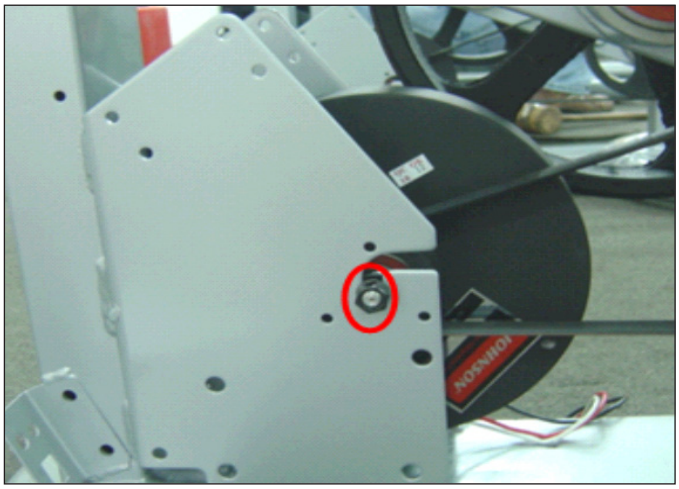


FIGURE E



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).

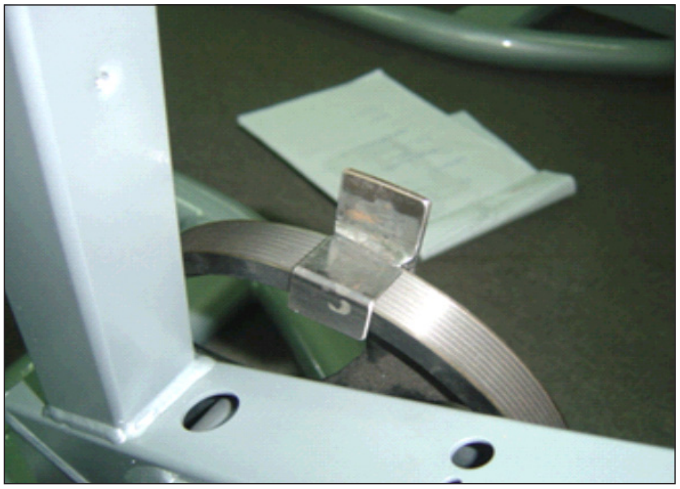


FIGURE A

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).

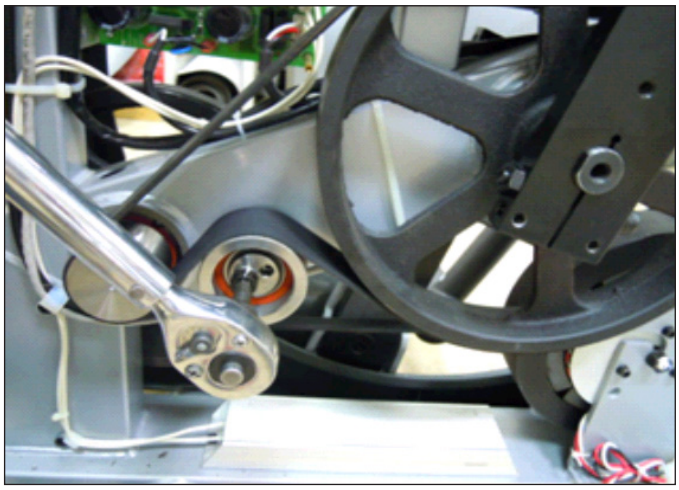


FIGURE A

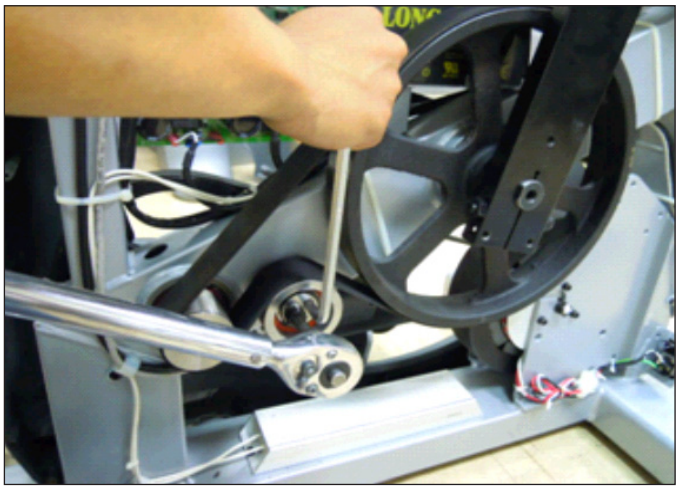


FIGURE B

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).

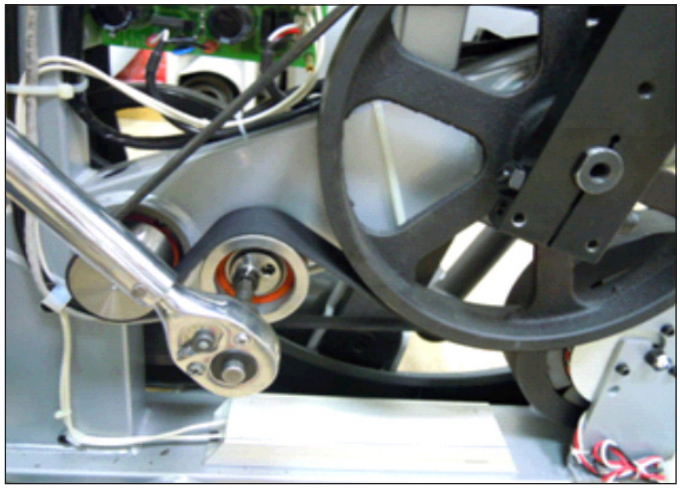


FIGURE A

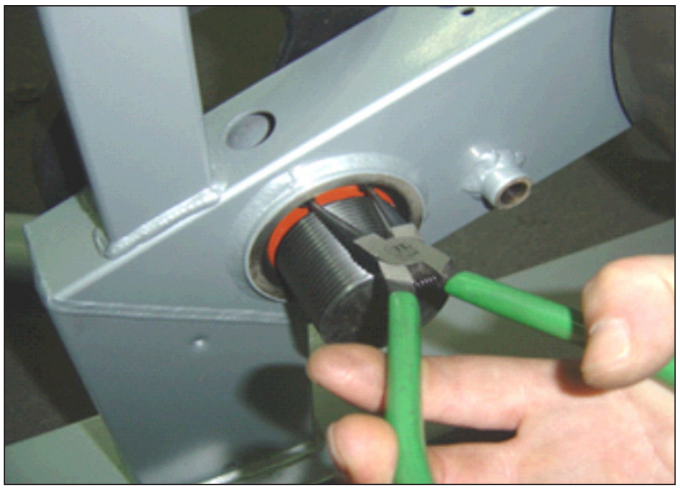


FIGURE B

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

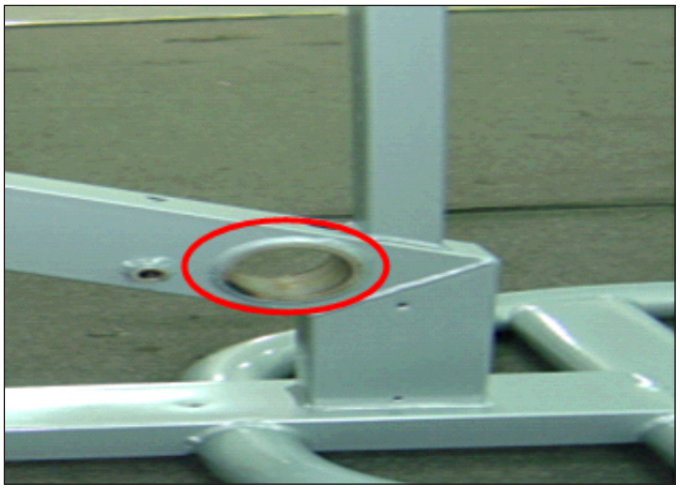


FIGURE D

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).

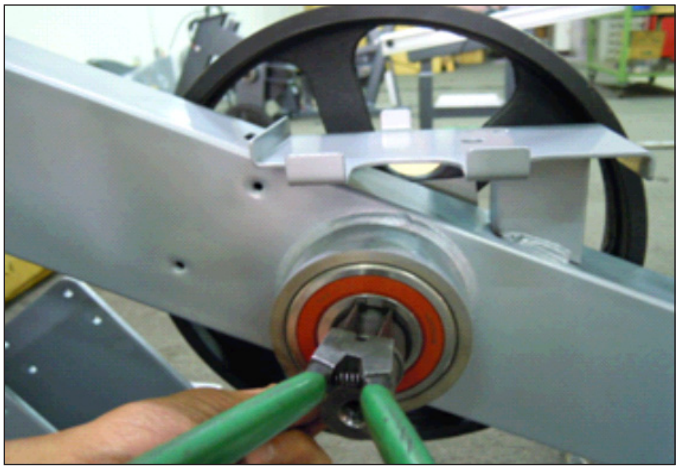


FIGURE A

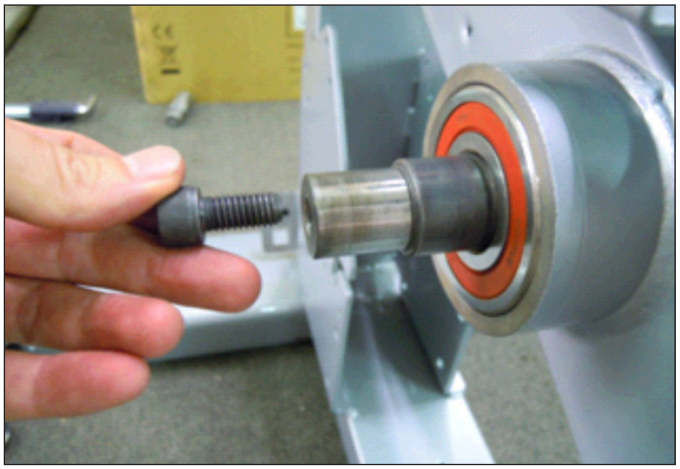


FIGURE B

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).

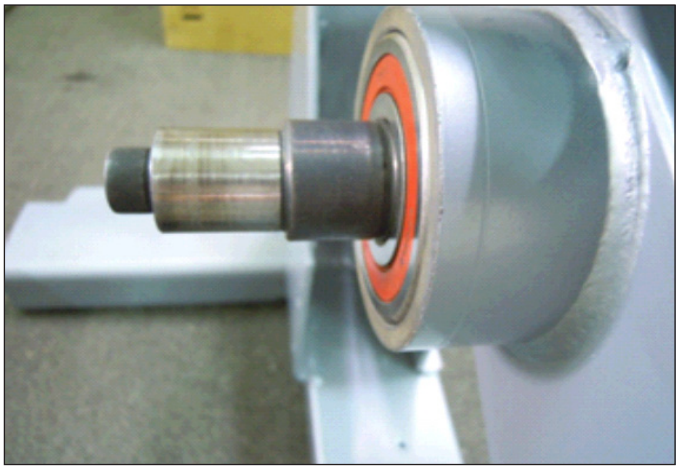


FIGURE C

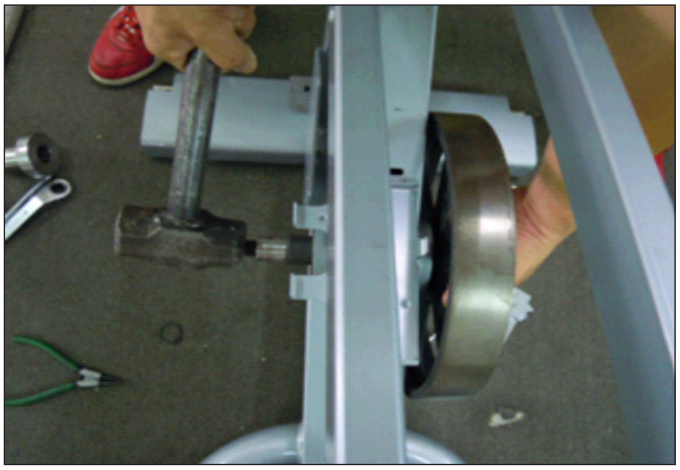


FIGURE D

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).

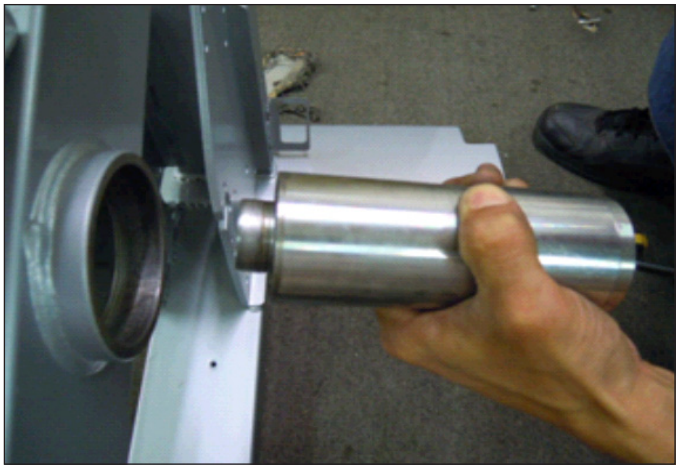


FIGURE E

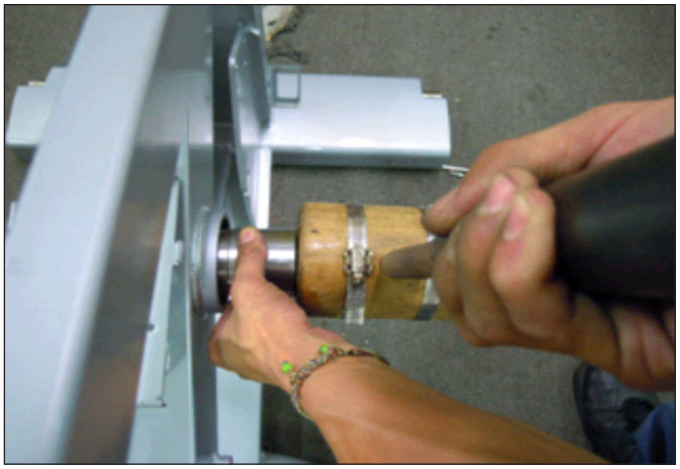


FIGURE F

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

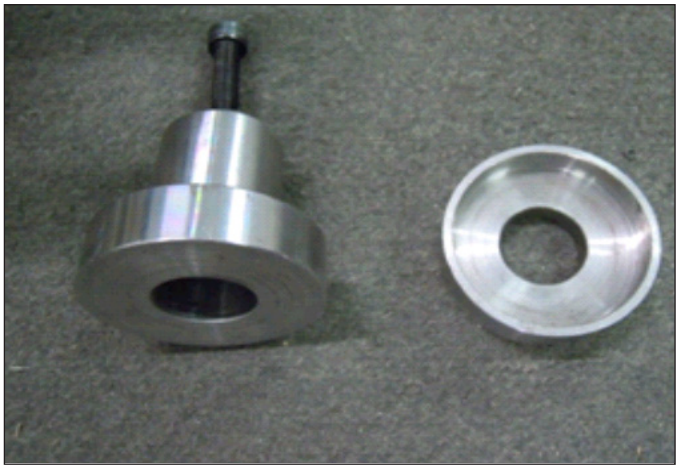


FIGURE H

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).

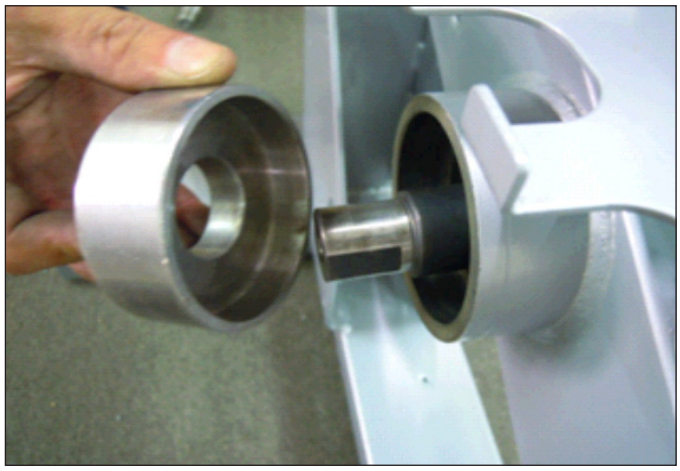


FIGURE I

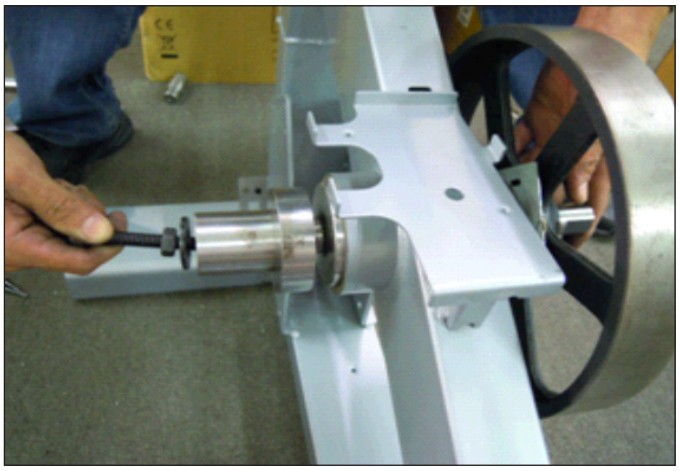


FIGURE J

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

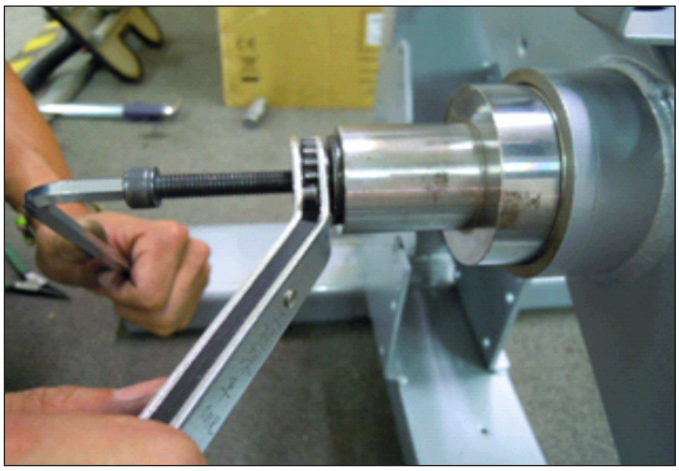


FIGURE L

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).

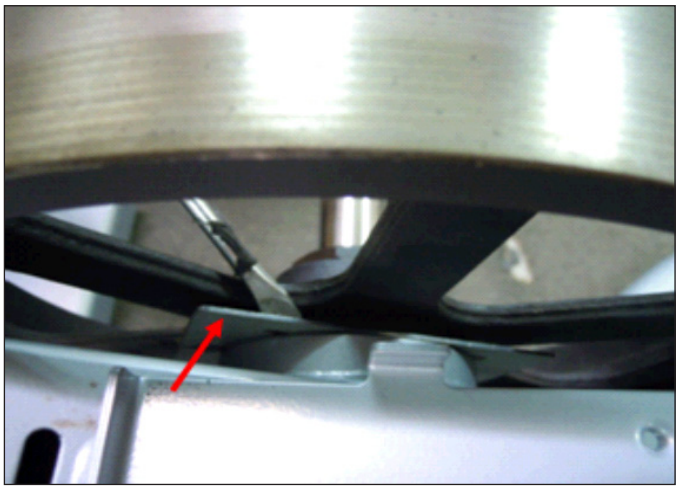


FIGURE M

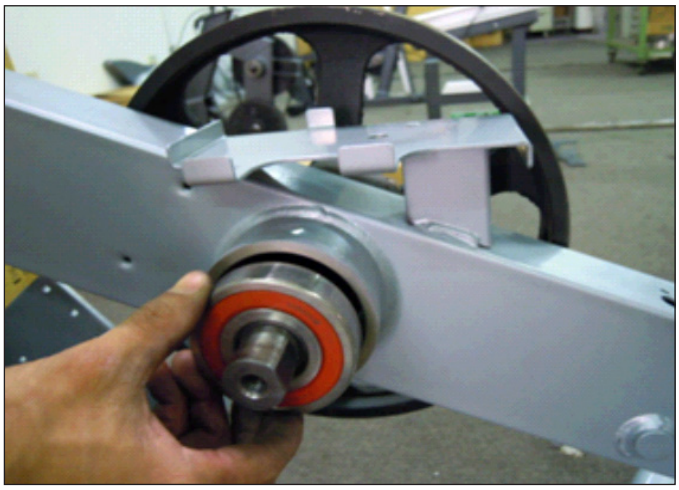


FIGURE N

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).

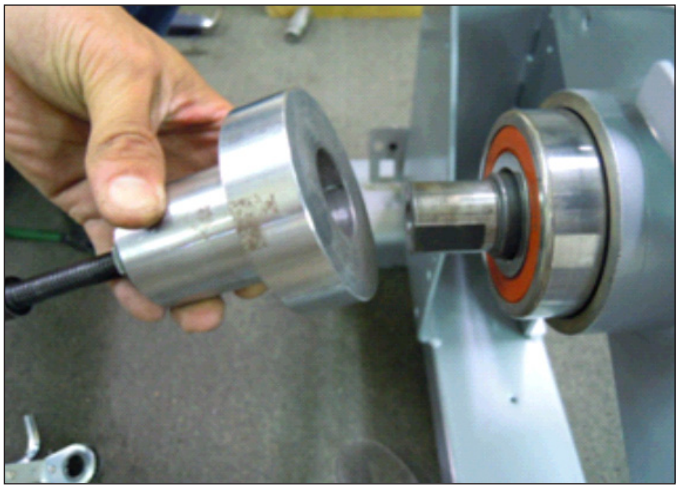


FIGURE O



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

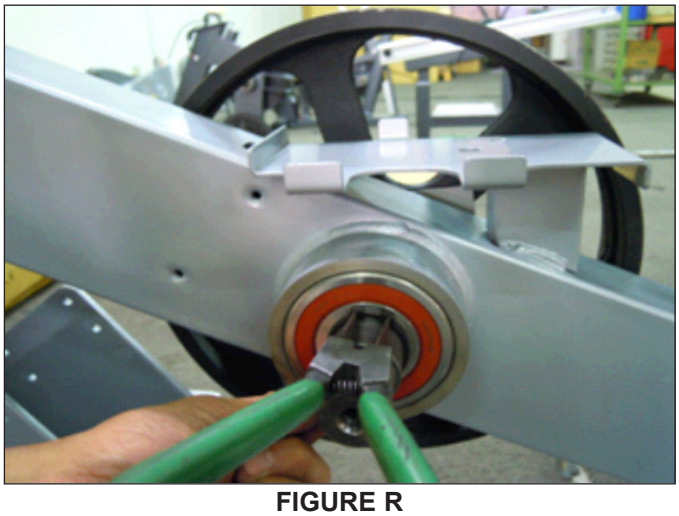


FIGURE R

9.8 DRIVE AXLE SET REPLACEMENT - CONTINUED

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

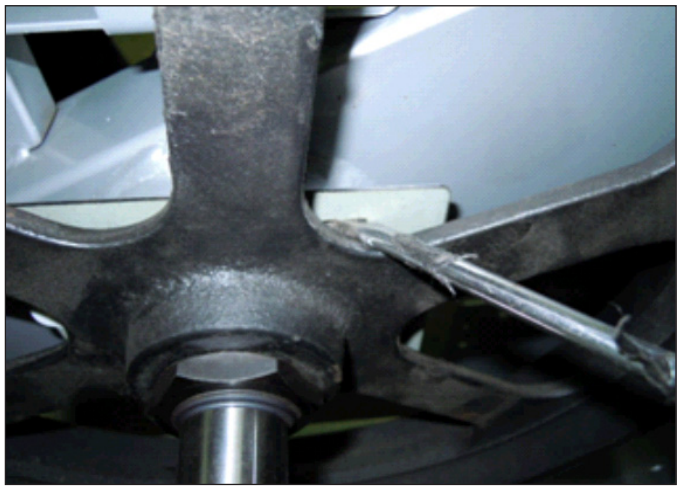


FIGURE S



FIGURE T

23) Re-install the belts as outlined in Sections 9.5 and 9.6.
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

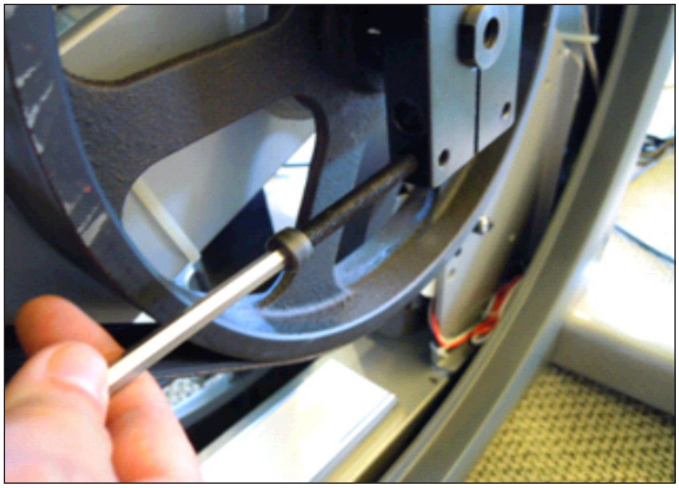


FIGURE B

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

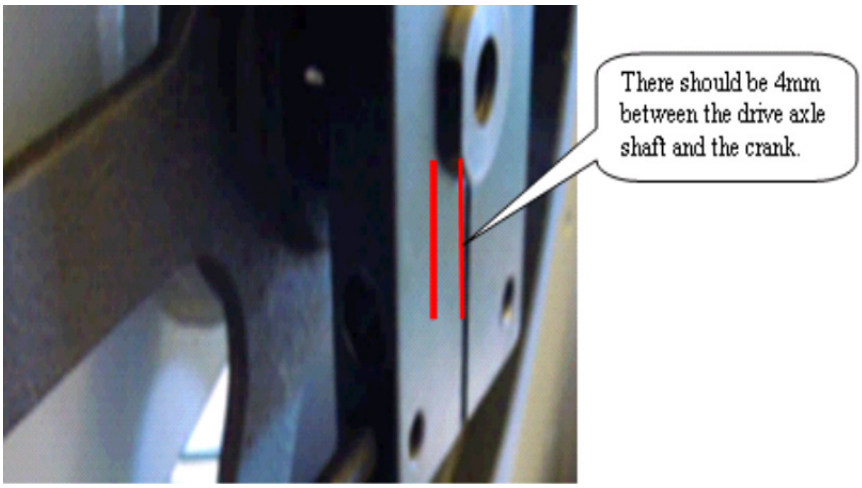


FIGURE C

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

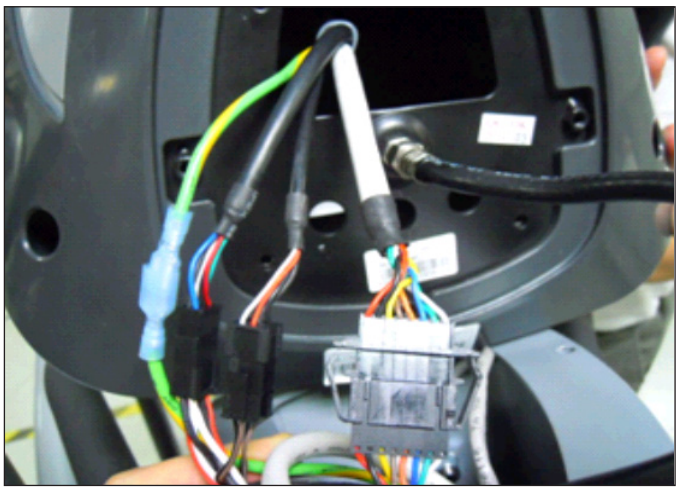


FIGURE B

4) Connect the wire connections to the new console.
5) 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.
6) Test the Ascent Trainer for function as outlined in Section 9.22.

9.11 OVERLAY & KEYPAD REPLACEMENT

NOTE: The instructions below are for console overlays / keypads, 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 2 screws holding on the back cover of the console and remove it (Figure A).
3) Remove the 4 screws holding the front of the console to the back and split the 2 halves (Figure B).



FIGURE A

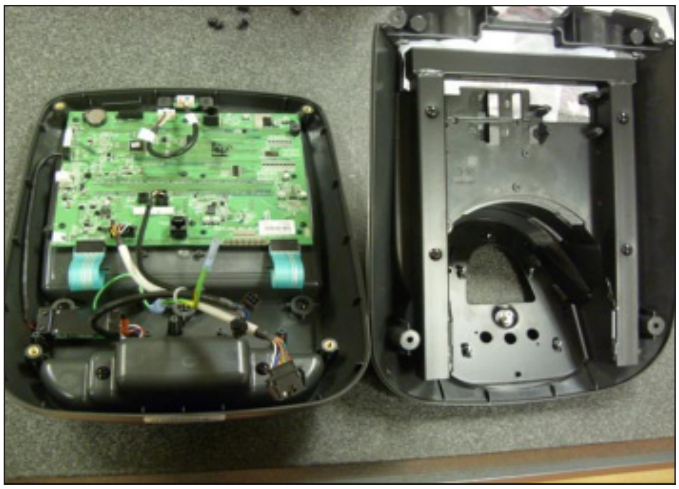


FIGURE B

3) Unplug the faulty keypad from the UCB - 2 ribbon cables (Figure C).
4) Use a razor to remove the faulty keypad / overlay from the console faceplate (Figure D).

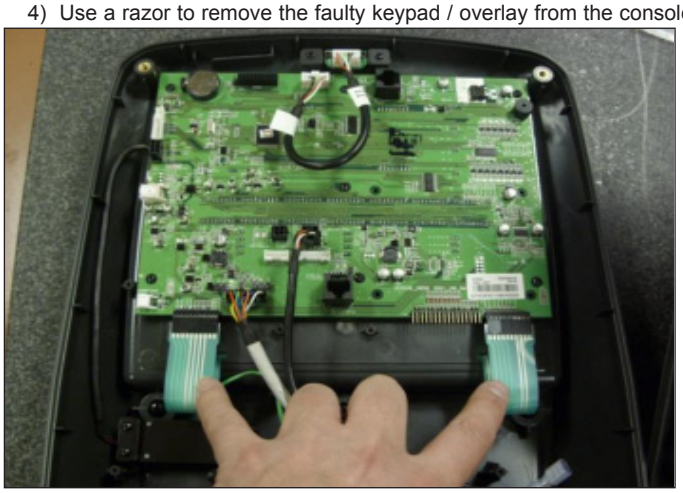


FIGURE C

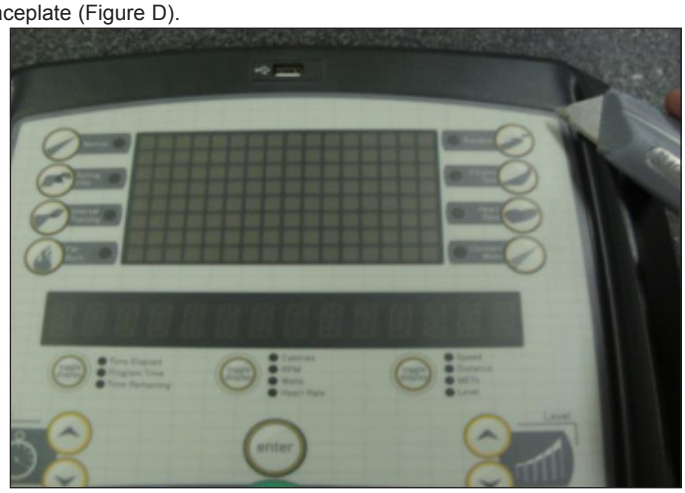


FIGURE D

5) Clean the console area with alcohol to remove any left over adhesive (Figure E).



FIGURE E

9.11 KEYPAD & OVERLAY REPLACEMENT - CONTINUED

6) Peel the backing off of the new keypad and slide the ribbon cables through the slots in the console faceplate (Figures F & G).

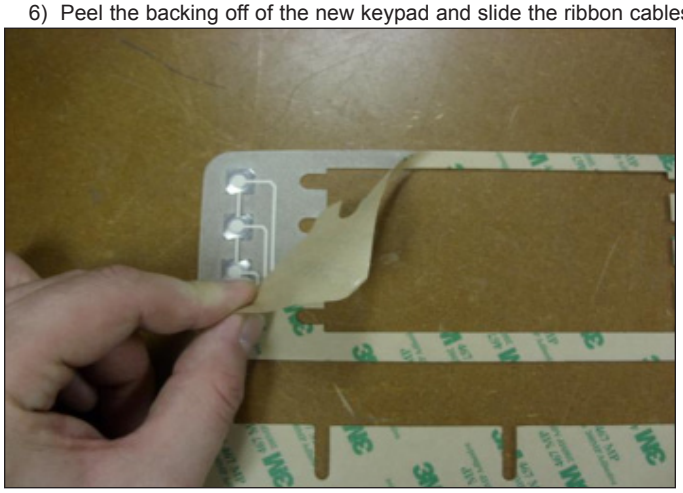


FIGURE F

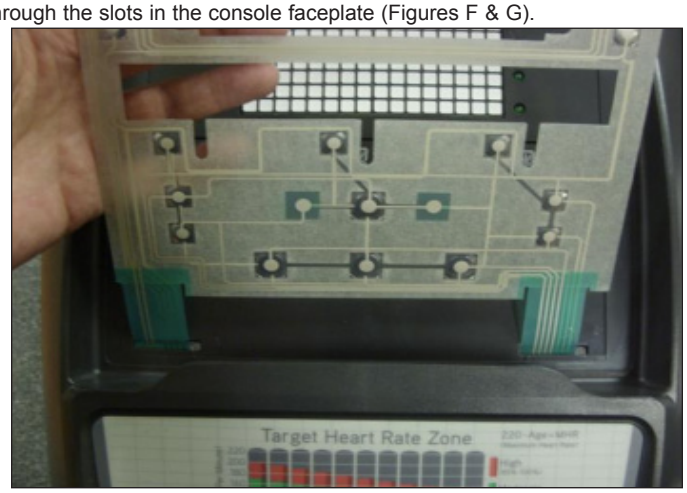


FIGURE G

7) Plug the ribbon cables into the UCB (Figure H).
8) Carefully line up the new keypad to the outline in the console faceplate. Once it is in place, press down on the keypad so that the adhesive on the keypad bonds to the console (Figure I).

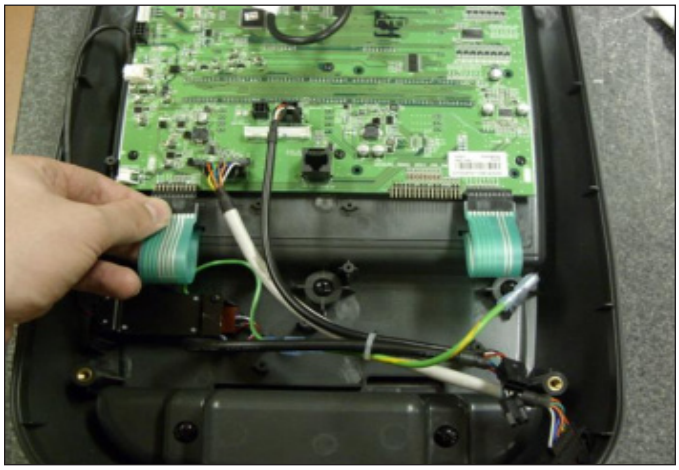


FIGURE H

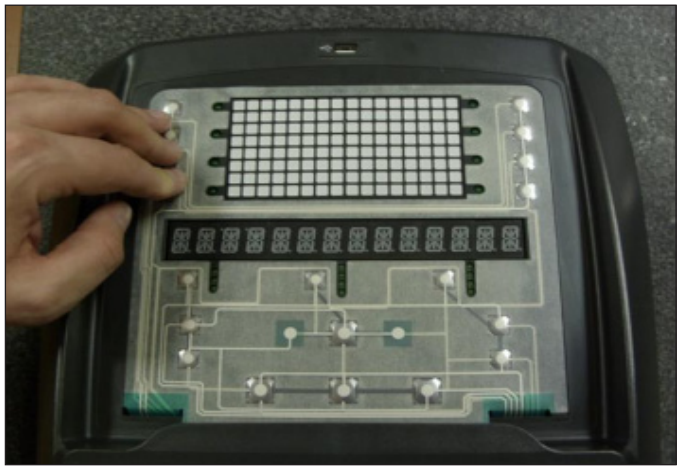


FIGURE I

9) Peel the backing off of the new overlay (Figure J).
10) Carefully line up the new overlay to the outline in the console faceplate. Once it is in place, press down on the overlay so that the adhesive on the overlay bonds to the keypad (Figure K).

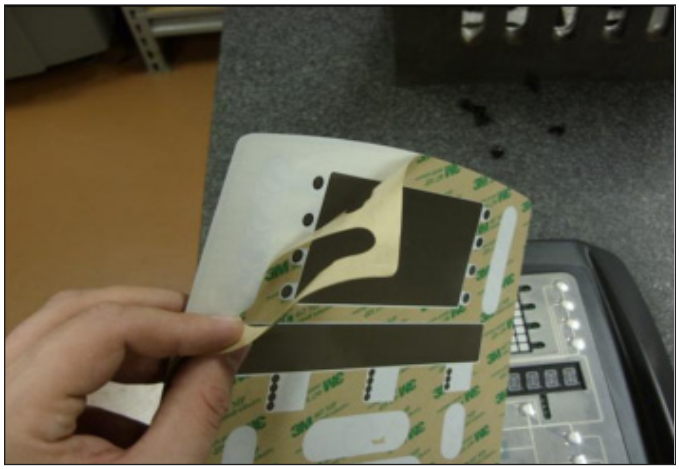


FIGURE J

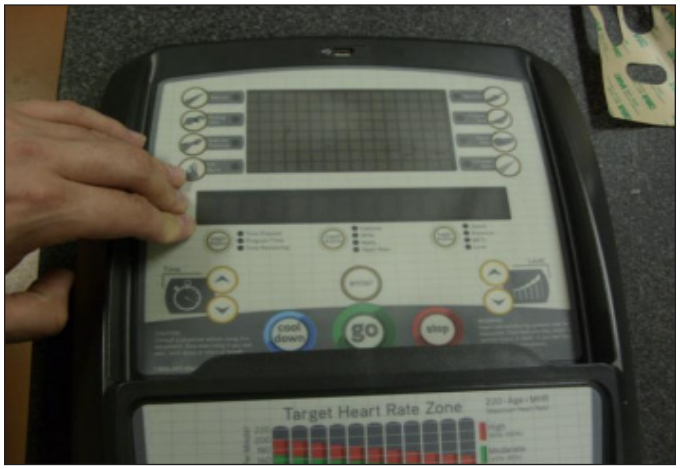


FIGURE K

11) Reverse Steps 1-3 to re-assemble the console.
12) 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).

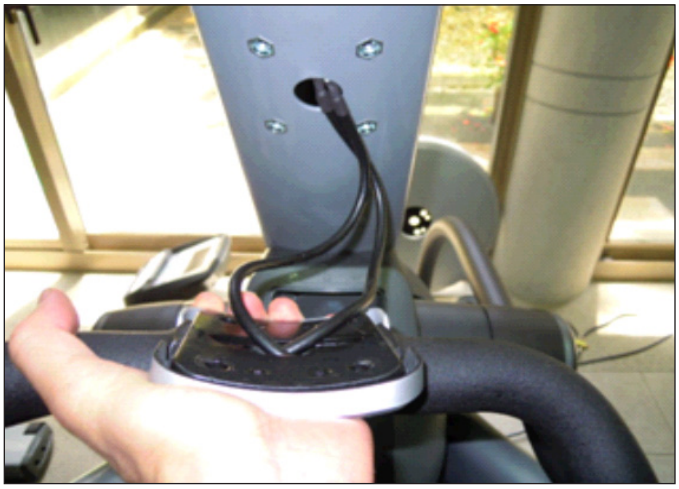


FIGURE B



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 cupholder 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.

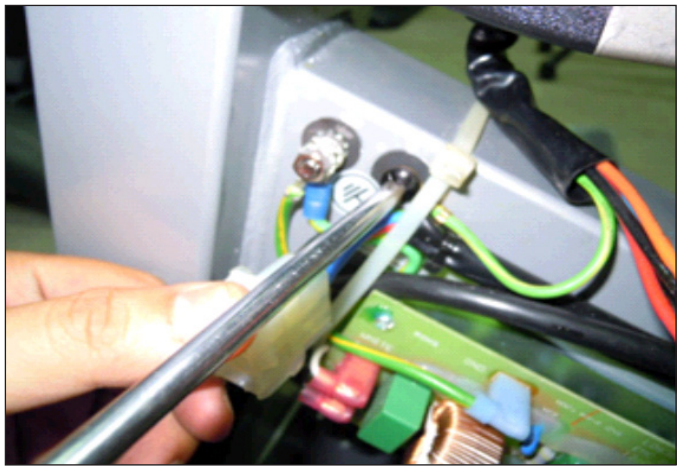


FIGURE A

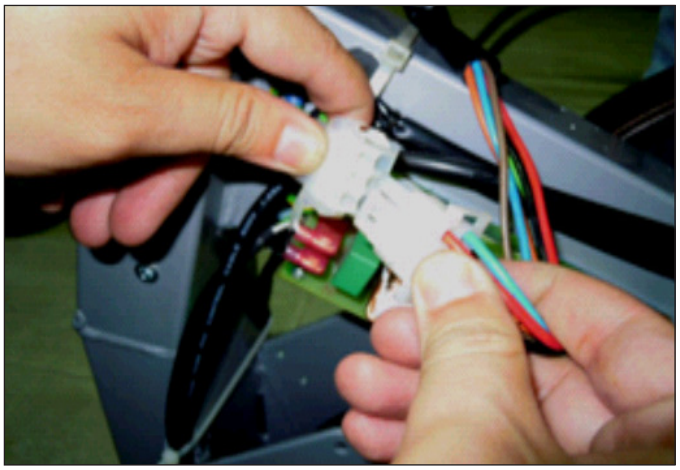


FIGURE B

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

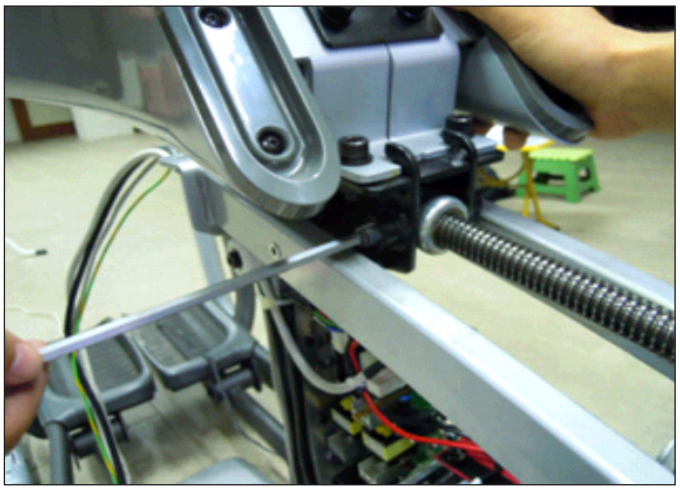


FIGURE D

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).

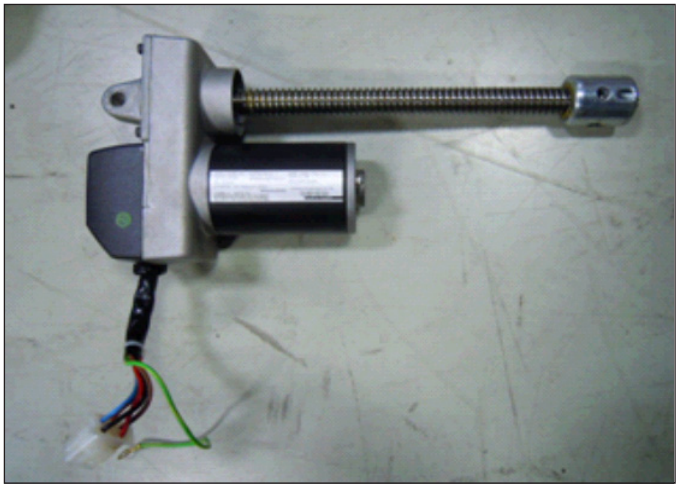


FIGURE G

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.

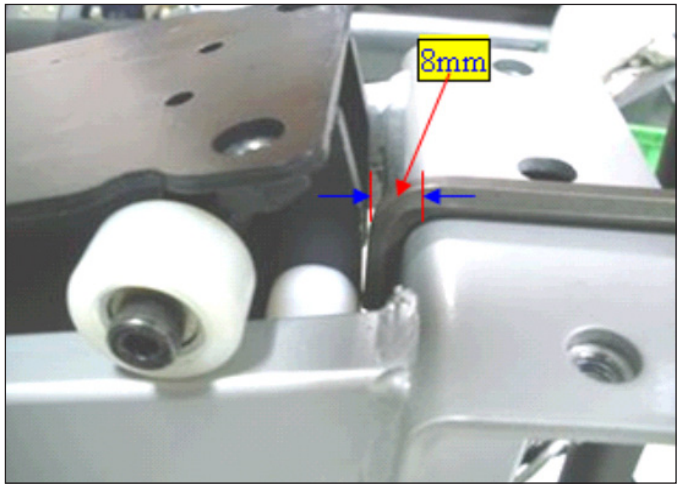


FIGURE H

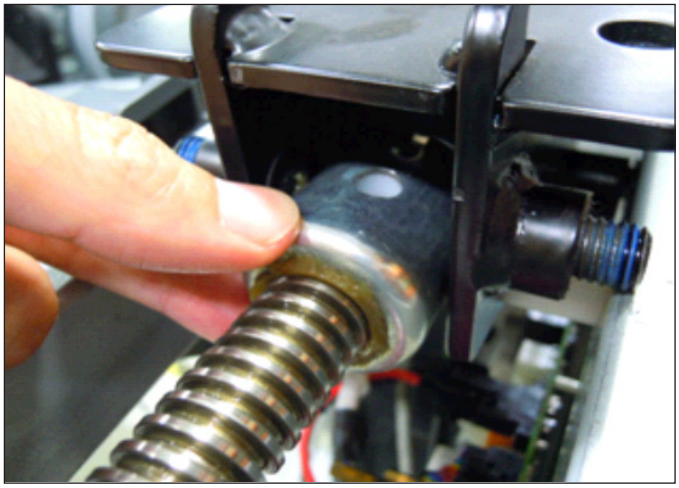


FIGURE I

14) Plug in the unit. Allow the incline to reset.
15) Press and hold the LEVEL UP and DOWN keys simultaneously for 3-5 seconds to go to Service Mode. Scroll with the LEVEL UP or DOWN keys until Service 6 is displayed. Press ENTER to 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).

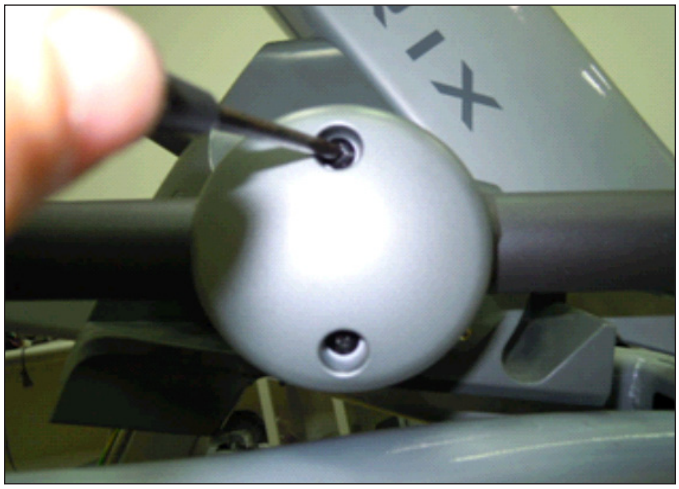


FIGURE C



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

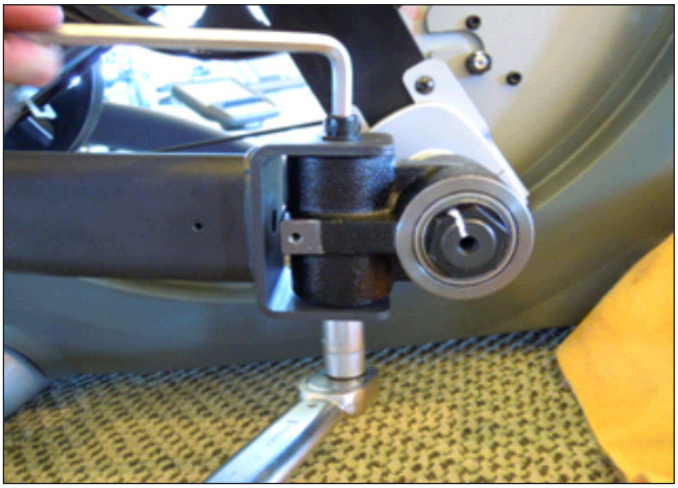


FIGURE B

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 1-6 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).

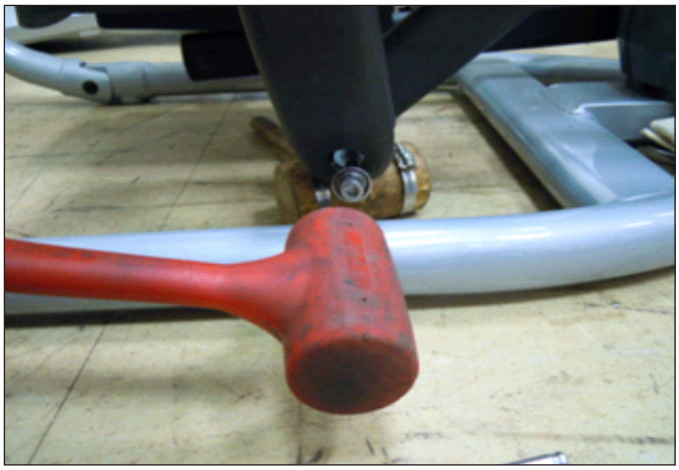


FIGURE E

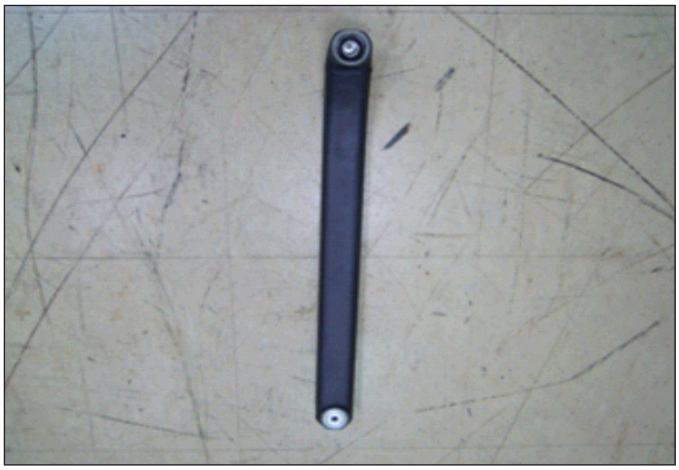


FIGURE F

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

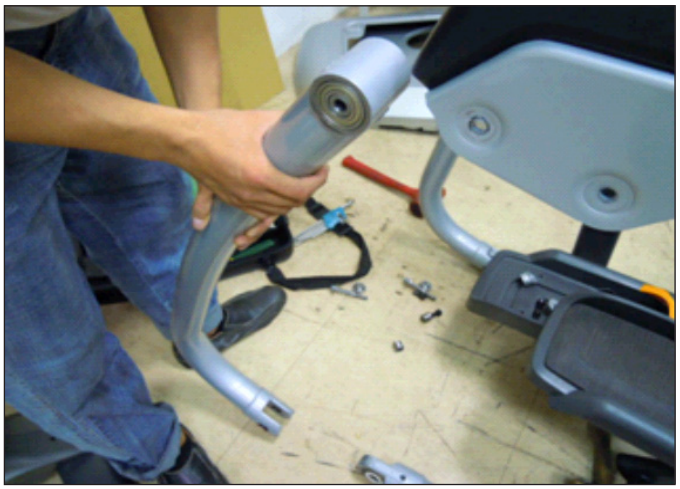


FIGURE D

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 the resistance buttons and heart rate grip plates (Figures A & B).

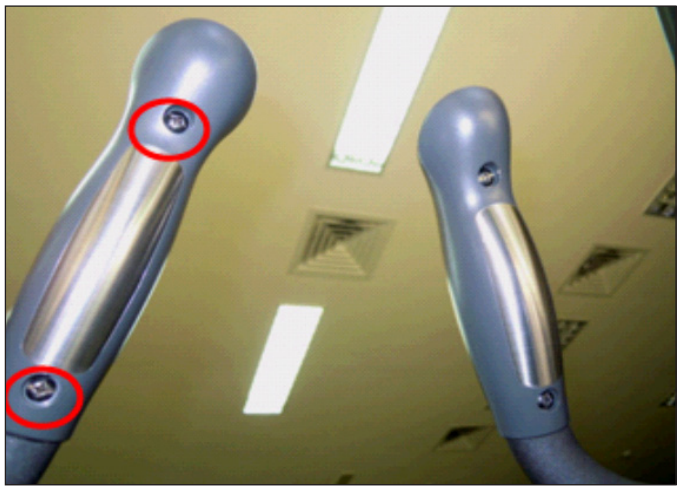


FIGURE A



FIGURE B

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 Engineering Mode and input the serial number of the console. Also set the Machine Type and verify that the Date and Time are correct.

2) If the unit has an add on TV, perform a channel scan to tune the TV (see the TV Owner's Manual for procedure).

3) 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.

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

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

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

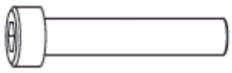
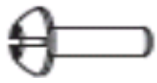
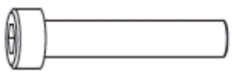
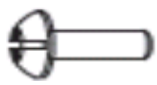
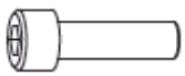
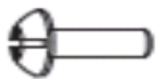
7) If everything functions properly, stop pedaling and the unit will reset to normal operation after 30 seconds.

CHAPTER 10: ASCENT TRAINER SPECIFICATIONS AND ASSEMBLY GUIDE

10.1 ASCENT TRAINER SPECIFICATIONS

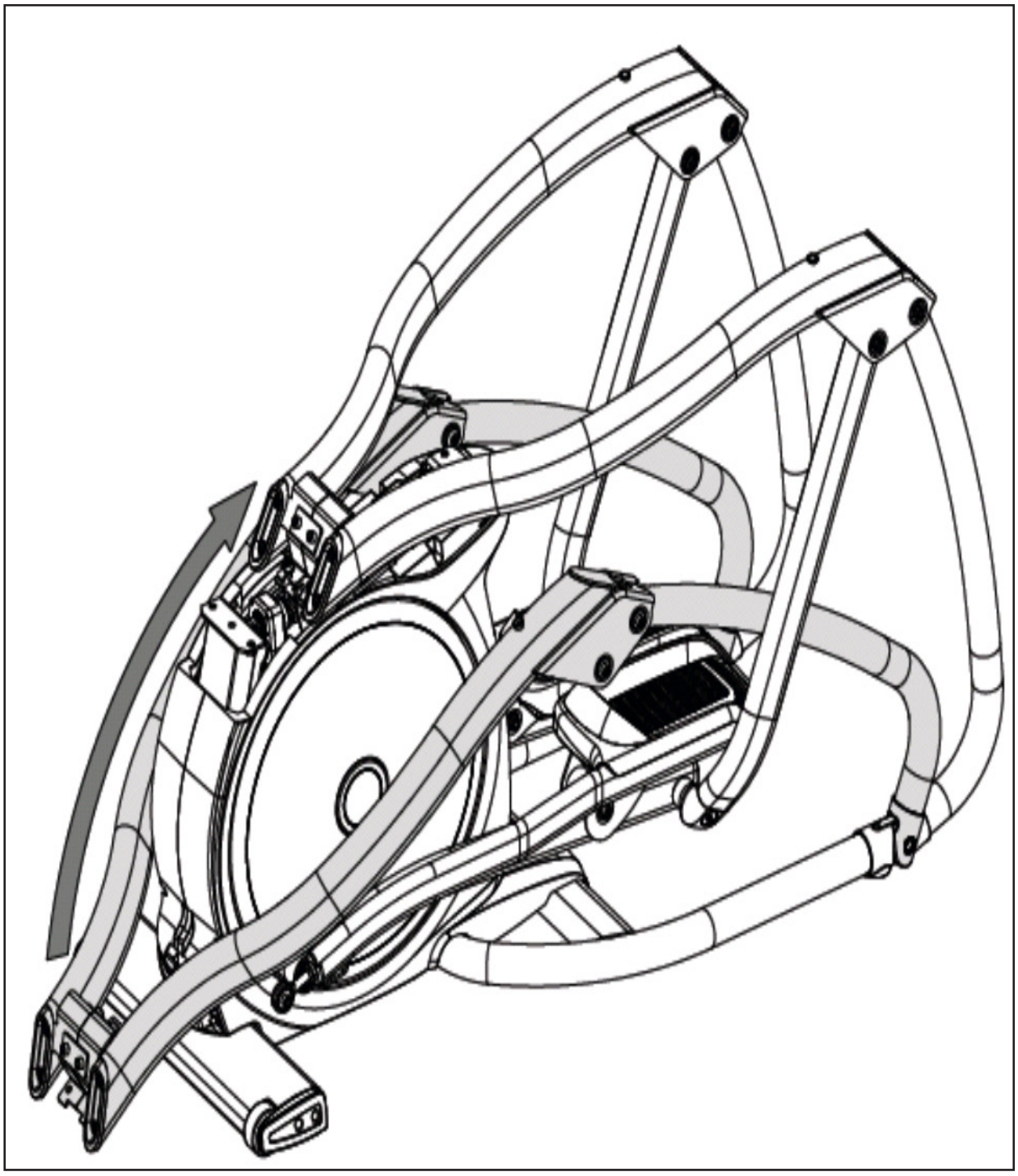
FEATURES	
Stride Length	20-24"
Incline Range	24% - 54% (15" range)
Contact and Telemetric Heart Rate Sensors	Yes
Cushioned Footpads	No
Q-Factor	2.5"
Handlebar Design	Multi-position dual action and ergo bend stationary.
Thumb Switch Controls	Yes - Resistance
RESISTANCE SYSTEM	
Technology	Generator
Power Requirements	Self Powered - Powered 100V - 240V - 50 / 60 HZ AC
Minimum Watts	24 Self Powered
Minimum RPM	15 Powered / 25 Non-Powered
CONSOLE	
Display Type	14 Seg Alpha Numeric 8 x 16 LED Graphic Display
Display Feedback	Time, Distance, Calories, Calories per Hour, Speed, Incline, Heart Rate, METs, Watts, Level, RPM, Profile
User Defined Multi Language Display	No (Accessible through Manager Mode) - English, German, French, Italian, Spanish, Dutch, Portuguese, Swedish, Finnish
Resistance Levels	20
Workouts	Manual, Rolling, Intervals, Fat Burn, Random, Fitness Test, Target HR, Constant Watts
CSafe, Fitlinxx Ready	Yes
Netpulse Ready	Yes
Fit Touch Technology	No
On the Fly Program Change	Yes
Integrated Vista Clear™ Digital Ready Television	No
Fitconnexion™ Ready	Yes
Wireless Data Transmitter	No
IPod Compatible	No
Nike+ IPod Compatible	No
Personal Fan	No
USB Workout Tracking	Yes - Via www.livestrong.com
Virtual Active™ Compatible	No
TECHNICAL DATA	
Overall Dimensions (L x W x H)	81 x 34 x 79" (1780 x 742 x 1740mm)
Maximum User Weight	400 lbs / 181.4 kg
Unit Weight	442 lbs / 201.0 kg
Shipping Weight	471 lbs / 214.5 kg

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

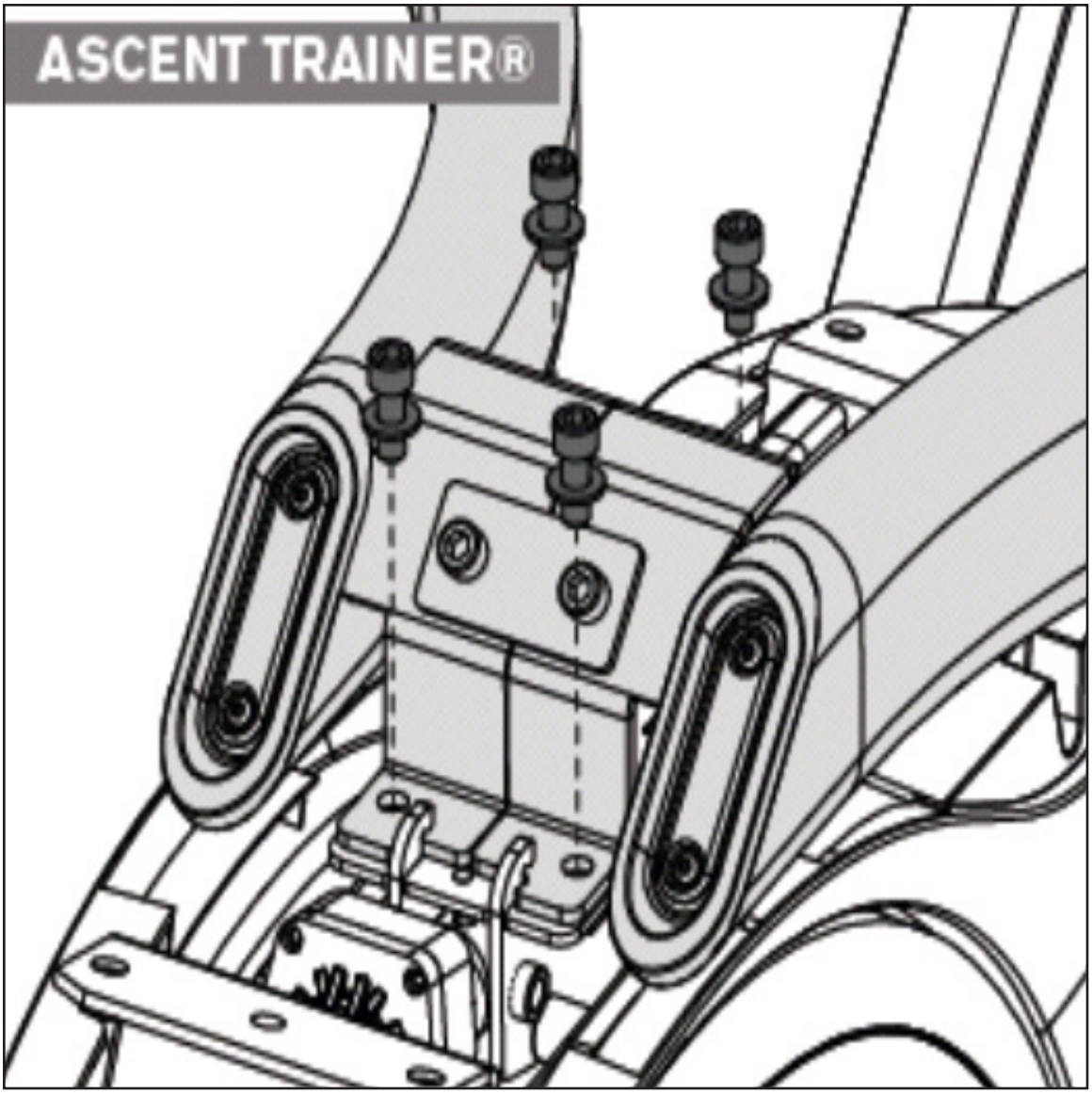
10.3 ASCENT TRAINER ASSEMBLY STEPS

STEP 1



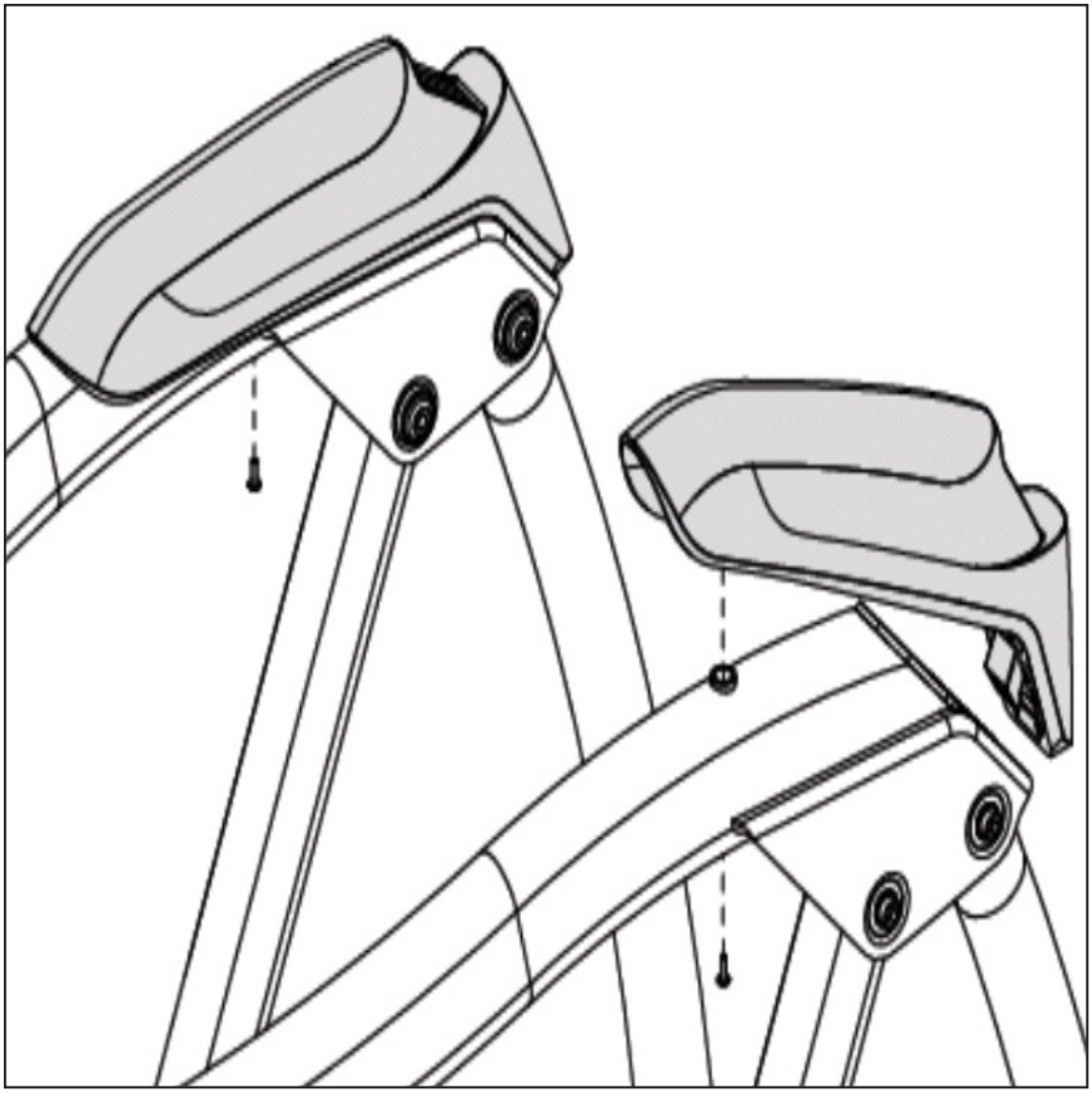
10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 2 - RED HARDWARE BAG



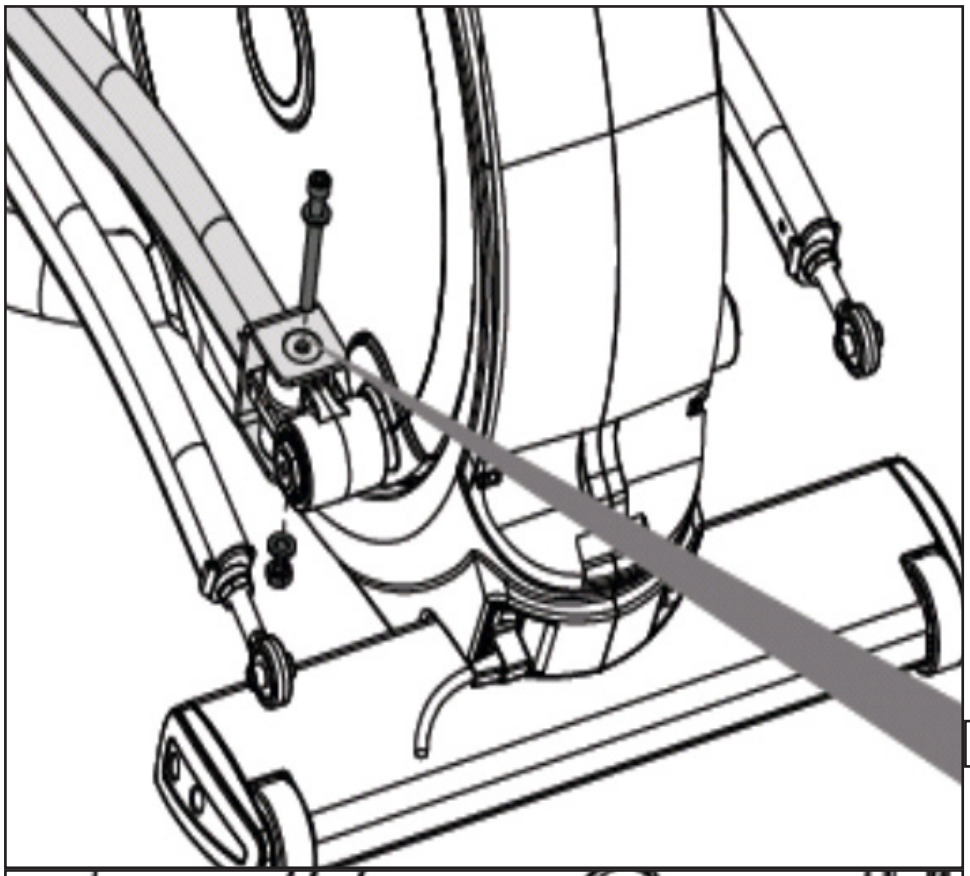
10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 3 - PINK HARDWARE BAG

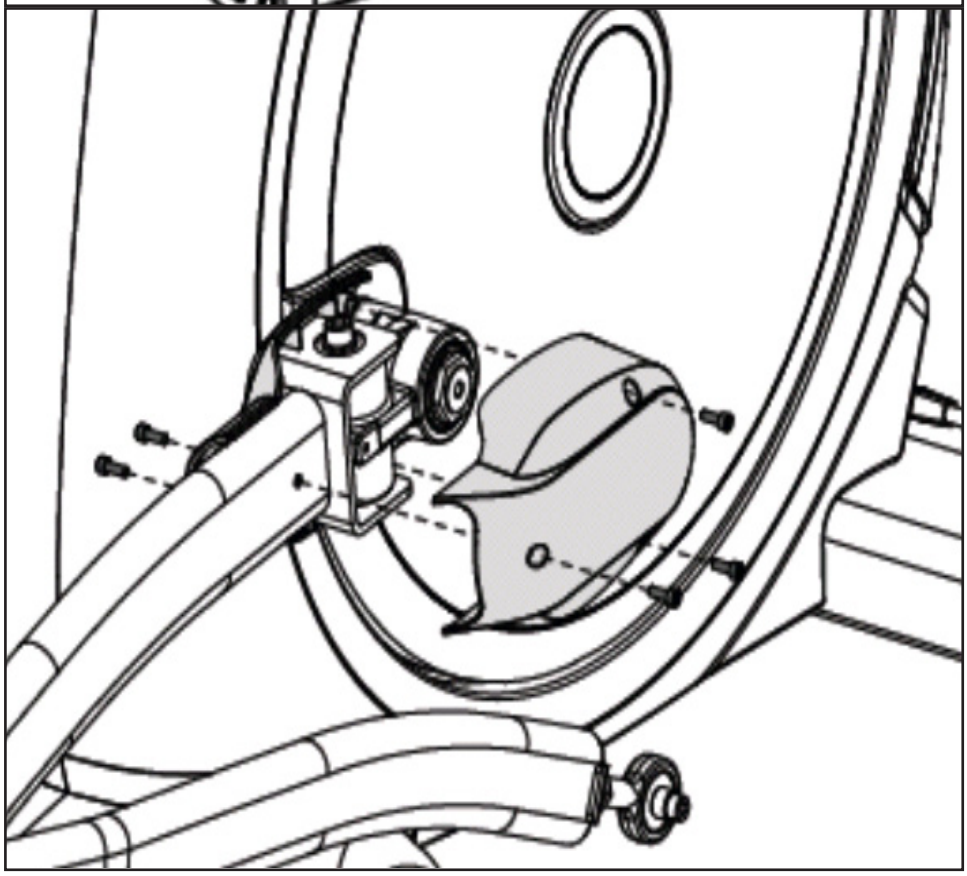


10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

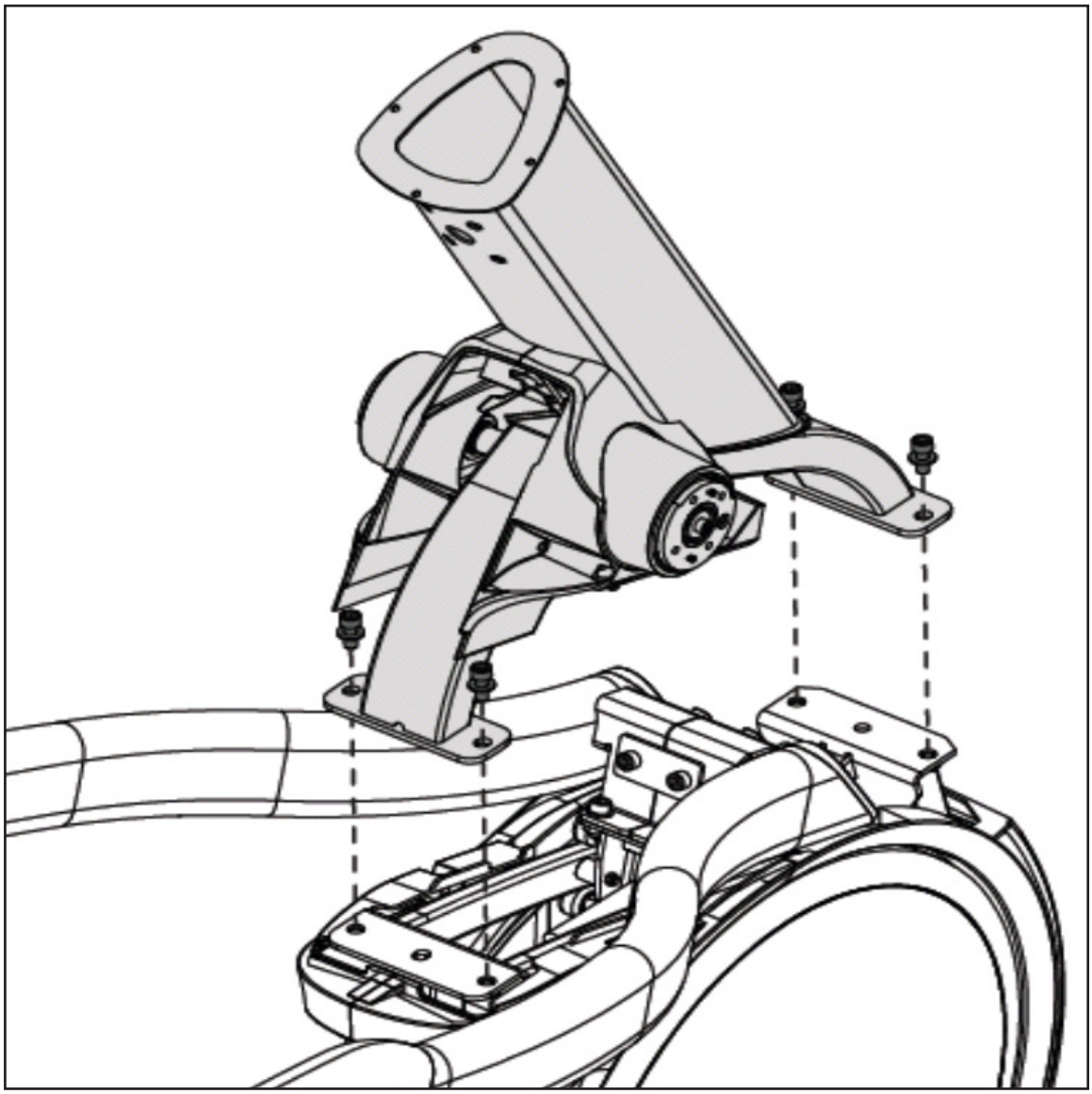
STEP 4 - GREEN / YELLOW HARDWARE BAG



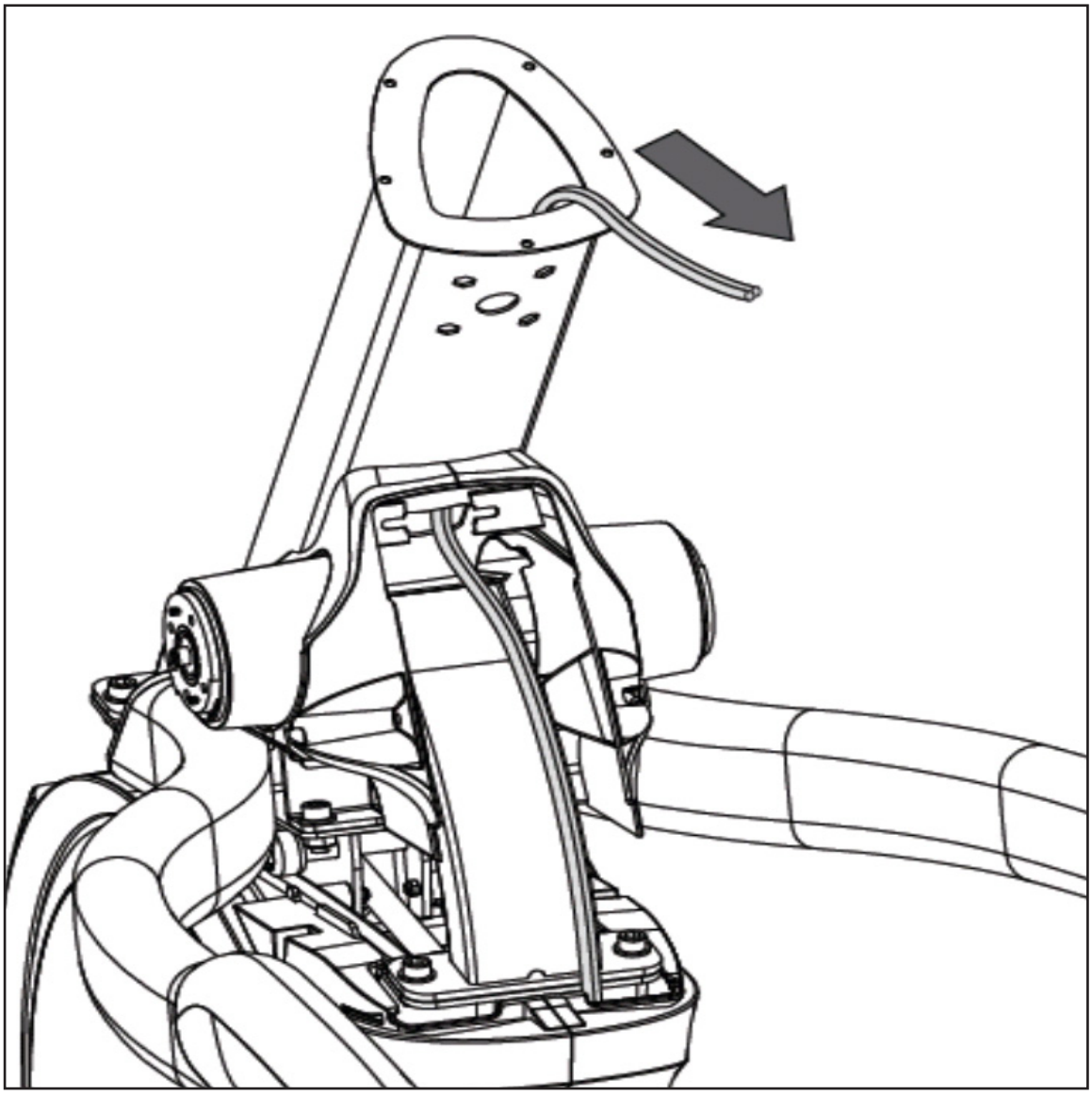
Torque this bolt to 80 N-m.



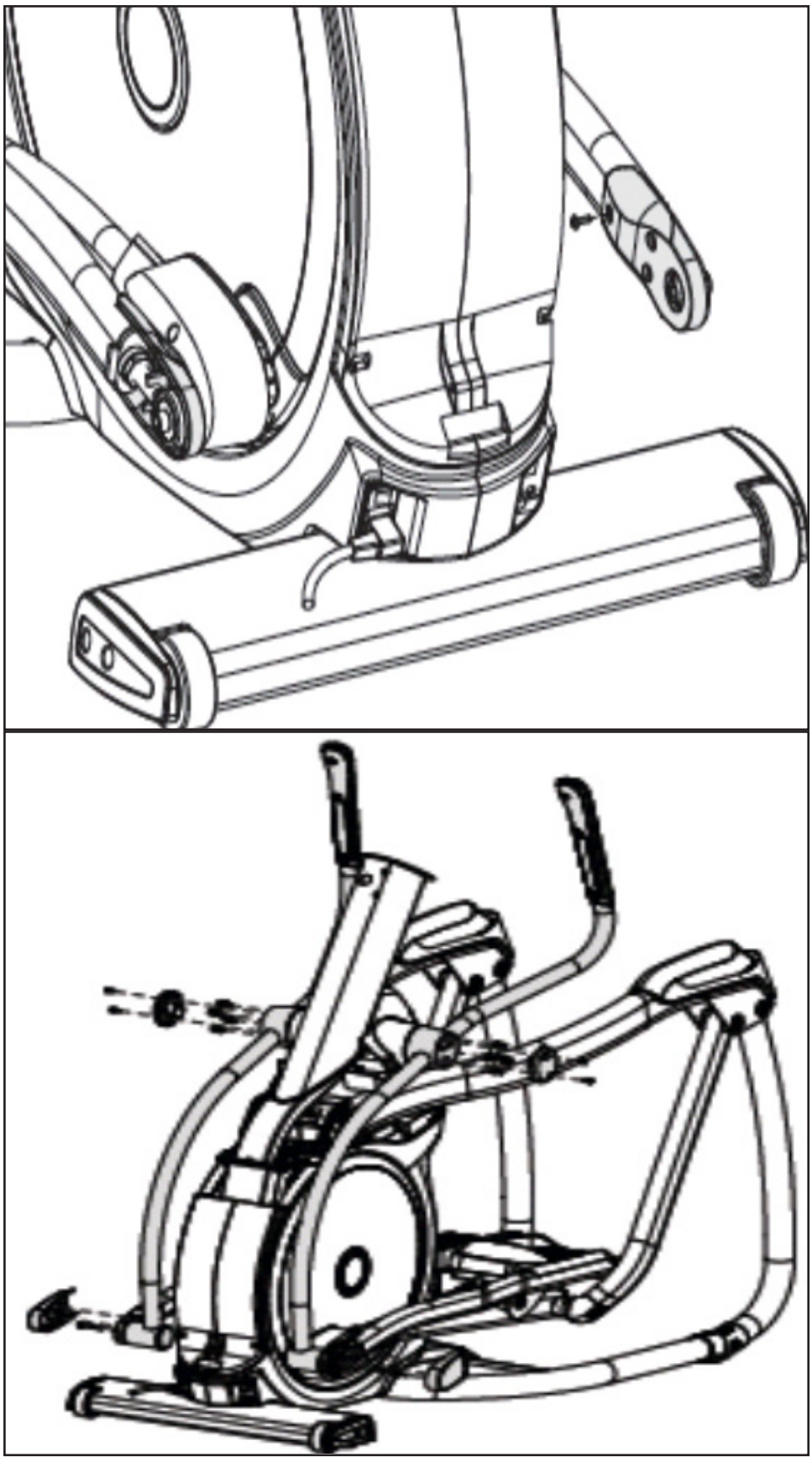
STEP 5 - RED HARDWARE BAG



STEP 6



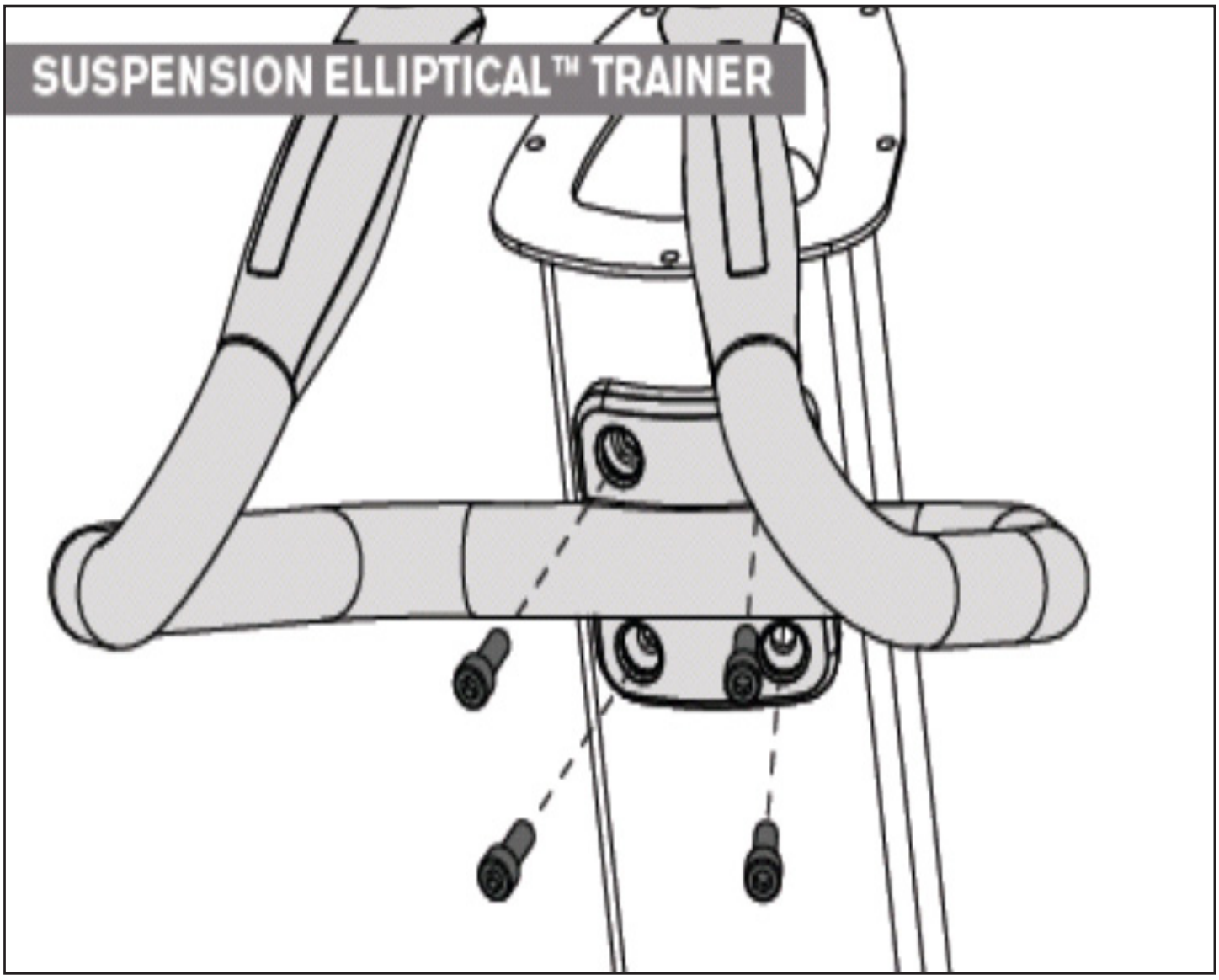
STEP 7 - BLUE / BLACK HARDWARE BAG



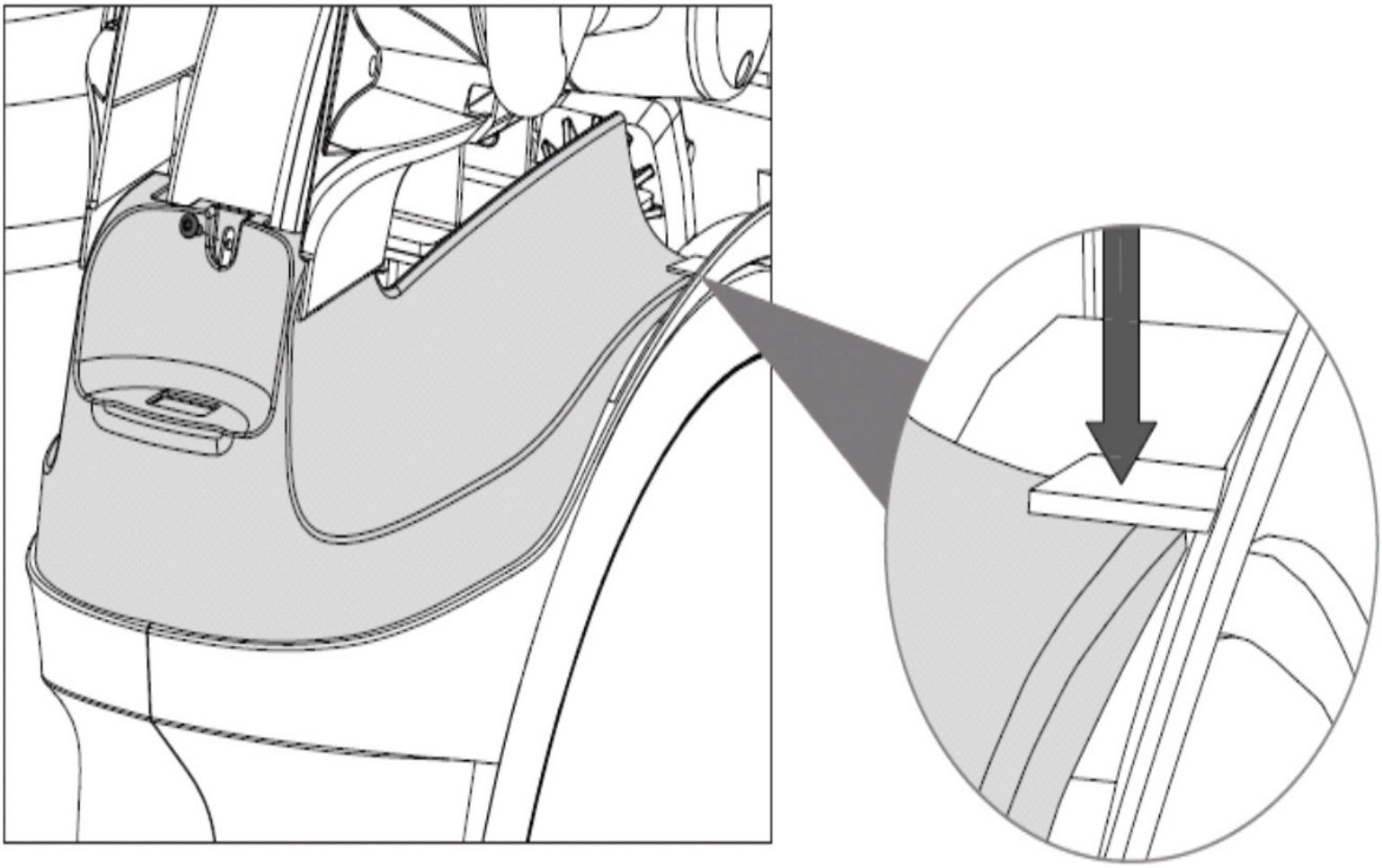
10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 8 - WHITE HARDWARE BAG

NOTE: The A3x has the same handlebar as the Suspension Elliptical

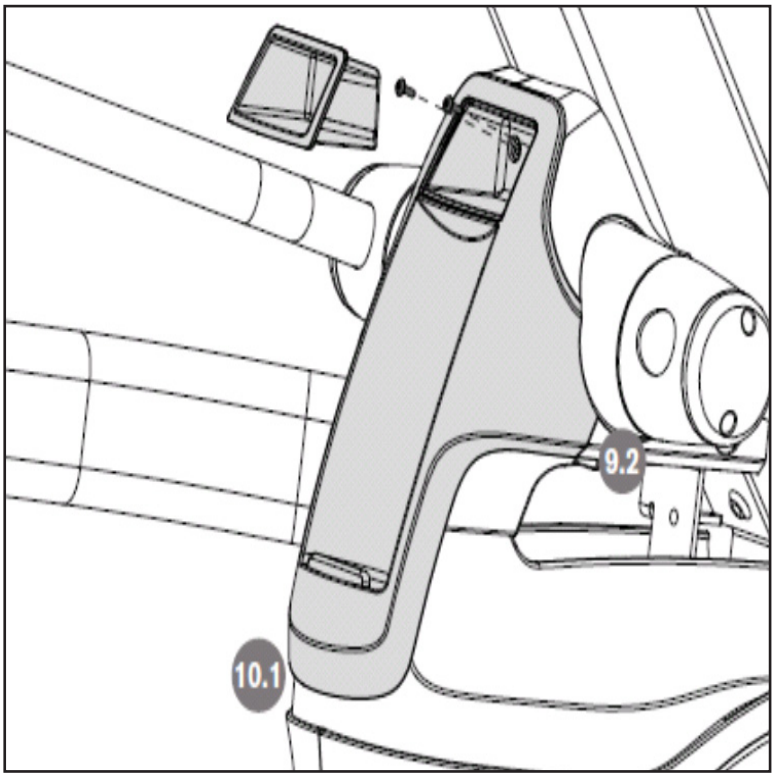


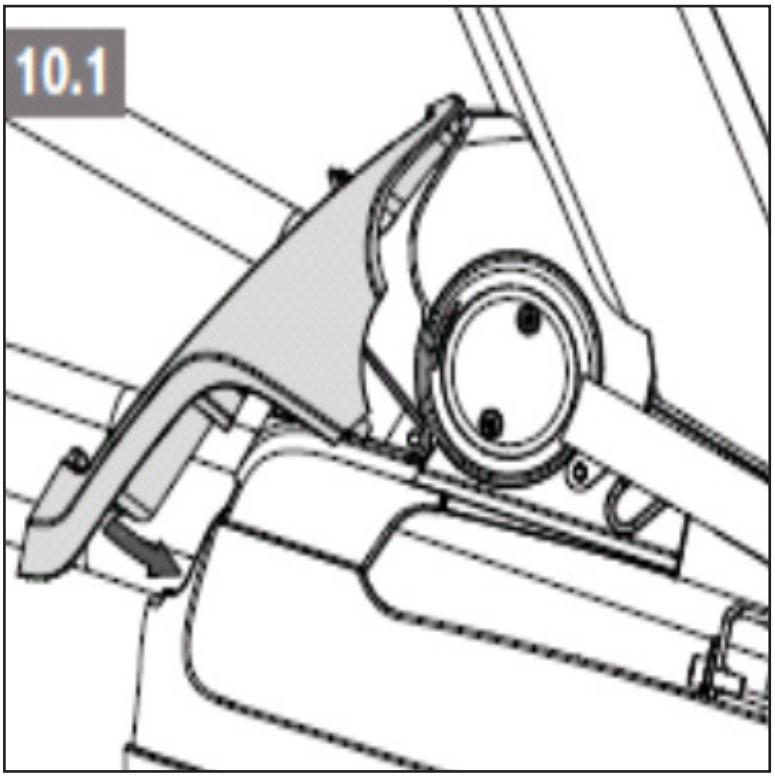
STEP 9 - PINK HARDWARE BAG

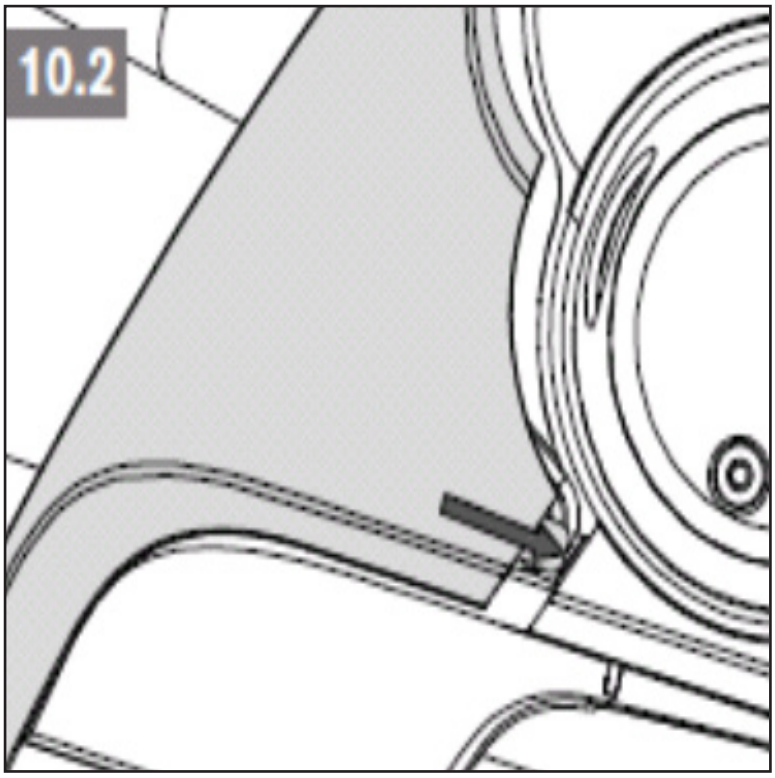


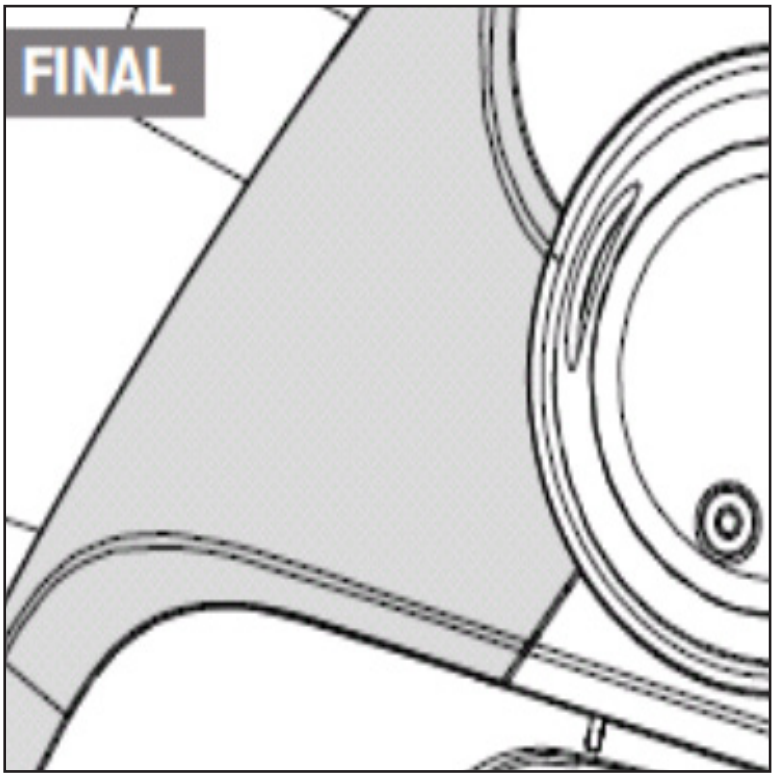
10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 10 - PINK HARDWARE BAG



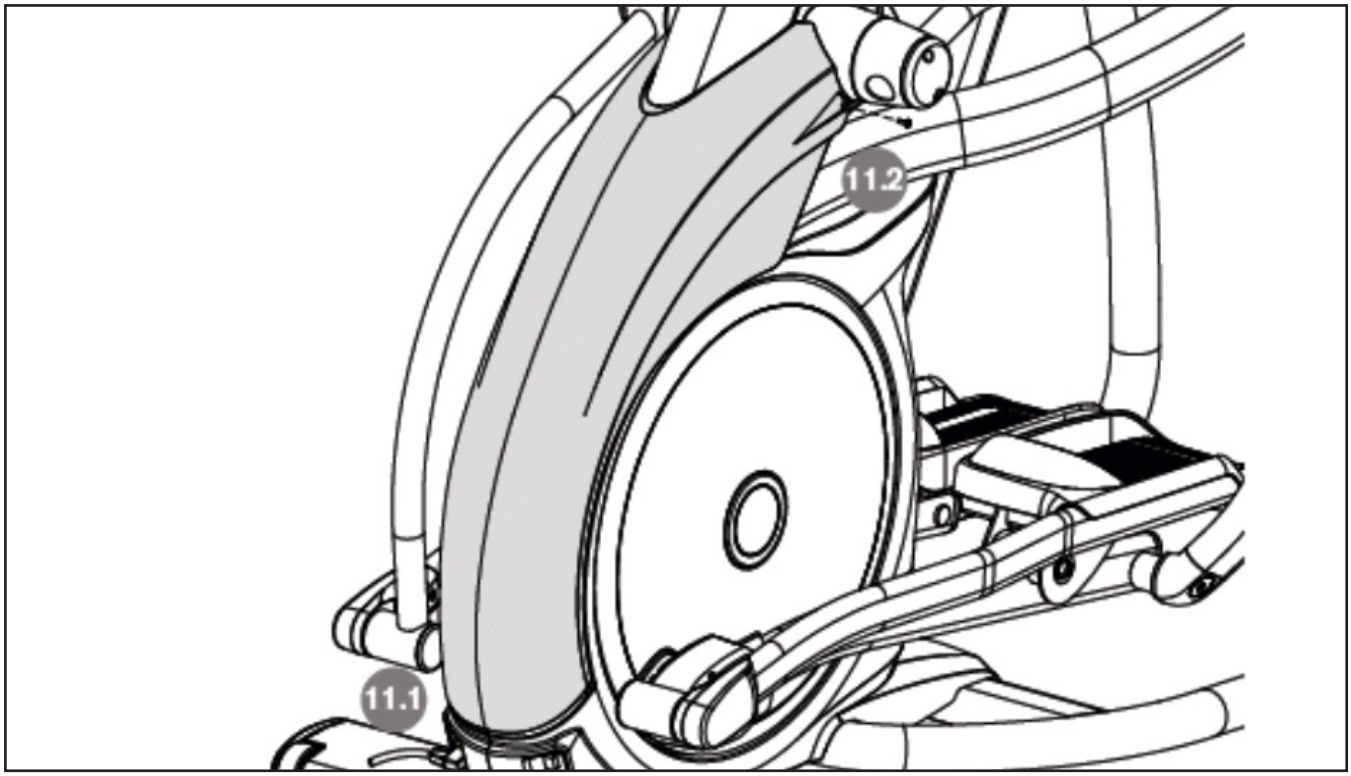


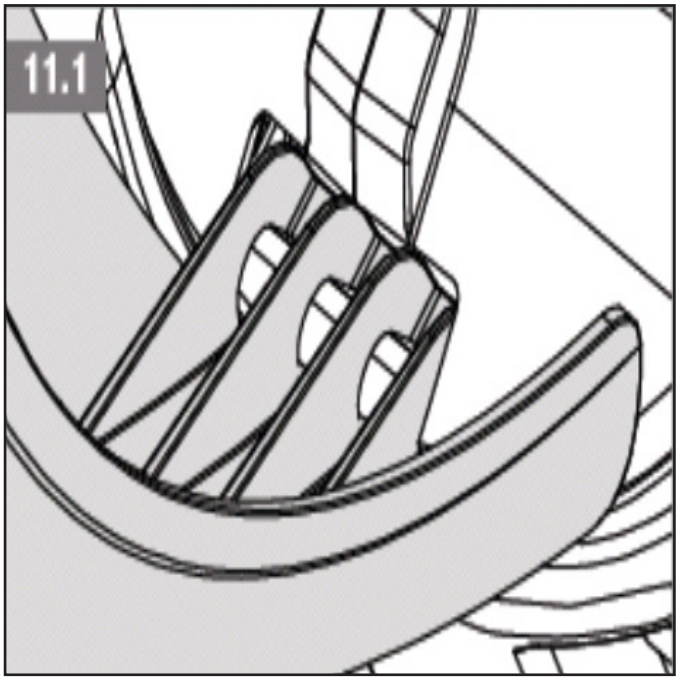


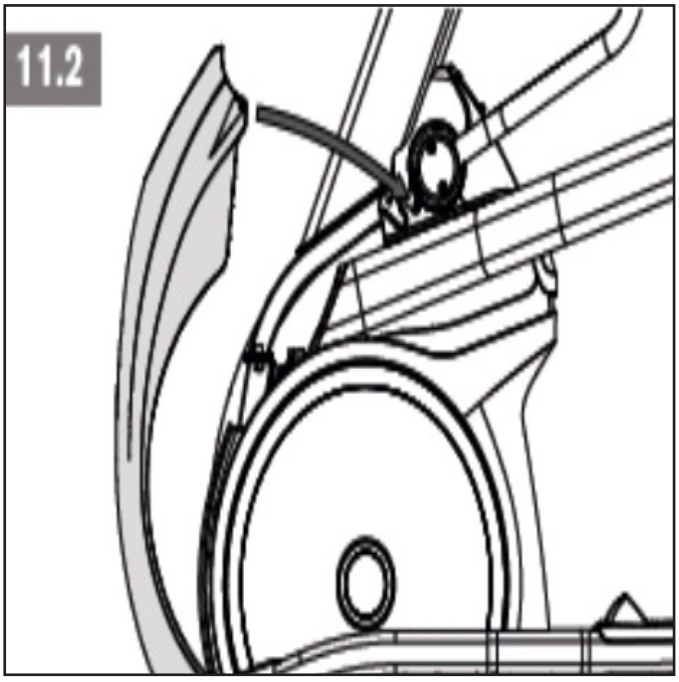


10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

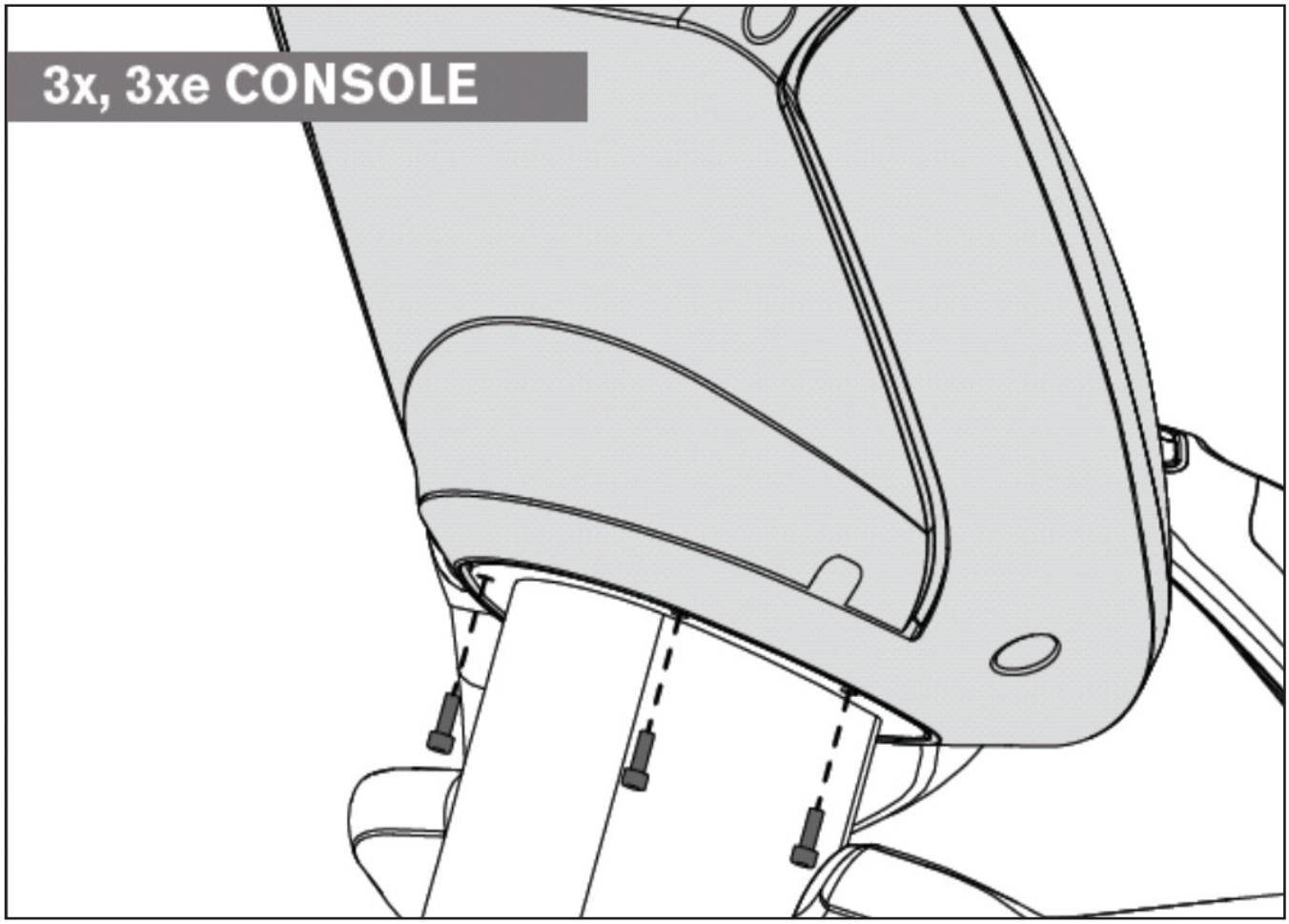
STEP 11 - PINK HARDWARE BAG







STEP 12 - PINK HARDWARE BAG



10.4 STABILIZING THE ASCENT TRAINER

STABILIZING THE MATRIX A3X-02 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).

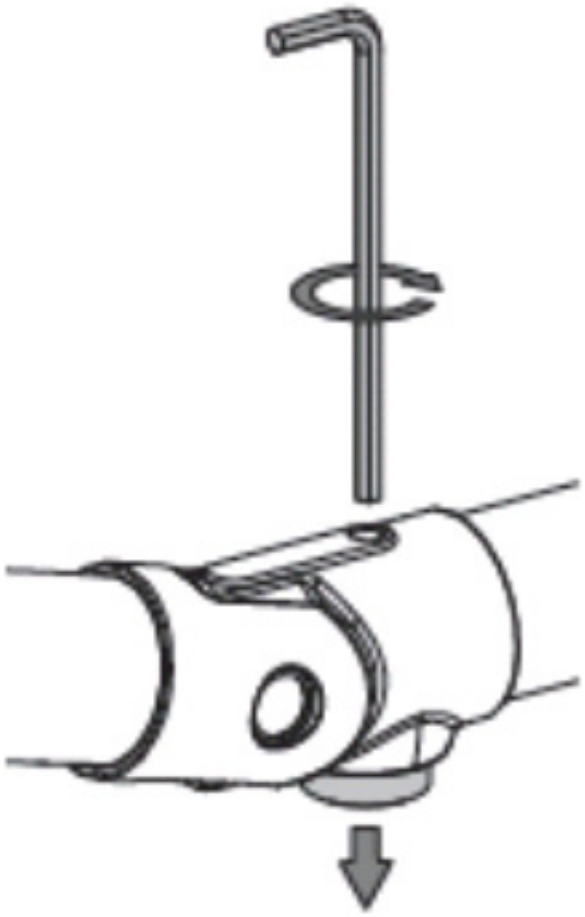


FIGURE A

10.5 TV BRACKET INSTALLATION

The Matrix A3x-02 Ascent Trainer is capable of accepting a 15" TV via a bracket. Follow the instructions below to install the TV and bracket. Use the instructions in the Entertainment Owner's Manual to program the TV after installation.

1) Turn off power and disconnect the power cord.
2) Remove the console from the Ascent Trainer.
3) Remove the 2 screws holding the small silver back cover to the console and remove the back cover (Figures A & B).

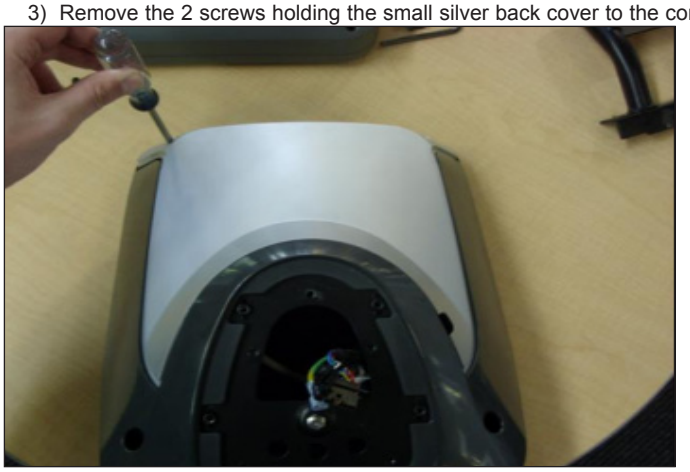


FIGURE A



FIGURE B

4) Remove the 4 screws holding the rear half of the console to the front half and split the console (Figures C & D).

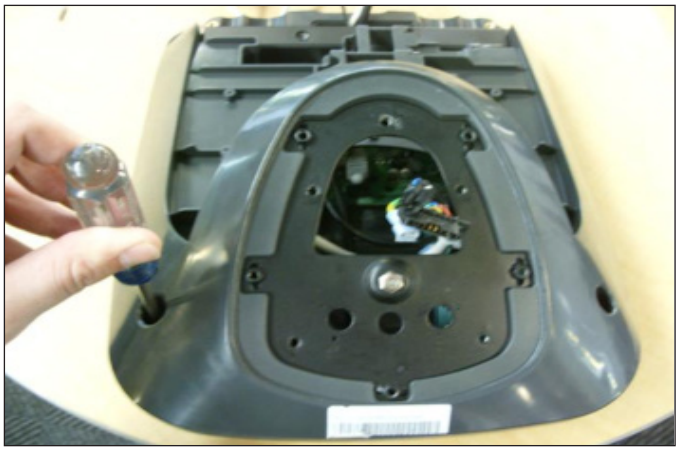


FIGURE C

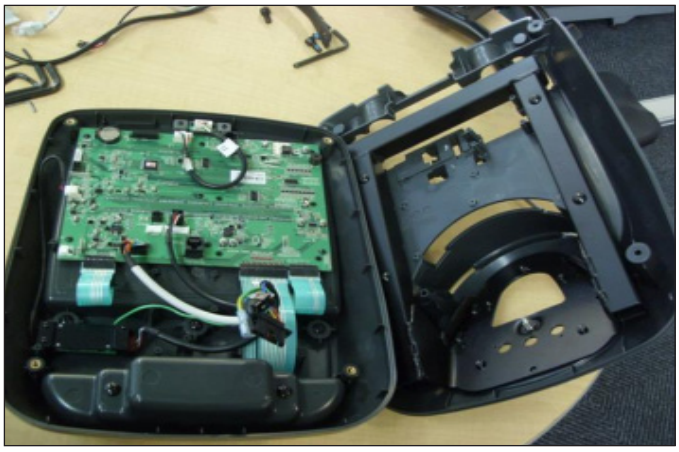


FIGURE D

5) Remove the 5 screws holding the lower keypad plastic to the front of the console and remove the lower keypad plastic (Figures E & F).

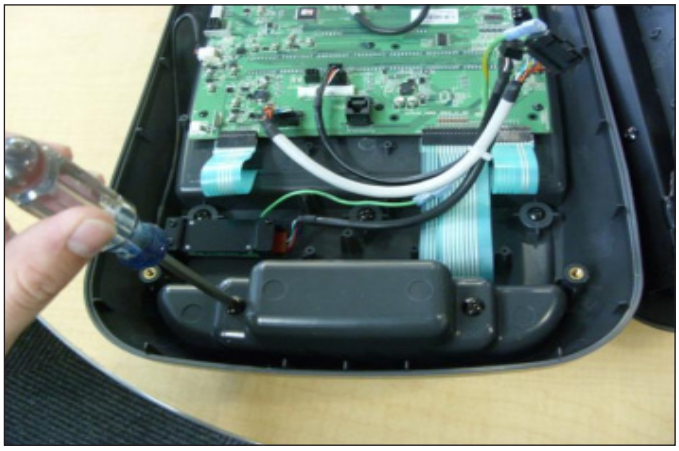


FIGURE E



FIGURE F

10.5 TV BRACKET INSTALLATION - CONTINUED

6) Install a head phone jack to the new lower keypad plastic with the Entertainment keypad (Figure G).
7) Plug the head phone jack wire into the head phone jack (Figure H).



FIGURE G



FIGURE H

8) Install the new lower keypad plastic to the frame using the 5 screws removed in Step 5.
9) Plug the head phone jack wire and entertainment keypad ribbon cable into the UCB (Figures I & J).

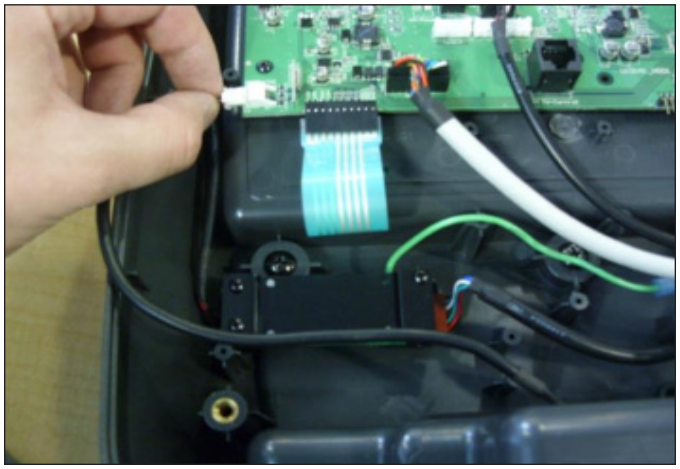


FIGURE I

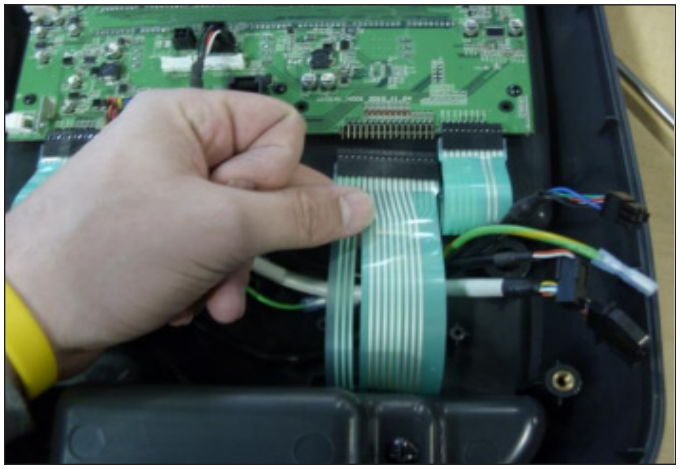


FIGURE J

10) Plug the TV controller wire into the UCB (Figure K).
11) Plug the TV power wire into the UCB (Figure L).

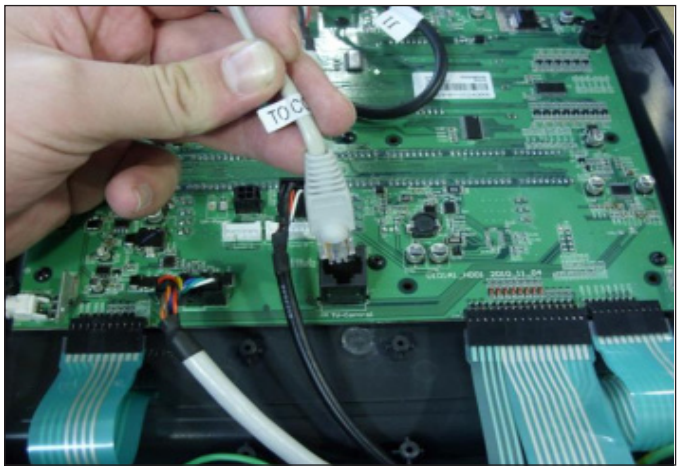


FIGURE K

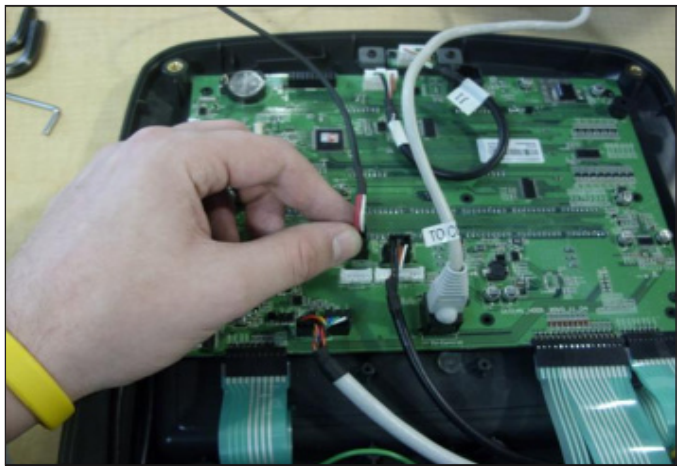


FIGURE L

10.5 TV BRACKET INSTALLATION - CONTINUED

12) Plug the coax cable into the coax adaptor attached to the back half of the console (Figure M).
13) Use the 4 screws removed in Step 4 to re-attach the 2 halves of the console. ***NOTE:*** Route the TV power, coax, and controller wiring through the hole in top of the console. Also make sure that the console cable wires are protruding so that they are accessible (Figure N).



FIGURE M

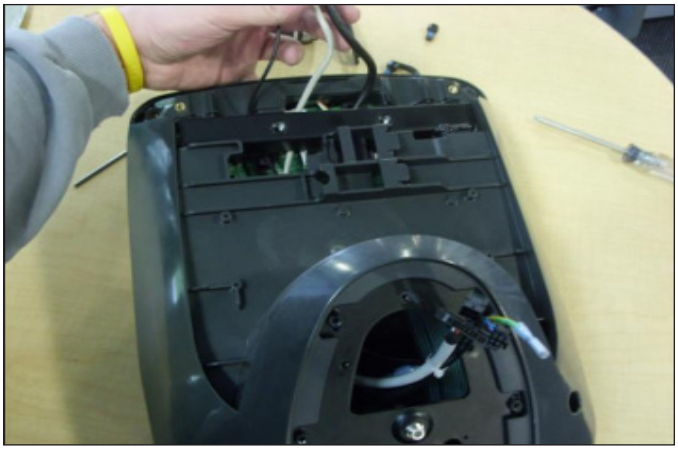


FIGURE N

14) Install the bracket to the console using 4 screws (Figure O).
15) Install the console back onto the console mast and secure it with 5 screws (Figure P). ***NOTE:*** Make sure to tuck all the wiring into the console or mast to prevent any pinching.



FIGURE O



FIGURE P

16) Install the TV onto the bracket making sure that the tabs on the TV lower plastic shield fit into the slots in back of the console (Figure Q), and secure the TV to the bracket with 4 screws (Figure R).

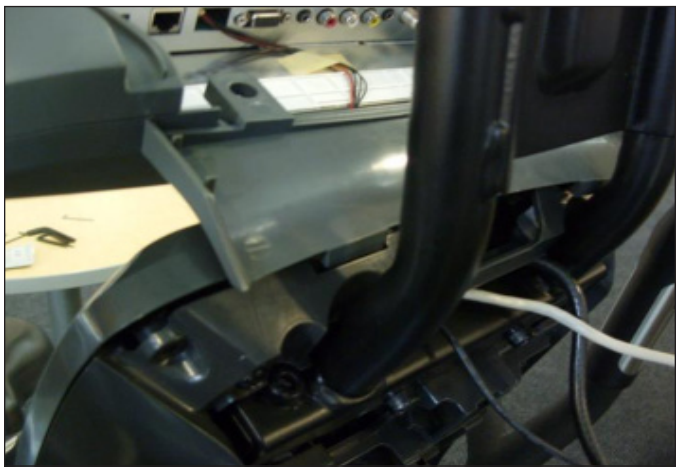


FIGURE Q



FIGURE R

10.5 TV BRACKET INSTALLATION - CONTINUED

17) Route the TV power, controller, and console cables out the back of the console and plug into the back of the TV (Figures S & T).
18) The new TV should now be programmed and thoroughly tested before installing the covers. See Sections 8.9 - 8.12 for TV troubleshooting help if needed.



FIGURE S



FIGURE T

19) Install the console back cover onto the console. ***NOTE:*** You will need to push the top end of the back cover beneath the TV lower plastic cover and route the wiring through the hole in the back cover (Figure U). Once you have the top of the back cover in position, push the lower part of the back cover into position. It should snap into place (Figure V).



FIGURE U



FIGURE V

20) Install the TV back cover onto the unit. ***NOTE:*** You will need to line up the tabs at the bottom of the TV back cover to the slots in the console back cover (Figure W). Secure the TV back cover with 4 screws (Figure X).



FIGURE W



FIGURE X

CHAPTER 11: SOFTWARE UPGRADE PROCEDURE

11.1 SOFTWARE UPGRADE PROCEDURE

1) Turn on the power to the Ascent Trainer, wait until the standard display picture has come up.
2) Enter Manager Mode by pressing and holding the LEVEL UP and DOWN keys simultaneously.
3) Record the Accumulated Mileage, Accumulated Distance, and Serial Number. ***NOTE:*** This information can be lost during the update procedure and should be recorded so that the information can be re-entered into the console once it is updated.
4) Build a path of folders on the USB drive that will be used. The path should be MATRIX\FW\UCB (create a folder called MATRIX, then a folder within MATRIX called FW, then a folder within FW called UCB).
5) Copy the software files into the UCB folder on the USB drive (the path should read \MATRIX\FW\UCB - Figure A).
6) Insert the USB drive into the USB port on the console (Figure B).
7) Follow the sequence below to get to the software wanted. Press TOGGLE DISPLAY 1, TOGGLE DISPLAY 3, TOGGLE DISPLAY 2, RANDOM in sequence (Figure C).
8) Wait until the display shows the message "Please select update name", then press the LEVEL UP or DOWN keys to choose the correct software (if more than one version is on the USB drive). Once the correct software is show, press ENTER and the upgrade procedure will run.
9) When the console beeps and the standard display picture comes back up (Figure B), the upgrade is complete. Remove the USB drive.
10) Enter into Manager Mode (see Section 5.1) and make sure the software version is correct.
11) Enter into Service Mode (See Section 7.1). Enter the values recorded in Step 3 (if needed).
12) Enter into Engineering Mode (See Section 6.1). Check that the Machine Type is correct.
13) Test the Ascent Trainer for function as outlined in Section 9.22.

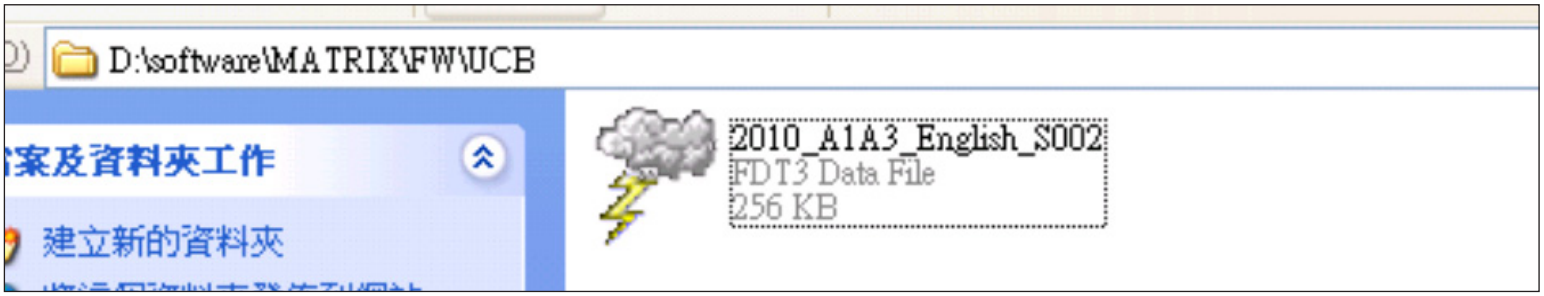


FIGURE A



FIGURE B

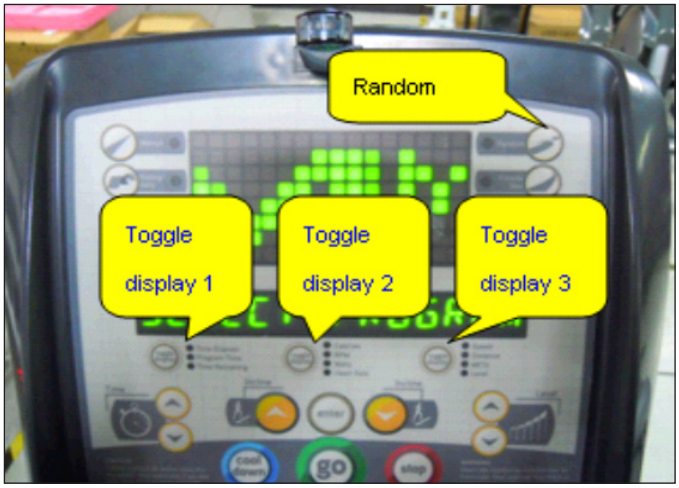


FIGURE C

NOTES



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