MATRIX™

Strong. Smart. Beautiful.

T3XE-03(TOPTECH MCB) TREADMILL SERVICE MANUAL

TABLE OF CONTENTS

CHAPTER 1: SERIAL NUMBER LOCATION 1

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.1 Before Getting Started 2
2.2 Read and Save These Instructions 3
2.3 Electrical Requirements 4

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.1 Recommended Cleaning Tips 5
3.2 Check for Damaged Parts 5
3.3 Care and Maintenance Instructions 6
3.4 Auto Calibration Instructions 7
3.5 Adjusting the Running Belt 7
3.6 Knowing When to Replace the Running Belt / Deck 8

CHAPTER 4: USING THE CONSOLE AND PROGRAM DESCRIPTION

4.1 Console Description 9
4.2 Manual Workout Operation 10
4.3 Operating Level Based Programs 10
4.4 Target Heart Rate Control Workout Operation 11
4.5 Gerkin Fitness Test Workout Operation 11

CHAPTER 5: MANAGER MODE

5.1 Manager Mode Overview 13
5.2 Manager Mode - About Tab 14
5.3 Manager Mode - Time Tab 14
5.4 Manager Mode - Speed Tab 15
5.5 Manager Mode - Default Tab 16
5.6 Manager Mode - Language Tab 17
5.7 Manager Mode - TV Tab 18
5.8 Manager Mode - Other Tab 18

CHAPTER 6: ENGINEERING MODE

6.1 Engineering Mode Overview 19
6.2 Engineering Mode - Calibration Tab 19
6.3 Engineering Mode - Errors Tab 20
6.4 Engineering Mode - Statistics Tab 20
6.5 Engineering Mode - Clubs Tab 21
6.6 Engineering Mode - Club ID Tab 21

CHAPTER 7: SERVICE MODE:

7.1 Service Mode Overview 22
7.2 Service Mode - Setup Tab 23
7.3 Service Mode - Test Tab 25
7.4 Service Mode - Log Tab 26
7.5 Service Mode - Date & Time Tab 27

CHAPTER 8: TROUBLESHOOTING

8.1 Electrical Diagram 28
8.2 MCB Wiring 31
8.3 MCB LED Placement and Definitions 32
8.4 Error Messages on the Console 33
8.5 0140 / 01A0 Error Troubleshooting 34
8.6 01A4 / 01A5 / 01A6 Error Troubleshooting 35
8.7 01A8 / 01AD / 02B6 / 02B7 / 02B8 Error Troubleshooting 35
8.8 01AB Error Troubleshooting 36
8.9 02A0 Error Troubleshooting 37
8.10 02A1 / 02A2 Error Troubleshooting 38

TABLE OF CONTENTS

8.11 02AD Error Troubleshooting 38
8.12 02B5 Error Troubleshooting 39
8.13 02B3 / 02BA / 02BC / 02BD Error Troubleshooting 40
8.14 04A0 Error Troubleshooting 40
8.15 Troubleshooting Heart Rate Issues 41
8.16 Troubleshooting - TV Reception Issues 42

CHAPTER 9: PART REPLACEMENT GUIDE

9.1 Motor Cover Replacement 43
9.2 Rear Roller Replacement 44
9.3 Deck Removal 45
9.4 Deck Cushion Replacement 46
9.5 Front Roller Replacement 47
9.6 Running Belt Removal 48
9.7 Side Rail Replacement 49
9.8 Motor Control Board (MCB) Replacement 50
9.9 Motor Replacement 51
9.10 Drive Belt Replacement 53
9.11 Incline / Elevation Motor Replacement 54
9.12 Console Replacement 57
9.13 Emergency Stop Switch Replacement 58
9.14 Console Frame Replacement 60
9.15 Heart Rate Board Replacement 61
9.16 Speed and Incline Keypads Replacement 62
9.17 Handlebar Replacement 63
9.18 Heart Rate Handlebar Replacement 64
9.19 Heart Grips Replacement 65
9.20 Console Mast Replacement 66
9.21 Testing the Treadmill 67

CHAPTER 10: TREADMILL SPECIFICATIONS AND ASSEMBLY GUIDE

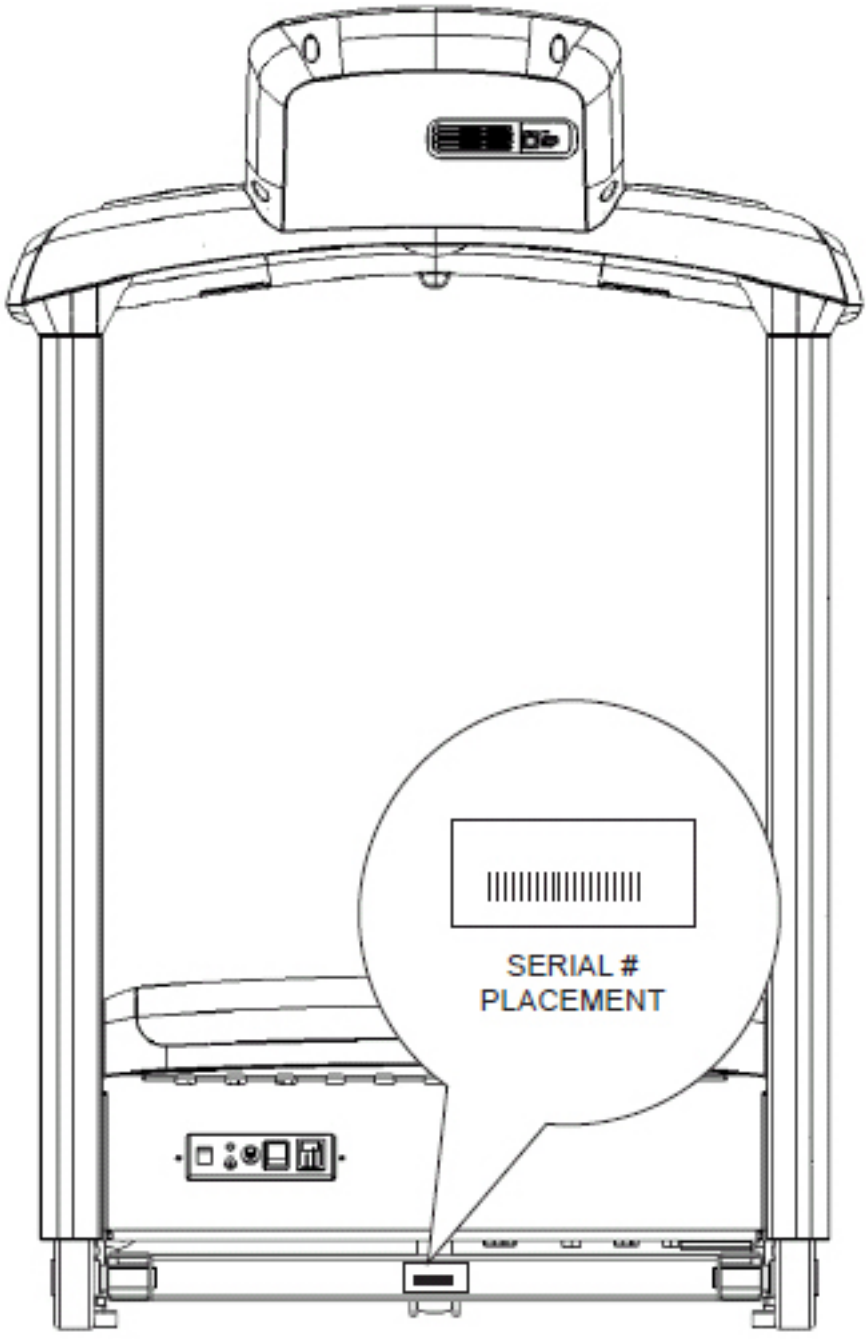
10.1 Treadmill Specifications 68
10.2 Fasteners and Assembly Tools 69
10.3 Assembly Instructions 70
10.4 TV Programming Instructions 74

CHAPTER 11: SOFTWARE UPGRADE INSTRUCTIONS

11.1 Software Upgrade Instructions 77

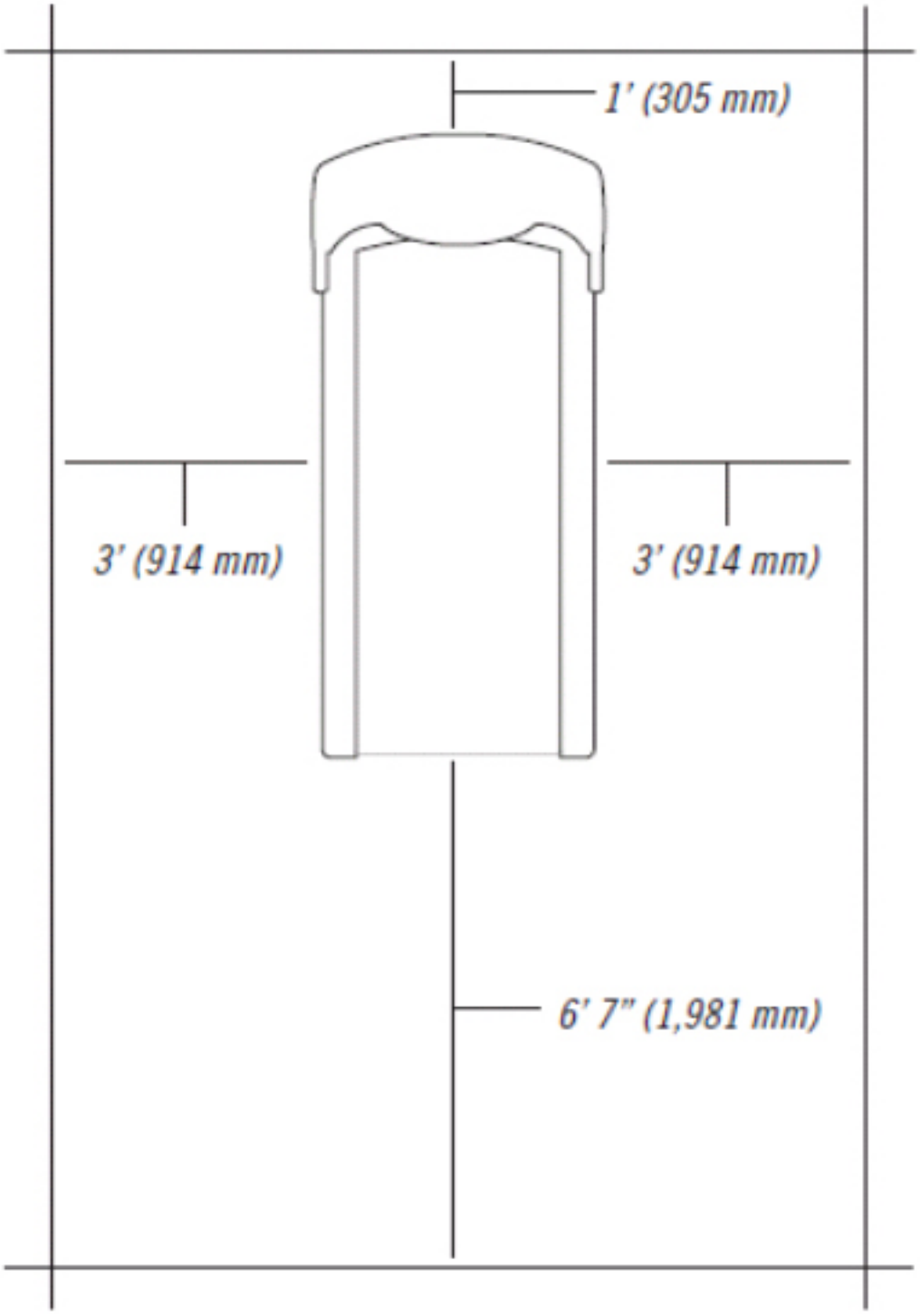
CHAPTER 1: SERIAL NUMBER LOCATION

1.1 SERIAL NUMBER LOCATION



2.1 BEFORE GETTING STARTED

This treadmill is intended for commercial use. To ensure your safety and protect the equipment, read all instructions before operating the Matrix Treadmill.



Please leave a 78.75" (2000 mm) x 39.50" (1000 mm) landing zone behind the treadmill. This zone is to allow easy access to the treadmill and gives the user an easy exit path from the machine. In case of an emergency, place both hands on the side arm rests to hold yourself up and place your feet onto the side rails.

2.2 READ AND SAVE THESE INSTRUCTIONS

This treadmill is intended for commercial use. To ensure your safety and protect the equipment, read all instructions before operating the MATRIX T3xe-03 treadmill.
When using an electrical product, basic precautions should always be followed including the following:

DANGER: To reduce the risk of electric shock: Always unplug this equipment from the electrical outlet immediately after using and before cleaning.

WARNING: To reduce the risk of burns, fire, electrical shock or injury to persons that may be associated with using this product.

An appliance should never be left unattended when plugged in. Unplug from the outlet when not in use and before putting on or taking off parts.

This product must be used for its intended purpose described in this service manual. Do not use other attachments that are not recommended 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 treadmill with the air opening blocked. Keep the air opening clear, free of lint and hair.

Never operate product if it has a damaged cord or plug, if it is working improperly, if it has been damaged, or immersed in water.

Do not carry this unit by its supply cord or use the cord as a handle.

Keep any power cord away from heated surfaces.

Close supervision is necessary when the treadmill is used by or near children or disabled 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 plug from the outlet.

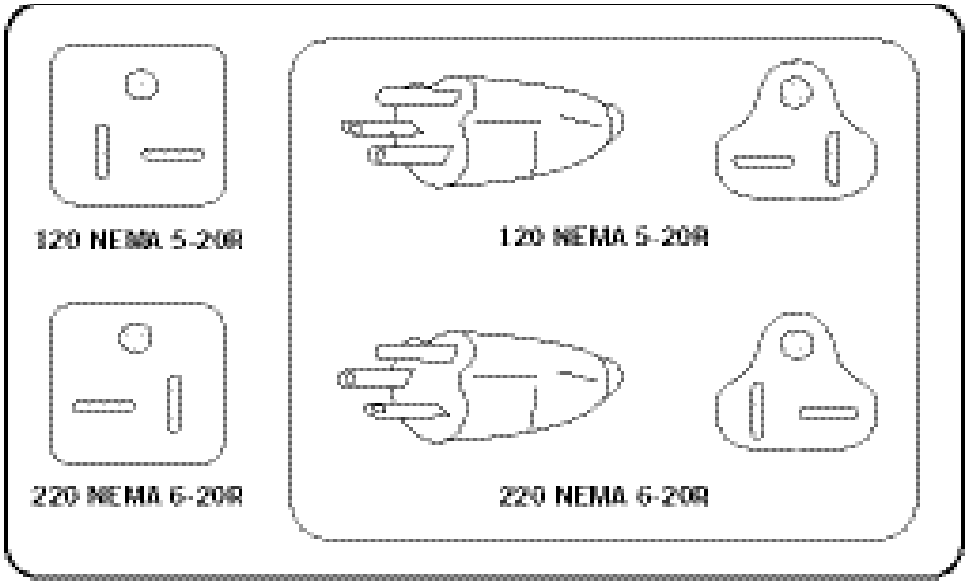
Connect this treadmill to properly grounded outlets only.

CAUTION: If you experience chest pain, nausea, dizziness or shortness of breath, STOP exercising immediately and consult a physician before continuing.

- Do not use the equipment in any way other than designed or intended by the manufacturer. It is imperative that all Matrix Fitness System's 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 equipment.

2.3 ELECTRICAL REQUIREMENTS

For your safety and to ensure good treadmill performance, the ground on this circuit must be non-looped. Please refer to NEC articles 210-21 and 210-23. Your treadmill 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 of this product..



MATRIX DEDICATED CIRCUIT / ELECTRICAL REQUIREMENT INFO

All Matrix treadmills require the use of a 20 amp "dedicated circuit" with a non-looped (isolated) neutral / ground for the power requirement. Quite simply this means that each outlet you plug your treadmill into should not have anything else running on that same 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 is the treadmill. 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 feet or less, then 12 gauge wire may be used. For any distance greater than 100 feet from the circuit breaker box to the outlet, 10 gauge wire must be used.

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.1 RECOMMENDED CLEANING TIPS

Preventative maintenance and daily cleaning will prolong the life and look of your MATRIX T3xe-03 Treadmill.

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 rails, console, 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 the running belt for proper tension and routing.
- Adjust the 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 at 866-693-4863 or www.matrixfitness.com.

MAINTAIN ALL EQUIPMENT. Preventative maintenance is the key to smoothly operating equipment. Equipment needs to be inspected at regular intervals. Defective components must be kept out of use until they are 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 INSTRUCTIONS

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

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

You may periodically see addendums to this document, as the Matrix Technical Support Team identifies items that require specific attention, the latest version will always be available on the Matrix web site at 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 MUST be alcohol and ammonia free).
2) Check the emergency stop button and cord for proper operation.

MONTHLY MAINTENANCE ITEMS

1) Inspect the power cord for damage, inspect the hand grip areas, and inspect the emergency stop button and cord for proper operation.
2) Check the running belt for proper tension, adjust as needed.

QUARTERLY MAINTENANCE ITEMS

1) Remove the front plastic cover, and vacuum the entire inside area of machine. Be careful when working around the MCB not to bump any wires or connections loose.

2) Check the drive belt for visible wear, ie, cracking, tears, etc. The belt should be replaced if there are any visible signs of damage. Proper alignment of the pulley / tensioner should be verified at this time as well.

3) Remove the motor cover at the front of the machine. Start the unit and raise the incline settings to maximum height. Turn the power switch off at the front of the machine to prevent it from lowering accidentally. Lubricate the incline motor Acme screw (Matrix recommends Super Lube brand grease with PTFE additive).

BI-ANNUAL MAINTENANCE ITEMS

1) Remove any wax build up from the front and rear rollers of the machine.
2) Inspect the underside of the running belt for damage, check for cracking or glazed surfaces.
3) If the belt has damage or wear to it that warrants replacement, note that a new running belt should ALWAYS be installed on a new deck surface (deck should either be flipped or replaced to gain a new surface).
4) During normal operating conditions, the running belt replacement and deck service should be done every 15,000 miles.

3.4 AUTO CALIBRATION INSTRUCTIONS

Run Auto Calibration to calibrate incline after assembly and after replacing any electronic component.

AUTO CALIBRATION PROCEDURE:

1) Press ENTER, 2, 0, 0, 1, then ENTER. Engineering Mode will appear on the display.

2) Press the button next to CALIBRATION..

3) Press the button next to AUTO CALIBRATION. You SHOULD NOT be standing on the unit while it is calibrating.

4) After completion, the display will state either Complete or Auto Calibration failed.

5) Press the button next to BACK then the button next to HOME to return to normal operation mode. You can also press the Emergency Stop.

3.5 ADJUSTING THE RUNNING BELT

After placing the treadmill in the position it will be used, the belt must be checked for proper tension and centering. The belt may need to be adjusted after the first 2 hours of use. Temperature, humidity, and use cause the belt to stretch at different rates. If the belt starts to slip when a user is on it, be sure to follow the directions below.

STEP 1: Locate the two hex head bolts on the rear of the treadmill. The bolts are located at each end of the frame at the back of the treadmill. These bolts adjust the rear roller. Do not adjust until the treadmill is on. This will prevent over tightening of one side.

STEP 2: The belt should have equal distance on either side between the frame. If the belt is touching one side, do not start the treadmill. Turn the bolts counter clockwise approximately one full turn on each side. Manually center the belt by pushing the belt from side to side. Tighten the bolts the same amount as when the user loosened them, approximately one full turn. Inspect the belt for damage.

STEP 3: While the treadmill is running at 3 mph, observe the belt position. If it is moving to the right, tighten the right bolt by turning it clockwise 1/4 turn, and loosen the left bolt 1/4 turn. If it is moving to the left, tighten the left bolt by turning it clockwise 1/4 turn and loosen the right 1/4 turn. Repeat Step 3 until the belt remains centered for several minutes.

STEP 4: Check the tension of the belt. The belt should be very snug. When a person walks or runs on the belt, it should not hesitate or slip. If this occurs, tighten the belt by turning both bolts clockwise 1/4 turn. Repeat if necessary.

3.6 KNOWING WHEN TO REPLACE THE RUNNING BELT AND DECK

One of the most common wear and tear items on a treadmill is the deck and belt combination. If these two items are not properly maintained, they can cause damage to other components. Always keep your deck and belt free of dirt and dust by wiping the edges of the belt and deck and up to 2" under the belt with a clean dry cloth.

To tell if your deck and belt combination needs to be replaced:

1) Have someone between 150-200lbs run on the treadmill at about 3 MPH.

2) Use a multi - meter to measure the amp draw with the user running. During normal use, the amp draw should be close to 5 amps. If the amp draw is significantly higher than 5 amps, replace the belt and / or flip / replace the running deck.

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 T3XE-03 CONSOLE DESCRIPTION



MULTI-PURPOSE KEYS: Keys have different functions depending on each screen.

GO: One touch Start and Quick Start.

ENTER: To confirm each program setting.

UP / DOWN INCLINE: Easy information and incline selection.

UP / DOWN SPEED: Easy information and speed selection.

UP / DOWN TIME: Easy information and time adjustment.

EMERGENCY STOP / IMMOBILIZATION: To stop all functions and immobilize the unit. The emergency stop on this treadmill must be returned to its original position in order to allow normal operation of the unit.

STOP: Ends workout and shows workout summary data.

PAUSE: Pauses workout. Pause duration can be set in Manager Mode.

NUMBER KEYPAD: Workout data input for workout setup. Speed adjustment during workout.

COOL DOWN: Puts treadmill into Cool Down mode. Cool Down time is dependent on the length of the workout. Workouts 19 minutes and shorter will have a cool down length of 2 minutes. Workouts 20 minutes and longer will have a cool down length of 5 minutes.

T3XE ENTERTAINMENT ZONE

POWER: Allows the user to cycle through console display options, TV, or profile display.

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

NUMBER KEYPAD: Allows for easy TV channel selections. These buttons work for either the add on TV or the integrated console TV.

CHANNEL UP / DOWN: Allows for channel selection on either the add on TV or the integrated console TV.

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

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

4.2 MANUAL WORKOUT OPERATION

QUICK START OPERATION

Press the GO button(s) and the treadmill will enter into a manual mode of operation. All energy expenditure values will be calculated using the default weight measurement.

MANUAL WORKOUT OPERATION

Manual is a workout that allows you to manually adjust the speed and incline values at anytime. The manual workout also contains a setup screen which allows you to input your weight to help calculate a more accurate caloric burn rate.

To enter into this Manual Workout:

1) Choose the Manual Workout by selecting the MANUAL WORKOUT button and press ENTER.
2) Enter the desired workout length using the INCLINE or SPEED KEYS and press ENTER.
3) Enter the user's weight (the user's weight is used to calculate the caloric expenditure value-providing an accurate weight helps to ensure an accurate caloric expenditure rating for each user) using the INCLINE or SPEED KEYS and press ENTER.
4) Enter the desired initial incline value using the INCLINE or SPEED KEYS and press ENTER.
5) Enter the desired start speed using the INCLINE or SPEED KEYS and press ENTER.
6) Press GO to begin the workout. The display will read 3, 2, 1, and then the workout will begin.

4.3 LEVEL BASED WORKOUT OPERATION

Your Matrix T3xe-03 Treadmill offers a variety of level-based workouts to challenge users of all fitness levels. The following information will briefly explain the workouts and how to program the treadmill for each workout selection.

ROLLING HILLS WORKOUT OPERATION

Rolling Hills is a level based workout that automatically adjusts the incline value to simulate walking or running up hills.

1) Choose the Rolling Hills workout by selecting the ROLLING HILLS workout button and press ENTER.
2) Enter the desired intensity using the INCLINE or SPEED KEYS and press ENTER.
3) Enter the desired workout length using the INCLINE or SPEED KEYS and press ENTER.
4) Enter the user's weight (the user's weight is used to calculate the caloric expenditure value, providing an accurate weight helps to ensure an accurate caloric expenditure rating for each user) using the INCLINE or SPEED KEYS and press ENTER.
5) Press GO to begin the workout. The display will read 3, 2, 1, and then the workout will begin.

FAT BURN WORKOUT OPERATION

Fat Burn is a level-based workout that is designed to help users burn fat through various incline changes.

1) Choose the Fat Burn workout by selecting the FAT BURN workout button and press ENTER.
2) Enter the desired intensity level using the INCLINE or SPEED KEYS and press ENTER.
3) Enter the desired workout length using the INCLINE or SPEED KEYS and press ENTER.
4) Enter the user's weight (the user's weight is used to calculate the caloric expenditure value, providing an accurate weight helps to ensure an accurate caloric expenditure rating for each user) using the INCLINE or SPEED KEYS and press ENTER.
5) Press GO to begin the workout. The display will read 3, 2, 1, and then the workout will begin.

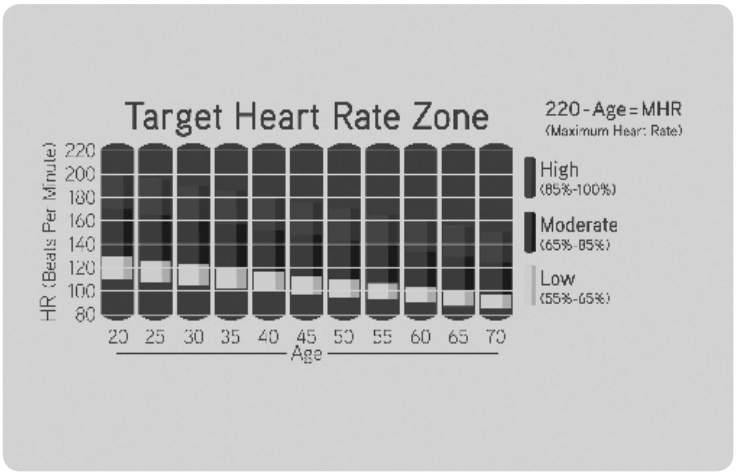
5K RUN WORKOUT OPERATION

5K Run is a level-based workout with a fixed distance of 5 kilometers. Incline is adjusted automatically throughout the workout. You control the speed.

1) Choose the 5K Run workout by selecting the 5K RUN workout button and press ENTER.
2) Enter the desired intensity level using the INCLINE or SPEED KEYS and press ENTER.
3) Enter the user's weight (the user's weight is used to calculate the caloric expenditure value, providing an accurate weight helps to ensure an accurate caloric expenditure rating for each user) using the INCLINE or SPEED KEYS and press ENTER.
4) Press GO to begin the workout. The display will read 3, 2, 1, and then the workout will begin.

4.4 HEART RATE CONTROL WORKOUT OPERATION

Your Matrix T3xe-03 Treadmill offers a heart rate control workout mode. The heart rate control workout mode allows the user to program their desired heart rate zone and maximum allowable incline and the treadmill will automatically adjust the incline based upon the user's heart rate. The heart rate zone is calculated using the following equation: (220-Age)*%=target heart rate zone. The user must wear a telemetric heart rate monitor or continually hold onto the contact heart rate grips for his workout.



1) Choose the Target Heart Rate workout by selecting the HEART RATE workout button and press ENTER.
2) Enter the user's age using the INCLINE or SPEED KEYS and press ENTER.
3) Enter the desired percent of maximum heart rate using the INCLINE or SPEED KEYS and press ENTER.
4) Enter the user's weight (the user's weight is used to calculate the caloric expenditure value, providing an accurate weight helps to ensure an accurate caloric expenditure rating for each user) using the INCLINE or SPEED KEYS and press ENTER.
5) Press GO to begin the workout. The display will read 3, 2, 1, and then the workout will begin.

4.5 FITNESS TEST WORKOUT OPERATION

Your Matrix T3xe-03 Treadmill offers a Gerkin Firefighter Protocol Fitness Test, The Gerkin Protocol was developed by Dr.. Richard Gerkin of the Phoenix (Arizona) Fire Department. It is a sub-maximal graded treadmill evaluation used by many fire departments across the United States to assess the physical condition of the firefighters. The test requires constant monitoring of the user's heart rate so the use of a telemetric chest strap is highly encouraged. The workout operates as follows:

WARM UP: The warm up is 3 minutes long and runs at 3.0 mph (4.8 kph) and 0% incline.
STAGE 1: At the 3 minute mark, the treadmill will gradually increase speed to 4.5 mph (7.2 kph). The actual test begins at 4.5 mph (7.2 kph).
STAGE 2: After one minute, the treadmill incline will increase to 2%.
STAGE 3: After one minute, the treadmill speed increases to 5.0 mph (8.0 kph).
STAGES 4 THROUGH 11: After every odd minute the treadmill incline will increase by 2%. After every even minute the treadmill speed will increase by 0.5 mph (0.8 kph). Once the user's heart rate exceeds the target heart rate (85% of maximum as determined by the equation (220-Age)*%=target heart rate zone), the individual continues the evaluation for an additional 15 seconds. During the 15 second period, the evaluation remains at the stage where the target heart rate is exceeded, without any change to speed or incline. If the heart rate does not return to or below the target heart rate, the evaluation ends and the final evaluation stage is recorded. If the heart rate returns to or below the target heart rate, the program continues at the point where it would have been had the program not stabilized for 15 seconds.
TEST COMPLETION: The test is completed when user's heart rate exceeds the target for more than 15 seconds or when the user completes all 11 stages, whichever occurs first. The treadmill will enter a cool down cycle for 3 minutes at 3.0 mph (4.8 kph), 0% incline.

1) Choose the Gerkin Test by pressing the FITNESS TEST workout button and press ENTER.
2) Enter the user's age using the INCLINE or SPEED KEYS and press ENTER.
3) The message window will display your target heart rate based upon your age and the target heart rate zone of 85%.
4) Select the user's gender using the INCLINE or SPEED KEYS and press ENTER.
5) Enter the user's weight (the user's weight is used to calculate the caloric expenditure value, providing an accurate weight helps to ensure an accurate caloric expenditure rating for each user) using the INCLINE or SPEED KEYS and press ENTER.
6) The message window will notify the user that the start speed is 3.0 mph (4.8 kph) and 0% incline during the warm-up.
7) Press GO to begin the workout. The display will read 3, 2, 1, and the workout will begin.

4.5 FITNESS TEST WORKOUT OPERATION - CONTINUED

SUB MAXIMAL TREADMILL EVALUATION CONVERSION TABLE

Stage	Time	Converted VO2max
1	1:00	31.15
2.1	1:15	32.55
2.2	1:30	33.6
2.3	1:45	34.65
2.4	2:00	35.35
3.1	2:15	37.45
3.2	2:30	39.55
3.3	2:45	41.3
3.4	3:00	43.4
4.1	3:15	44.1
4.2	3:30	45.15
4.3	3:45	46.2
4.4	4:00	47.5
5.1	4:15	48.6
5.2	4:30	50
5.3	4:45	51.4
5.4	5:00	52.8
6.1	5:15	53.9
6.2	5:30	54.9
6.3	5:45	56
6.4	6:00	57
7.1	6:15	57.7
7.2	6:30	58.8
7.3	6:45	60.2
7.4	7:00	61.2
8.1	7:15	62.3
8.2	7:30	63.3
8.3	7:45	64
8.4	8:00	65
9.1	8:15	66.5
9.2	8:30	68.2
9.3	8:45	69
9.4	9:00	70.7
10.1	9:15	72.1
10.2	9:30	73.1
10.3	9:45	73.8
10.4	10:00	74.9
11.1	10:15	76.3
11.2	10:30	77.7
11.3	10:45	79.1
11.4	11:00	80

CARDIOVASCULAR FITNESS PERCENTILES

Males:	VO2 max (ml/kg/min)			
	0-29	30-39	40-49	50-59
SUPERIOR	>58.8	>58.9	>55.4	>52.5
	54.0	52.5	50.4	47.1
EXCEL-LENT	51.4	50.3	48.2	45.3
	48.2	46.8	44.1	41.0
GOOD	46.8	44.6	41.8	38.5
	44.2	42.4	39.9	36.7
FAIR	42.5	41.0	38.1	35.2
	41.0	38.9	36.7	33.8
POOR	39.5	37.4	35.1	32.3
	37.1	35.4	33.0	30.2
VERY POOR	34.5	32.5	30.9	28.0
	31.6	30.9	28.3	25.1

Females:	VO2 max (ml/kg/min)			
	20-29	30-39	40-49	50-59
SUPERIOR	>53.0	>48.7	>46.8	>42.0
	46.8	43.9	41.0	36.8
EXCEL-LENT	44.2	41.0	39.5	35.2
	41.0	38.6	36.3	32.3
GOOD	38.1	36.7	33.8	30.9
	36.7	34.6	32.3	29.4
FAIR	35.2	33.8	30.9	28.2
	33.8	32.3	29.5	26.9
POOR	32.3	30.5	28.3	25.5
	30.6	28.7	26.5	24.3
VERY POOR	28.3	26.5	25.1	22.3
	25.9	25.1	23.5	21.1

The Military Test programs and the Physical Efficiency Battery (PEB) provide workouts of a preset distance. These distances are established by the various branches of the Military with the objective of each test to complete the distance as quickly as possible. At the completion of the test, a time-based score as defined by the respective Military branch will be shown on the console.

1) Choose a Military Test by pressing the key next FITNESS TEST on the display.
2) Chose the desired Military Test by pressing the key next to the desired test on the display.
2) Enter the user's age using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
3) Select the user's gender using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
4) Enter the user's weight (the user's weight is used to calculate the caloric expenditure value, providing an accurate weight helps to ensure an accurate caloric expenditure rating for each user) using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
5) Enter the desired intensity level using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
6) Press GO to begin the workout.

CHAPTER 5: MANAGER MODE

5.1 MANAGER MODE OVERVIEW

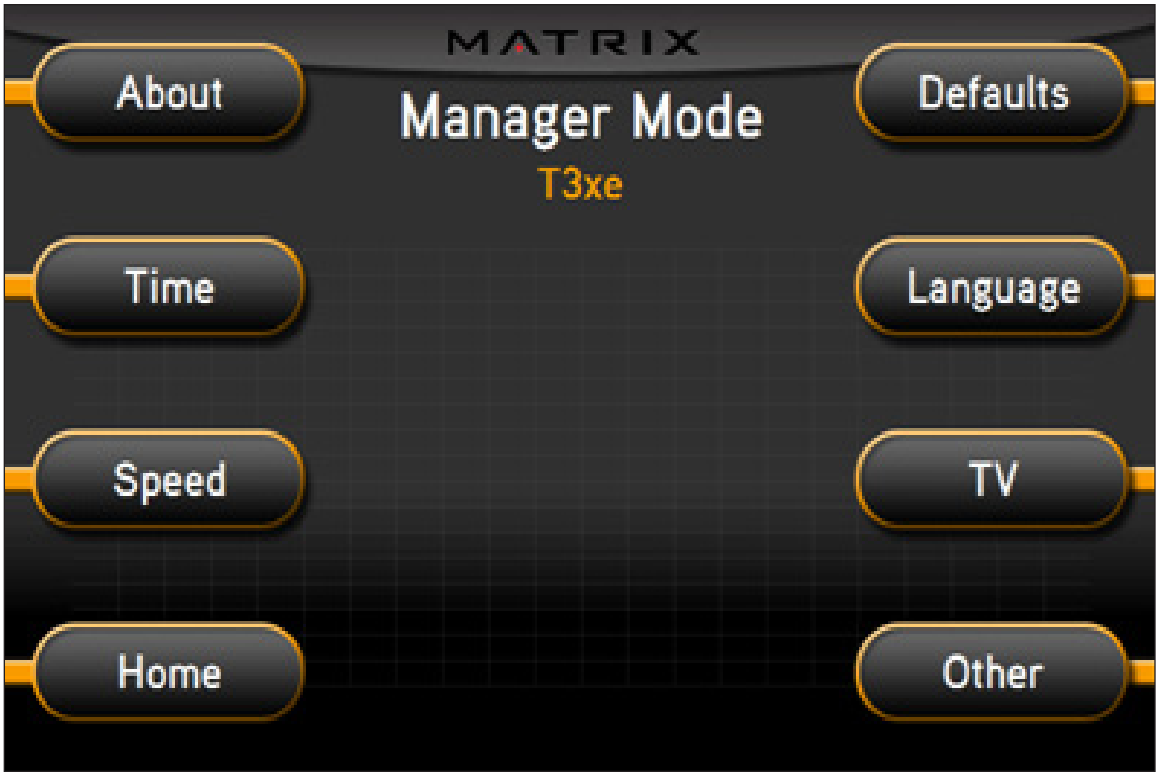
1) To enter Manager Mode, press "ENTER, 1, 0, 0, 1, ENTER" on the number keypad ON THE CONSOLE and Manager Mode will appear on the display.

2) Manager Mode is divided into 7 tabs. They are About, Time, Speed, Defaults, Language, TV, and Other.

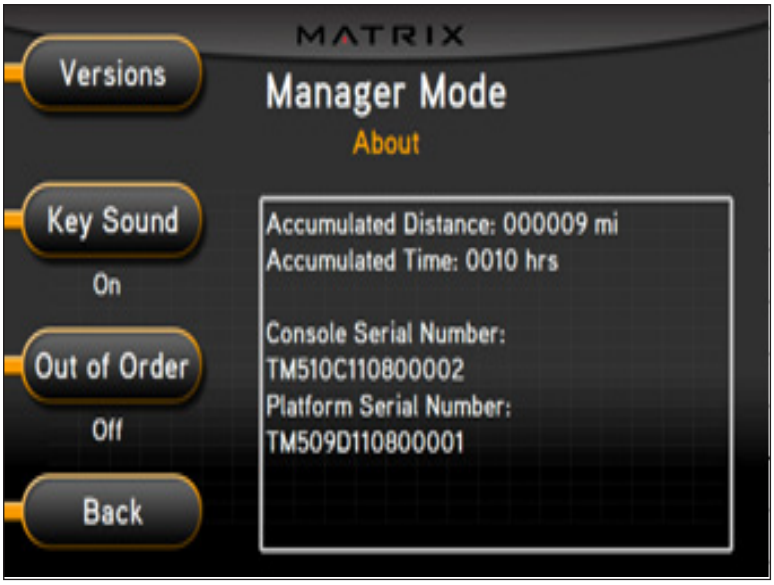
3) Choose a tab by touching the button next to the desired tab.

4) Each of the tabs have options that will appear once you have chosen that particular tab.

5) Press the key next to HOME on the display or the EMERGENCY STOP to exit Manager Mode..



5.2 MANAGER MODE - ABOUT TAB



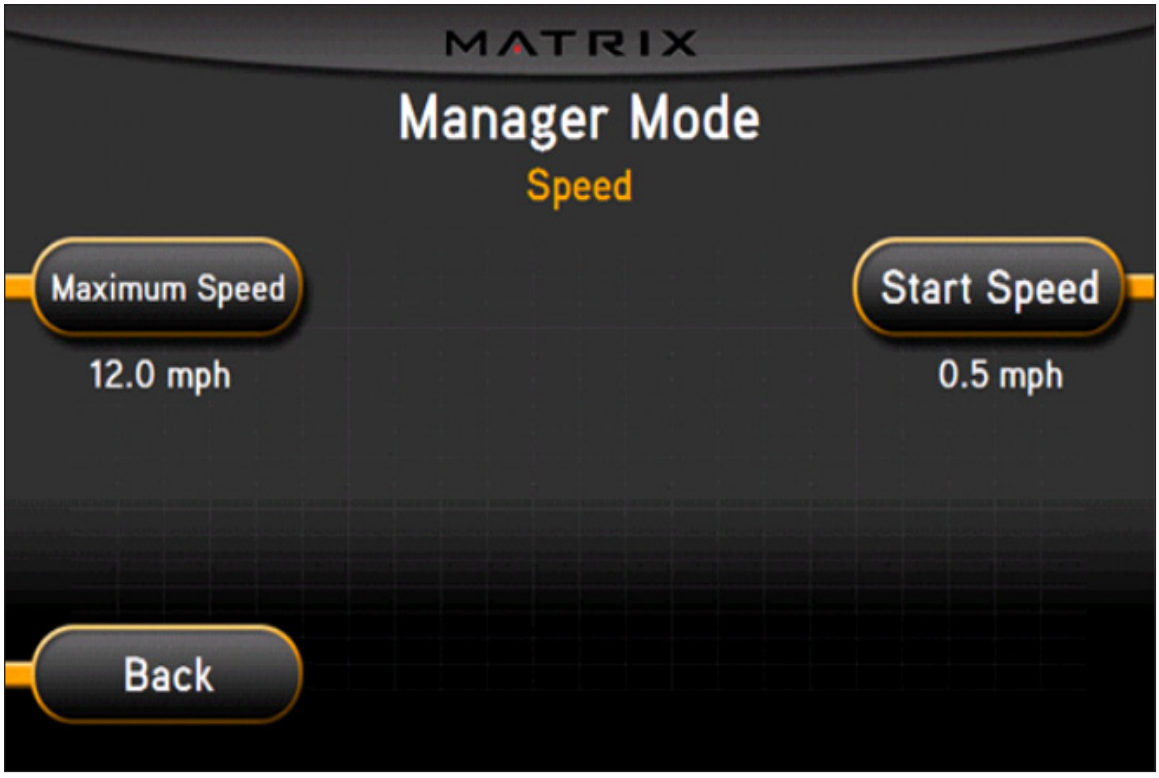
MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
About	Accumulated Distance	Total distance showed in native units (miles or kilometers).	Cannot be modified.
	Accumulated Time	Total time.	Cannot be modified.
	Versions	Software Version, for display only.	Cannot be modified.
	Key Sounds Default: On	This option controls whether a chime sounds when a button is pressed.	On or Off
	Out of Order Default: Off	To show out of order on the console if repair is needed.	On or Off

5.3 MANAGER MODE - TIME TAB



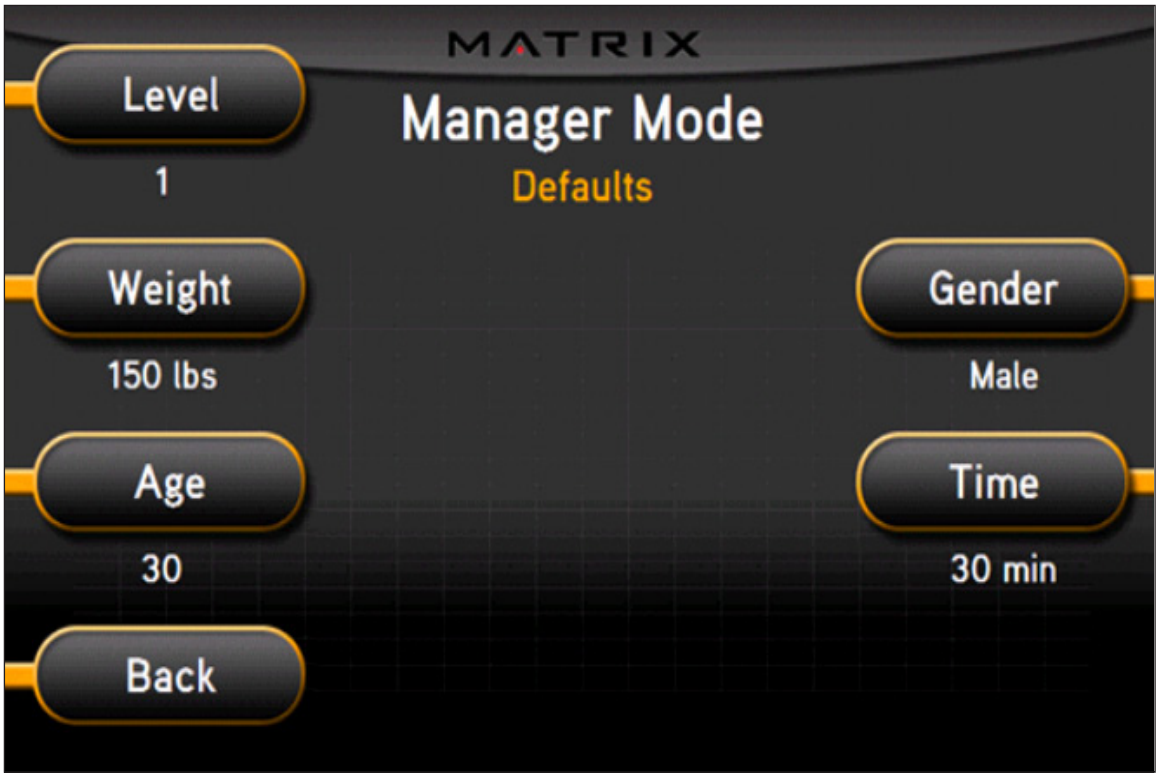
MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Time	Maximum Time Default: 60 Min.	This option enables fitness club managers to set the maximum workout duration during peak and non peak hours of club traffic.	Maximum: 99 Minimum: 5
	Pause Time Default: 5 Minutes	This option controls the default pause time.	Maximum: 10 Minimum: 1

5.4 MANAGER MODE - SPEED TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Speed	Maximum Speed Default: 12 MPH / 19.2 KPH	Controls the maximum speed for all programs, Displayed in native units (MPH or KPH).	Maximum: 12 MPH / 20 KPH Minimum: 3 MPH / 4.8 KPH
	Start Speed Default: 0.5 MPH / 0.8 KPH	Controls the starting speed for all programs. Displayed in native units (MPH or KPH).	Maximum: 3 MPH / 4.8 KPH Minimum: 0.5 MPH / 0.8 KPH

5.5 MANAGER MODE - DEFAULT TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Defaults	Default Level Default: 1	This option controls the default program level.	Max: 1 Min: 20
	Default Age Default: 30	This option controls the default user's age used in the target heart rate calculations.	Maximum: 99 Minimum: 5
	Default Weight Default: 150 lb / 68 kg	This option controls the default user's weight used in the calorie calculations. Displayed in native units (Pounds or Kilograms).	Max: 400 lb / 182 kg Min: 50 lb / 22 kg.
	Default Gender	This option controls the user's default gender.	Male or Female
	Default Time	This option controls the default time.	Max: 99 Min Min: 5 Min

5.6 MANAGER MODE - LANGUAGE TAB



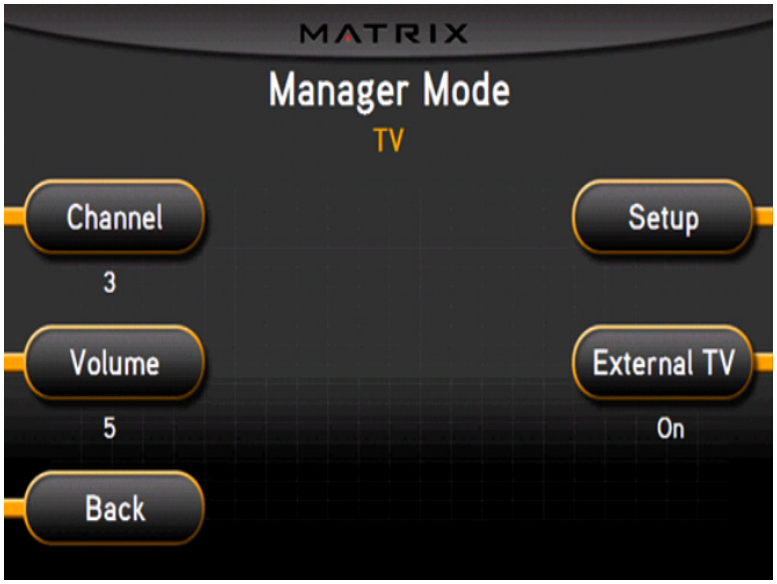
MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Language	Select default language.	This option allows the user to select a flag for a specific language.	N/A

LANGUAGE	FLAG	UNIT
English		Mile
		Mile
		KM
German		KM
		KM

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

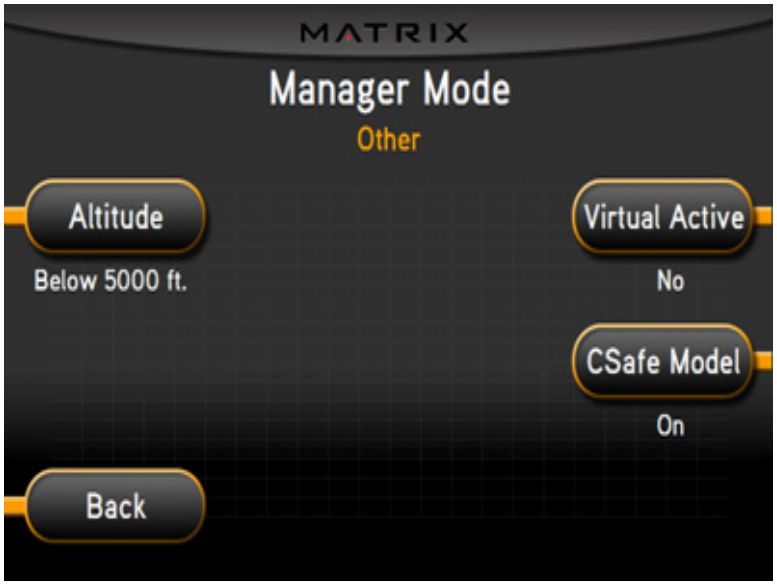
LANGUAGE	FLAG	UNIT
Chinese		KM
		KM
Portuguese		KM
		KM
French		KM

5.7 MANAGER MODE - TV TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
TV	Default Channel Default: 3	This option controls the default TV channel on start up.	1-999
	Default Volume Default: 5	This option controls the default TV volume on start up.	Maximum: 17 Minimum: 0
	Setup	This option is for setting the TV tuner functions. Press the "-" key on the NUMBER KEYPAD to enter this function.	N/A
	External TV Default: ON	This option controls the external TV function.	On or Off
	Remote TV Default: Off	This option allows the controller to work with an external MYE TV.	On or Off

5.8 MANAGER MODE - OTHER TAB



MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Other	Altitude Default: Below 5000 feet	This option controls the altitude used in the Fitness Test score calculations.	Above or below 5000 feet.
	Virtual Active Default: No	This option controls the Virtual Active function.	Yes or No
	CSafe Model Default: On	This option controls whether the console will communicate with Fittlinxx. Units with an LMM board should be set for On	On or Off

CHAPTER 6: ENGINEERING MODE

6.1 ENGINEERING MODE OVERVIEW

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

1) To enter Engineering Mode, press ENTER, 2, 0, 0, 1, ENTER on the number keypad ON THE CONSOLE. Engineering Mode will appear on the display (Figure A).
2) Select the key next to the setting that needs to be changed, and follow the prompts to change.
3) Press the ENTER key once the desired setting is correct to save.
4) Press the key next to HOME on the display or press the EMERGENCY STOP key to return to normal operation.

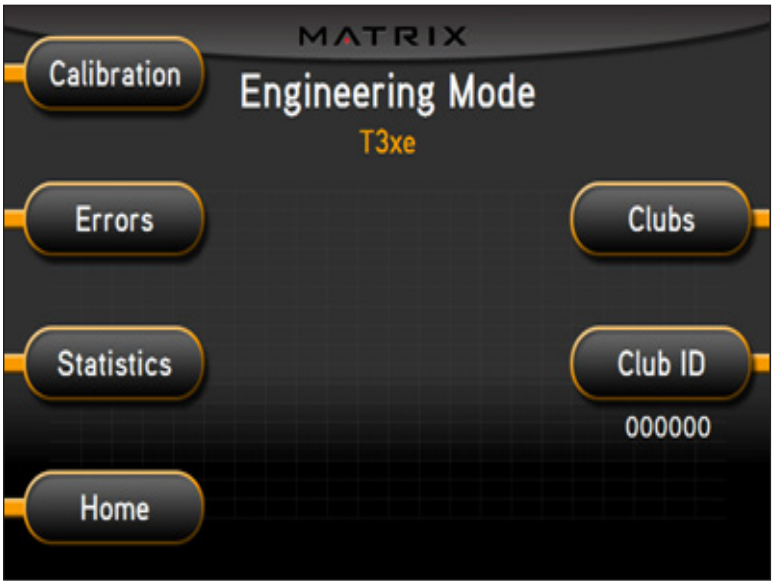
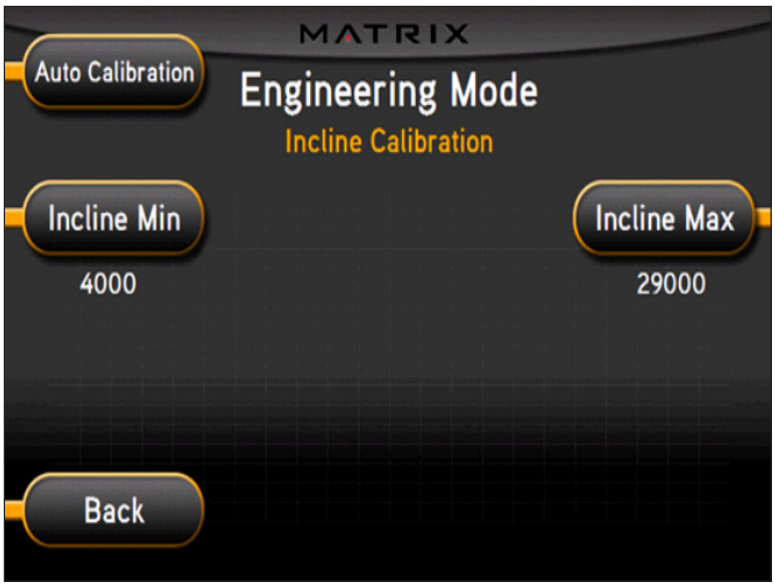


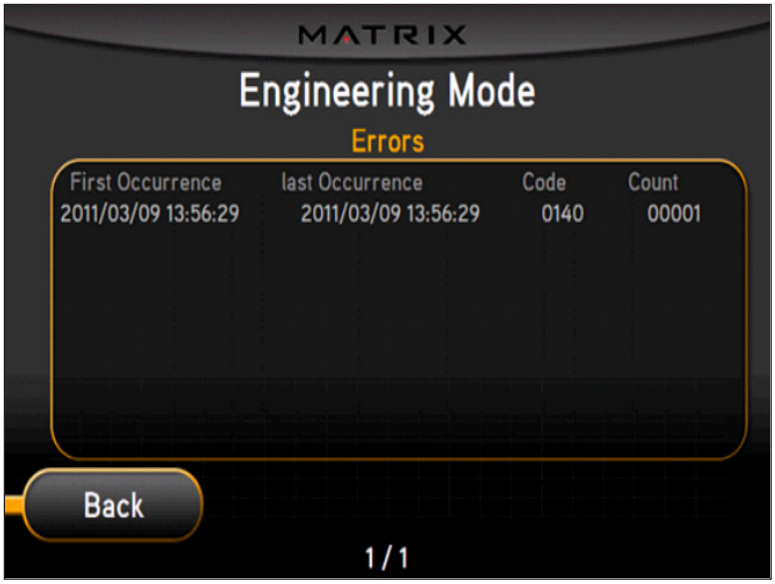
FIGURE A

6.2 ENGINEERING MODE - CALIBRATION TAB



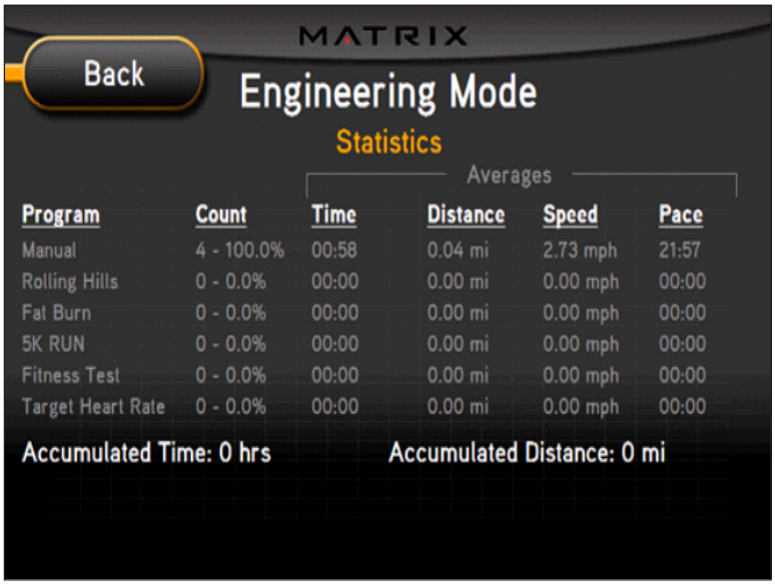
ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Calibration	Auto Calibration	This option calibrates the elevation parameters.	
	Incline Minimum Default: 4000	This option controls the minimum elevation parameter.	Range: 2500 - 12000
	Incline Maximum Default: 29000	This option controls the maximum elevation parameter.	Range: 25000 - 32700

6.3 ENGINEERING MODE - ERRORS TAB



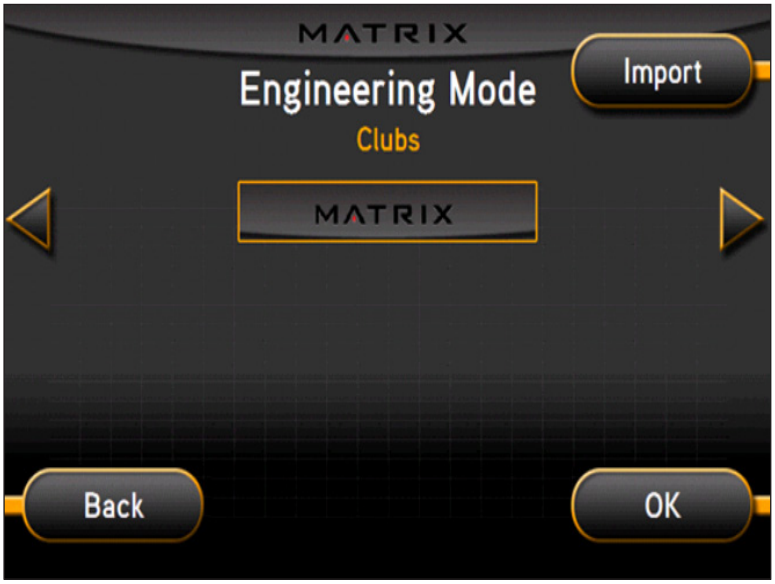
ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Errors	This option displays the error code history for the unit.	

6.4 ENGINEERING MODE - STATISTICS TAB



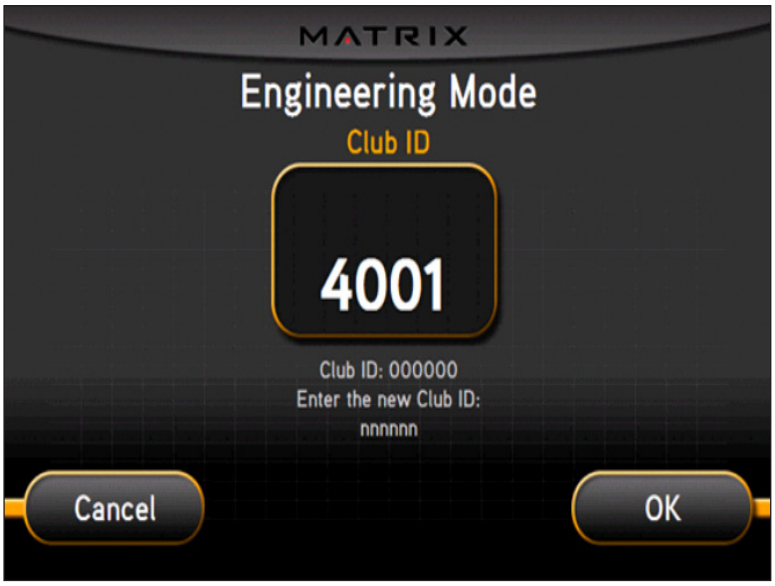
ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Statistics	This option displays the workout information history of the unit.	

6.5 ENGINEERING MODE - CLUBS TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Clubs Default: Matrix	This option selects a screen header from a list.	

6.6 ENGINEERING MODE - CLUB ID TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Club ID	This option records the club ID of the equipment.	

7.1 SERVICE MODE OVERVIEW

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

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

2) Select the key next to the setting that needs to be changed, and follow the prompts to change.

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

4) Press the key next to HOME on the display or press the EMERGENCY STOP key to return to normal operation.

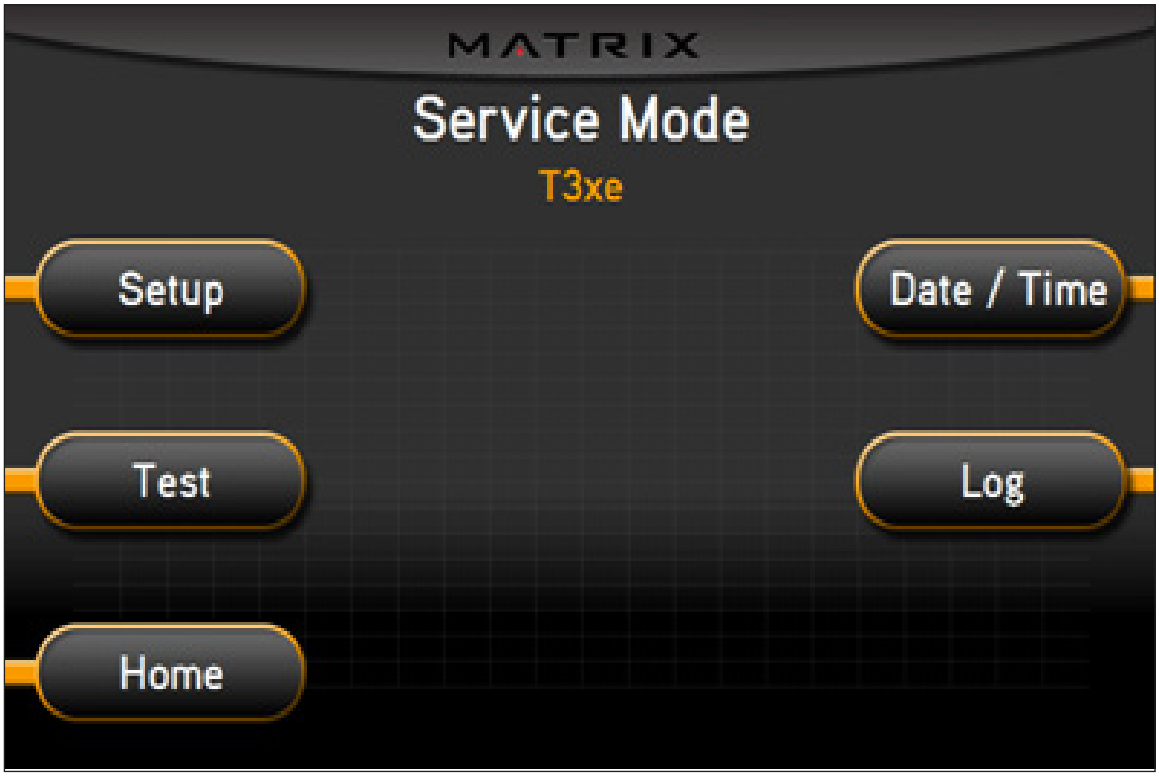
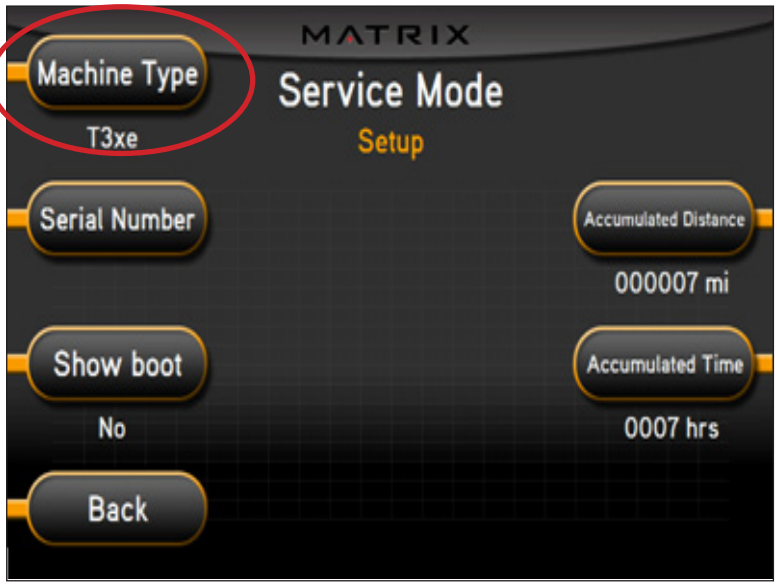
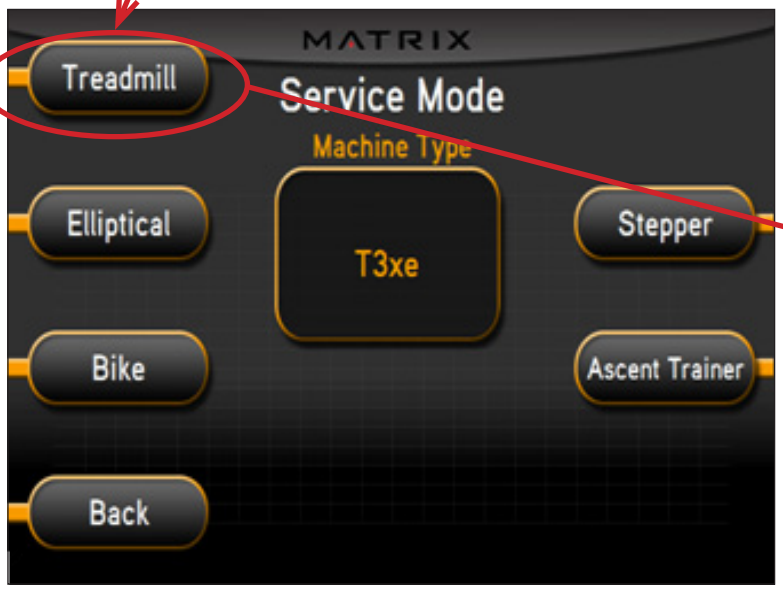
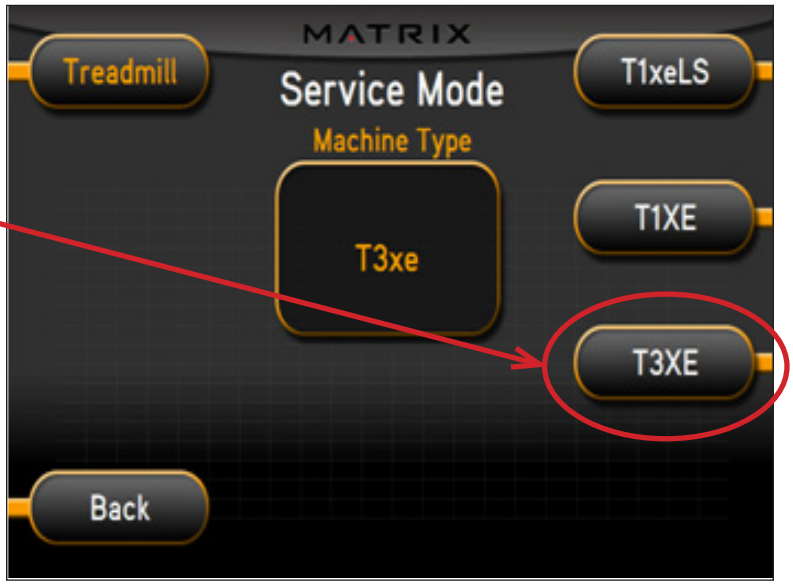


FIGURE A

7.2 SERVICE MODE - SETUP TAB







SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Setup	Machine Type Default: Treadmill	This option selects the current model.	N/A
	Serial Number	This option display the serial number of the console and frame.	N/A
	Accumulated Distance	This option displays the total distance of workouts since production. Displayed in native units (miles or kilometers).	N/A
	Accumulated Time	This option displays the total time of the workouts since production.	N/A
	Show Service on Boot	Factory Setting Only.	N/A

7.2 SERVICE MODE - SETUP TAB - CONTINUED







1) Enter into Service Mode (ENTER, 3, 0, 0, 1, ENTER).

2) Check if the Machine Type is set for T3xe.

3) As long as the Machine Type is correct, the console should automatically be set for TM510 and the platform should automatically be set for TM509.

4) Input the serial number for the console first.

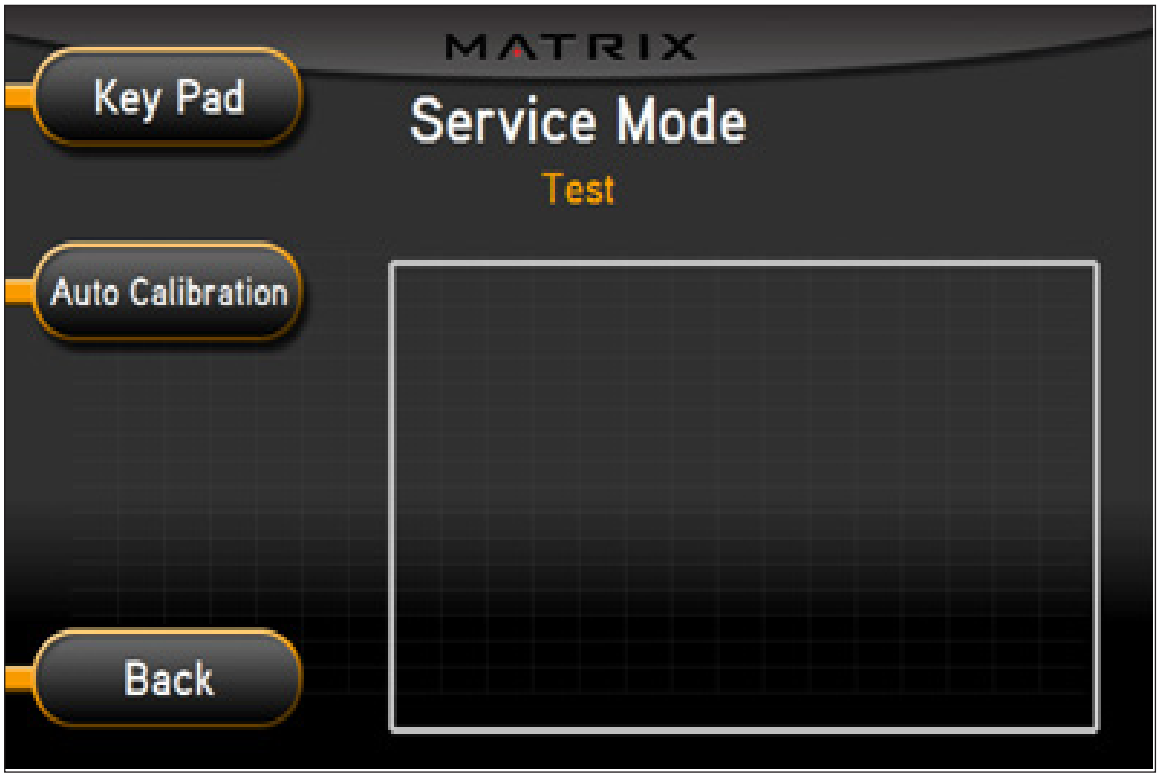
5) The serial number configuration is as follows, then press OK:
- V:YY:MM;nnnnn
- V is the version. This will be a letter between B-Z (if the console is version A, just leave this blank).
- Y is the year (e.g. 10, 11, 12).
- MM is the month (e.g. 08, 09, 10).
- nnnnn is the actual serial number.

Repeat this procedure to enter the platform serial number.

6) The example shows the console automatically set for TM510, a version of C, a year of 2011, a month of 08 (August), and a serial number of 00002.

The example shows the platform automatically set for TM509, a version of D, a year of 2011, a month of 08 (August), and a serial number of 00001.

7.3 SERVICE MODE - TEST TAB



SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Test	Auto Calibration	This option calibrates the elevation parameters of the unit.	N/A
	Keypad	This option is for a keypad test	N/A

7.4 SERVICE MODE - DATE & TIME TAB







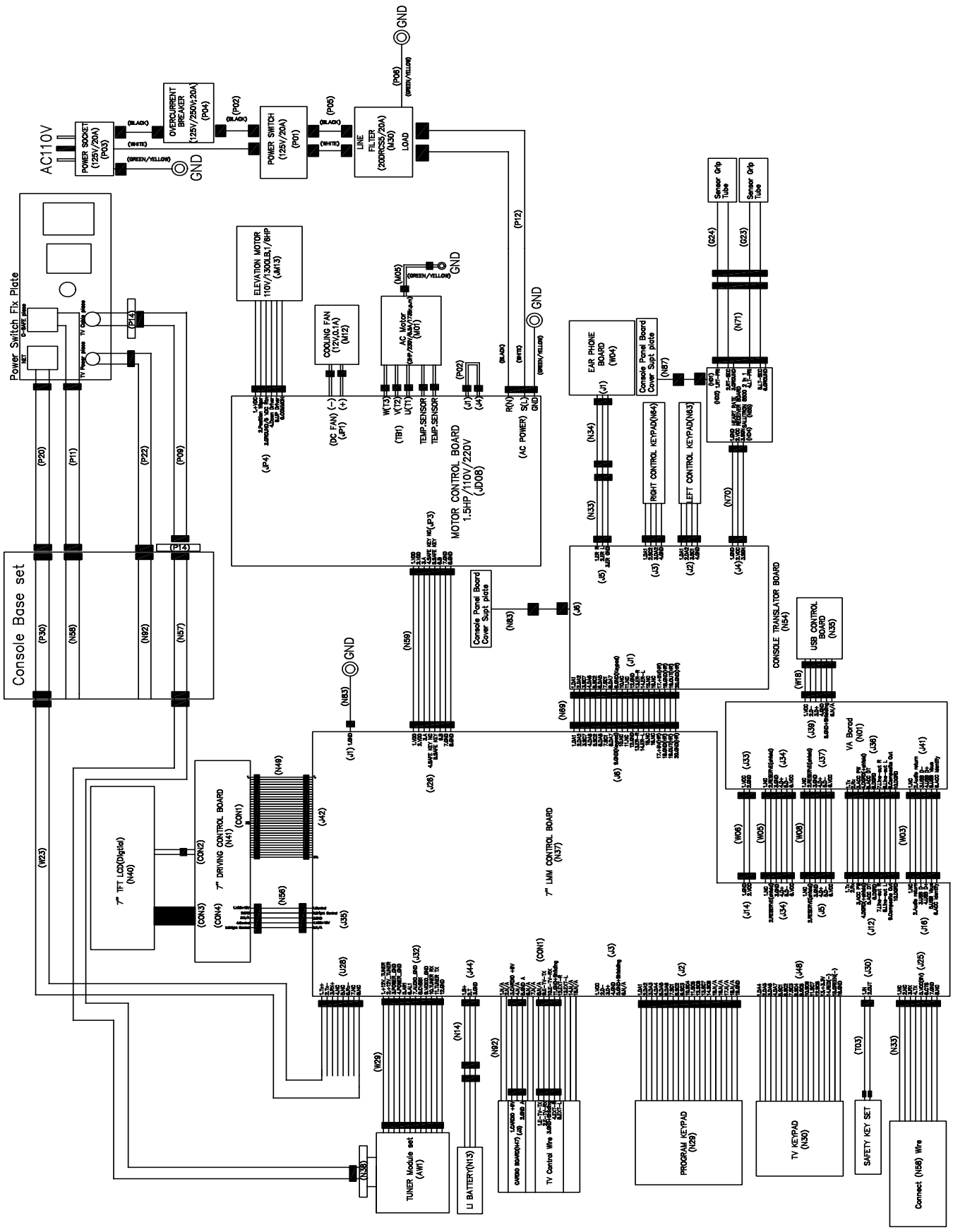
SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Date & Time	This option is to set the current date and time on the machine.	N/A

7.5 SERVICE MODE - LOG TAB



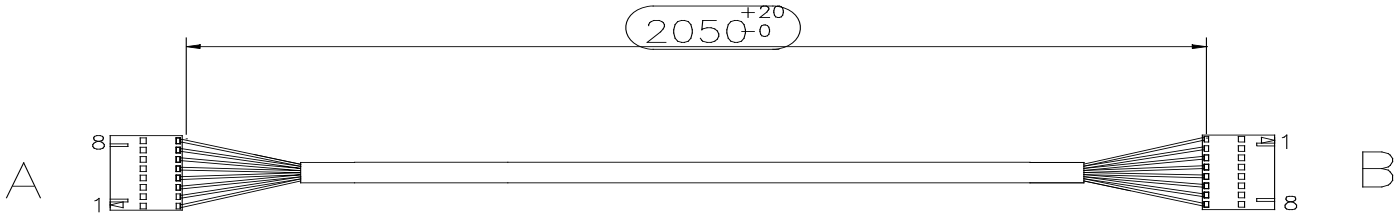
SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Date & Time	This option sets the current date and time of the unit.	N/A

8.1 ELECTRICAL DIAGRAMS



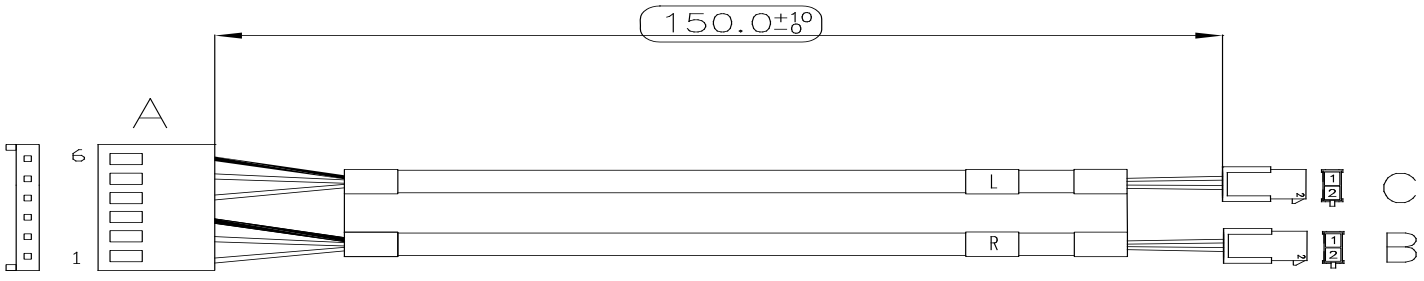
8.1 ELECTRICAL DIAGRAMS - CONTINUED

DIGITAL COMMUNICATION WIRE - N59



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

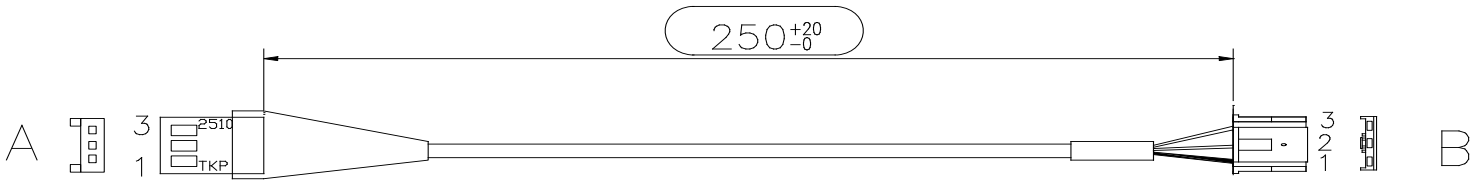
PULSE GRIP WIRE - N71



A: HOLE	B: HOLE	C: HOLE	FUNCTION	COLOR
1	1		RT—PRI	RED
2	2		RT—SEC	WHITE
3			GROUND	Shielding
4		1	LT—PRI	RED
5		2	LT—SEC	WHITE
6			GROUND	Shielding

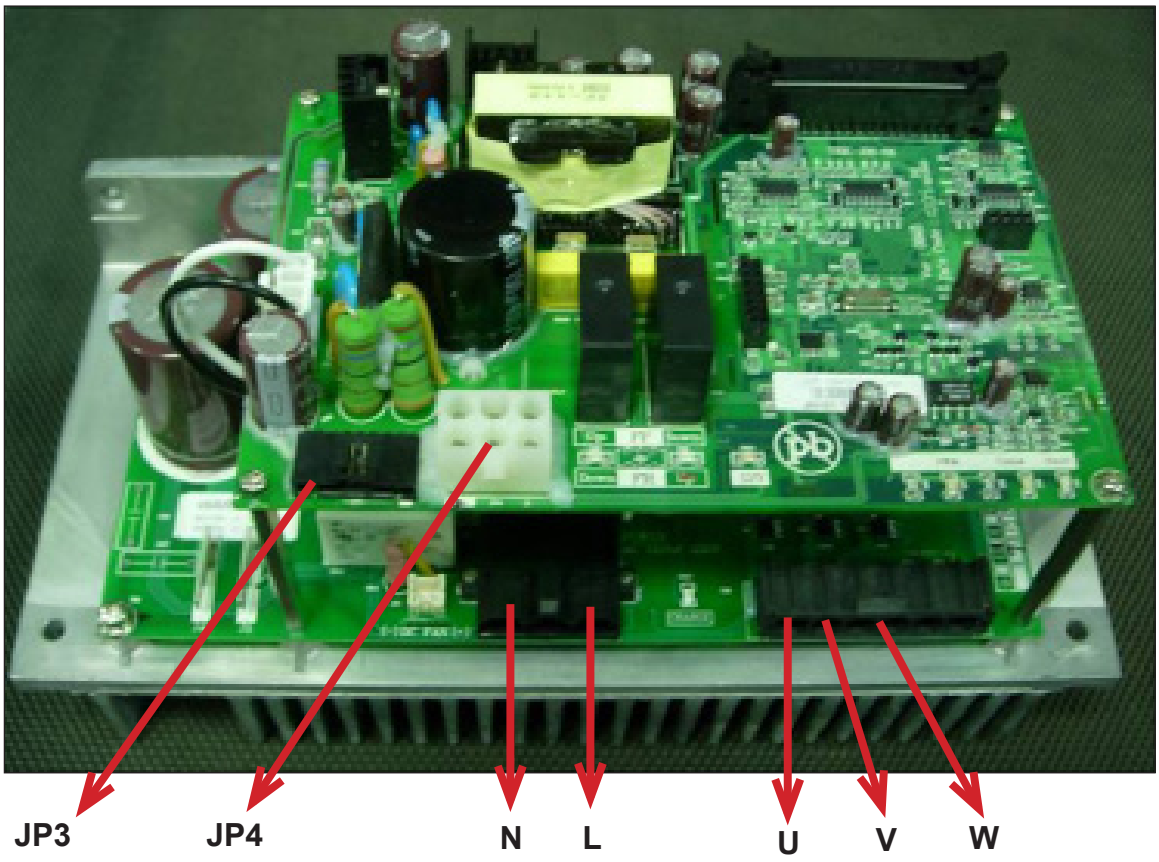
8.1 ELECTRICAL DIAGRAMS - CONTINUED

PULSE GRIP CONNECTING WIRE - N70



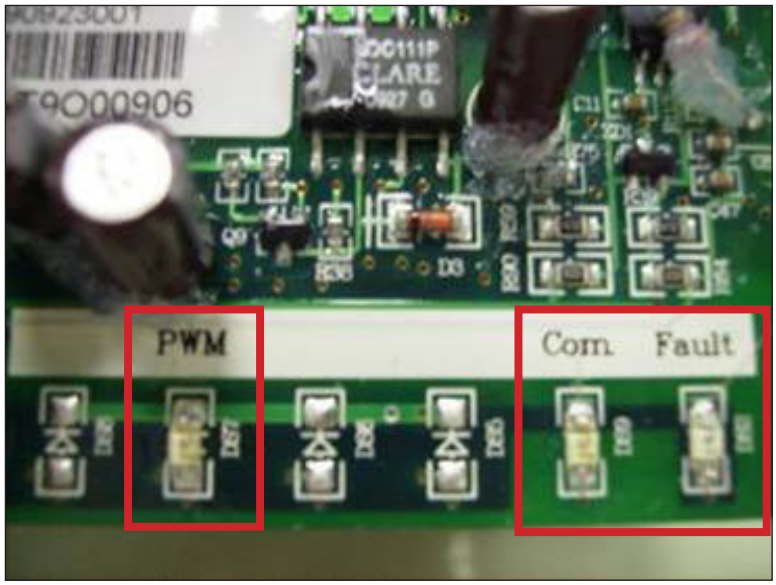
A.HOLE	B.HOLE	COLOR	FUNCTION
1	1	black	A:GND and noShield B: GND+Shield
2	2	red	VCC
3	3		SGN

8.2 MCB WIRING



JP3 - Console Cable
JP4 - Incline Motor Cable
N - Power Input (white)
L - Power Input (Black)
U - Motor Wire (red)
V - Motor Wire (White)
W - Motor Wire (Black)

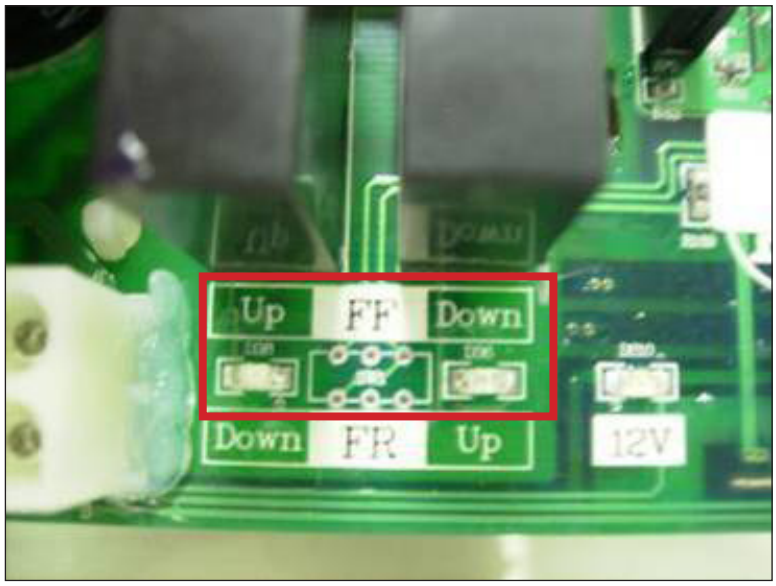
8.3 MCB LED PLACEMENT AND DEFINITIONS



PWM - Console PWM signal light (when the motor is running, the light should flash).

COM - Digital communication light.

FAULT - The machine has stopped due to any C class error.



UP / DOWN (FF) - Incline motor status light.

8.4 ERROR MESSAGES ON THE CONSOLE

CLASS LEVEL	ERROR CODE	DESCRIPTION	CONDITION
B	0140	Incline motor fail.	When the incline motor is supposed to move, it does not move. When the error happens the incline motor will be locked. The command "initialize" is needed to unlock the incline.
C	01A0	Incline motor disconnection.	When the incline position cable is not connected.
C	01A4	Main motor U phase disconnection.	Main motor U phase disconnection.
C	01A5	Main motor V phase disconnection.	Main motor V phase disconnection.
C	01A6	Main motor W phase disconnection.	Main motor W phase disconnection.
C	01A8	Main motor over current.	Main motor over current of 7 amps.
C	01AB	Inverter Error.	Internal error of the inverter.
C	01AD	Motor over temperature.	When a heavy user makes the motor over load over go over current.
C	02A0	Main motor failed.	The belt does not move when commanded.
C	02A1	Over AC power input voltage.	Power input voltage over range.
C	02A2	Over / low DC bus voltage.	Power input voltage over range.
C	02A8	Inverter circuit of motor drive failed.	Motor resistance closed.
C	02AD	LCB over temperature.	LCB over temperature.
C	02B5	Inverter senses that the normal rated current is over 150% for over 60 seconds.	Inverter sensor is reading the normal rated current is over 10.5 amps for 60 seconds.
C	02B6	Speed up has over current.	Software issue.
C	02B7	Speed down has over current.	Software Issue.
C	02B8	Running status over current.	Software Issue.
C	02B9	The inner memory IC data write error.	MCB failure.
C	02BA	The inner memory IC data read error.	MCB failure.
C	02BC	Ground connection or fuse error.	MCB failure.
C	02BD	Inverter hardware interrupt error.	MCB failure.
C	03A5	Failed to load program.	Normally due to corrupt software. Update software of replace console.
C	03A6	Failed to run program.	Normally due to corrupt software. Update software of replace console.
C	03A7	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.
C	03A8	Machine type setting is not matching the LCB.	Set the correct Machine Type for the console and LCB in Manager Mode.
C	04A0	If the LCB does not return a message to the UCB within 3 seconds.	Check the console cable connections at the UCB and LCB.
C	04B0	UCB no communication response.	Check the console cable connections at the UCB and LCB. Replace UCB, LCB, or console cable as needed.

CLASS LEVEL

Class B - Will make a record in the error log. The machine will keep working.
Class C - The machine will stop and not work.

8.5 0140 / 01A0 ERROR TROUBLESHOOTING

ERROR MESSAGE 0140 / 01A0

1) CAUSE:

a. Incline motor operation failed.

2) SOLUTION:

a. Check the connection of the incline motor cable at the MCB.
b. Run auto calibration (See Section 3.5).
c. If auto calibration fails, press GO and attempt to incline the treadmill.
- Check the MCB UP and DOWN (FF) LEDs (Figure A). If the LEDs do not light up when incline is commanded, replace the console cable or console. If the LEDs do light up, replace the incline motor.
d. If replacing the console, console cable, and incline motor do not resolve the issue, replace the MCB.

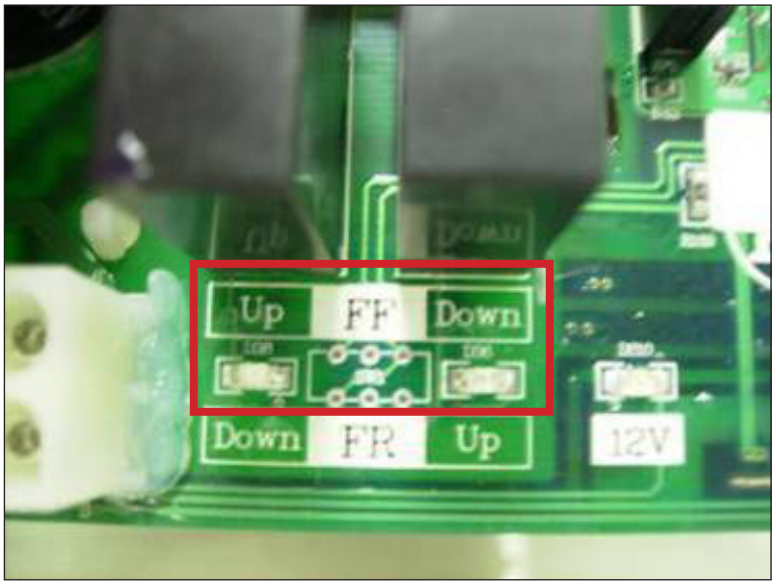


FIGURE A

8.6 01A4 / 01A5 / 01A6 ERROR TROUBLESHOOTING

ERROR MESSAGE 01A4 / 01A5 / 01A6

1) CAUSE:

a. 01A4 - Main motor U phase disconnection.
b. 01A5 - Main motor V phase disconnection.
c. 01A6 - Main motor W phase disconnection.

2) SOLUTION:

a. Check the connection of the motor cable at the MCB (Figure A).
b. Replace the motor.
c. Replace the MCB.

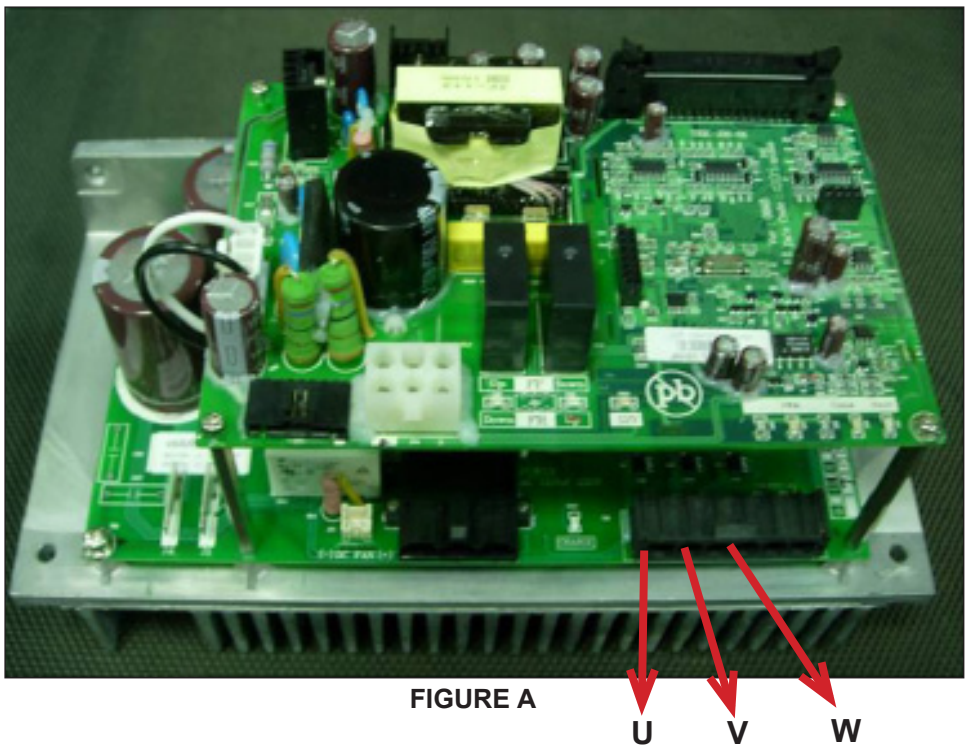


FIGURE A

8.7 01A8 / 01AD / 02B6 / 02B7 / 02B8 ERROR TROUBLESHOOTING

ERROR MESSAGE 01A8 / 01AD / 02B6 / 02B7 / 02B8

1) CAUSE:

a. 01A8 - Main motor over current of 7 Amps.
b. 01AD - Motor over temperature.
c. 02B6 - Speed up is over current.
d. 02B7 - Speed down is over current.
e. 02B8 - Running status over current.

2) SOLUTION:

a. See Section 3.6 for checking the status of the running deck and belt. Replace as needed.
b. Replace the MCB.

8.8 01AB ERROR TROUBLESHOOTING

ERROR MESSAGE 01AB

1) CAUSE:

a. Inverter error.

2) SOLUTION:

a. When the display is showing an 01AB error,k the MCB Fault LED should be lit (Figure A).
b. If the MCB Fault LED is not lit, replace the console.
c. If the MCB Fault LED is lit, replace the MCB.

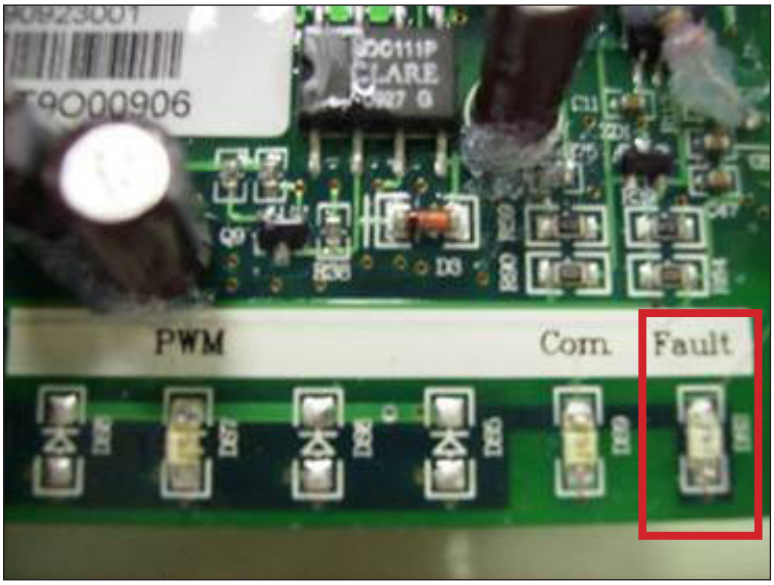


FIGURE A

8.9 02A0 / 02A8 ERROR TROUBLESHOOTING

ERROR MESSAGE 02A0 / 02A8

1) CAUSE:

a. 02A0 - Main motor failure. The belt does not move when it is supposed to move.
b. 02A8 - Inverter circuit of the motor failed. Motor resistance is closed.

2) SOLUTION:

a. Check the connection of the motor cable at the MCB (Figure A).
b. Use a multi - meter to check the motor cable for resistance at 3 points (Figures B, C, & D).
c. If the motor cable displays an ohm value, replace the MCB.
d. If the motor cable does not display an ohm value, replace the motor.

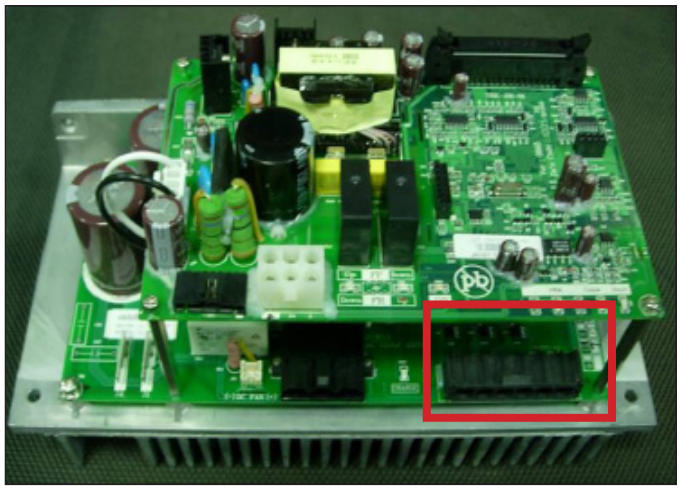


FIGURE A

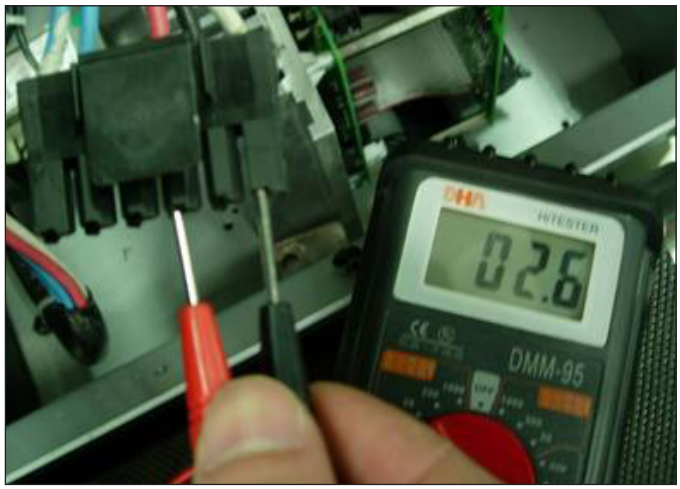


FIGURE B



FIGURE C

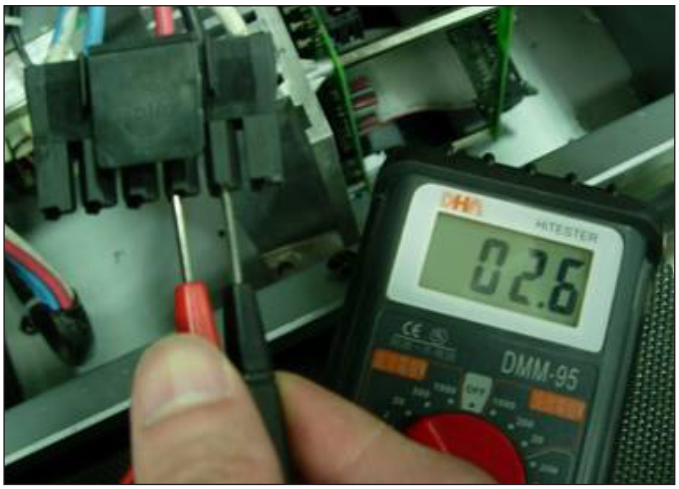


FIGURE D

8.10 02A1 / 02A2 ERROR TROUBLESHOOTING

ERROR MESSAGE 02A1 / 02A2

1) CAUSE:

a. 02A1 - Over AC power input voltage.
b. 02A2 - Over / low DC bus voltage.

2) SOLUTION:

a. Use a multi - meter to check if the input power is over 260V.
b. If the power outlet is ok, replace the MCB.

8.11 02AD ERROR TROUBLESHOOTING

ERROR MESSAGE 02AD

1) CAUSE:

a. MCB over temperature.

2) SOLUTION:

a. Check the condition and connection of the motor cable at the MCB (Figure A).
b. Use a multi - meter to check the motor cable for resistance at the 2 blue wires in the cable (Figure B).
c. If the blue wires of the motor cable display an ohm value, replace the motor.
d. If the blue wires of the motor cable do not display an ohm value, replace the MCB.

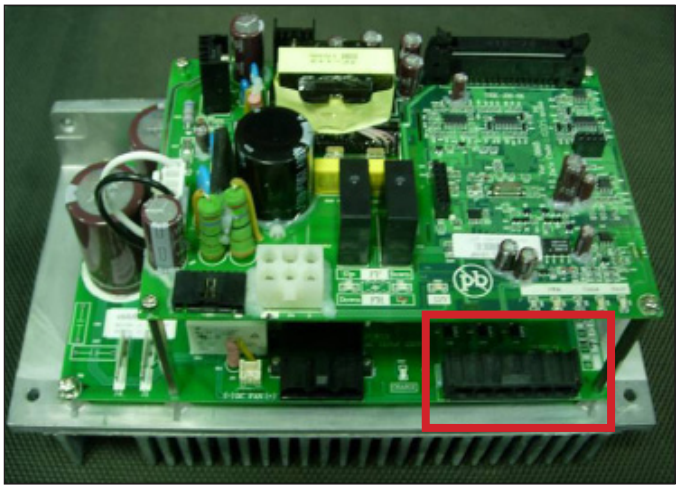


FIGURE A



FIGURE B

8.12 02B5 ERROR TROUBLESHOOTING

ERROR MESSAGE 02B5

1) CAUSE:

a. The inverter sensor is reading the normal rated current is over 10.5 amps for 60 seconds.

2) SOLUTION:

a. Use a multi - meter to check the motor cable for resistance at 3 points (Figures A, B, & C).
b. If the motor cable displays an ohm value over 4, replace the motor.
c. If the motor cable displays an ohm value under 4, replace the MCB.

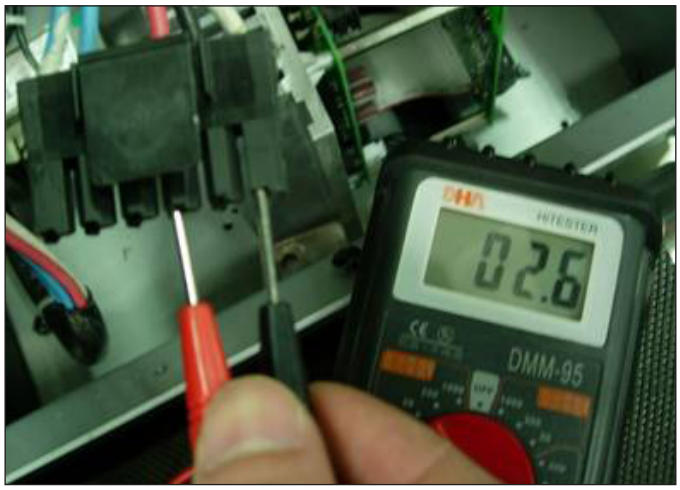


FIGURE A



FIGURE B

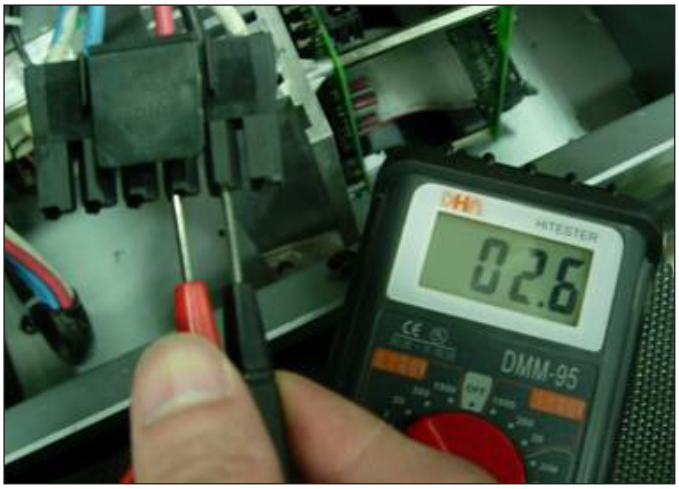


FIGURE C

8.13 02B9 / 02BA / 02BC / 02BD ERROR TROUBLESHOOTING

ERROR MESSAGE 02B9 / 02BA / 02BC / 02BD

1) CAUSE:

a. 02B9 - The inner memory IC data write error.
b. 02BA - The inner memory IC data read error.
c. 02BC - Ground connection or fuse error.
d. 02BD - Inverter hardware interrupt error.

2) SOLUTION:

a. Replace the MCB.

8.14 04A0 ERROR TROUBLESHOOTING

ERROR MESSAGE 04A0

1) CAUSE:

a. No communication response.

2) SOLUTION:

a. If an 04A0 error is displayed, MCB Com LED should not be lit (Figure A).
b. Check the connection of the digital communication wire at the MCB (Figure B).
c. Replace the digital communication wire.
d. Replace the console.
e. Replace the MCB.



FIGURE A

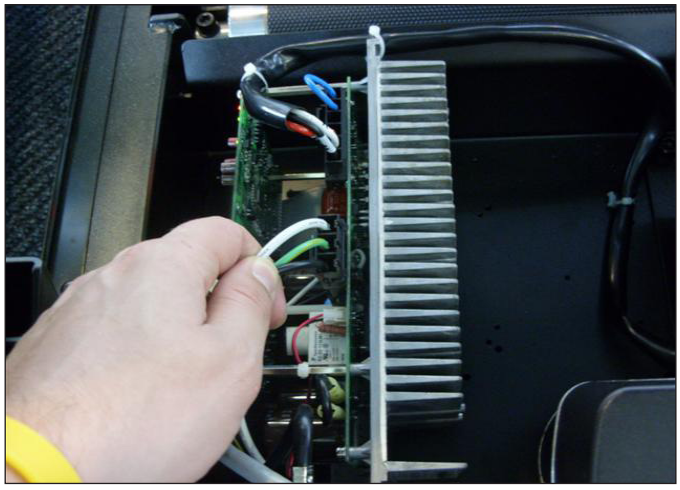


FIGURE B

8.15 TROUBLESHOOTING - HEART RATE ISSUES

HEART RATE ISSUES

1) SYMPTOM:

a. No heart rate.
b. No or high heart rate.

2) SOLUTION:

a. With a multi meter set for DC Voltage, place one prong of the multi meter on each of the HR plates on the handlebar (Figure A). A correctly connected HR grip will have a DC Voltage reading of between 0.5 and 2.0. If this reading is correct, skip to Step b.

- If the reading is not correct, remove the screws holding the 2 halves of the HR grip together and check the connection of the HR grip wiring to the grips (Figure B). Replace the grips if any damage is seen to the plates.
- Remove the console and split the plastic and metal portions of the console frame to expose the HR board (Figure C).
- Check the connection of the HR grip wiring to the 6 pin Y cable attached to one side of the HR board. Use a multi meter set for ohms to verify the continuity of these wires. If the ohm reading is more than 1 (or not there at all), replace the HR grip wiring (this will require replacing the HR handlebar). If the ohm reading is correct, your issue is not with the HR grip / HR wire portion of the HR system.

b. Perform a continuity test on the treadmill console (see Service Bulletin - Continuity Test on Matrix Treadmills).

- Verify the HR board ground wire. With a multi meter set for ohms, place one prong on the HR board ground wire, and the other on the console ground screw. You should get a resistance reading of 1 or less. If you get a reading over 1 (or none at all), replace the HR board.
- Check the continuity of the wire that goes from the HR board to the Translator Board. With a multi meter set for ohms, place one prong on the 3 pin wire connecting to the HR board and the other on where this wire connects to the Translator Board (Figure D). If you get a reading of over 1 (or no reading at all), replace this wire.
- Check the connection of the wire that goes from the Translator Board to the UCB. Replace this wire if needed.
- If all wiring checks out good and the unit is still having HR issues, replace the HR board.
- If the HR board does not resolve the issue, replace the UCB.



FIGURE A



FIGURE B



FIGURE C



FIGURE D

8.16 TROUBLESHOOTING - TV RECEPTION ISSUES

NO RECEPTION ON THE TV OR IT IS BLURRY

POSSIBLE CAUSES:

1) The coax signal is not being sent strongly enough for good TV reception.
2) The coax cable is pinched or installed incorrectly.
3) The TV is defective.

SOLUTION:

1) Check that the TV is programed correctly by following the instructions in Section 10.4.
2) Test the coax signal from the wall by plugging it into a known working TV.
3) Remove any coax cable splitters and reattach the cable to the treadmill. If this resolves the issue, an amplifier may be needed on for the coax signal.
4) Check the coax cable connections at the treadmill (3 locations, Figures A-C).
5) Attach the coax cable from the wall directly into the coax connector in the console shown in Figure C. If this resolves the issue, replace the internal coax cable in the treadmill.
6) If all other issues have been eliminated, replace the console.



FIGURE A



FIGURE B

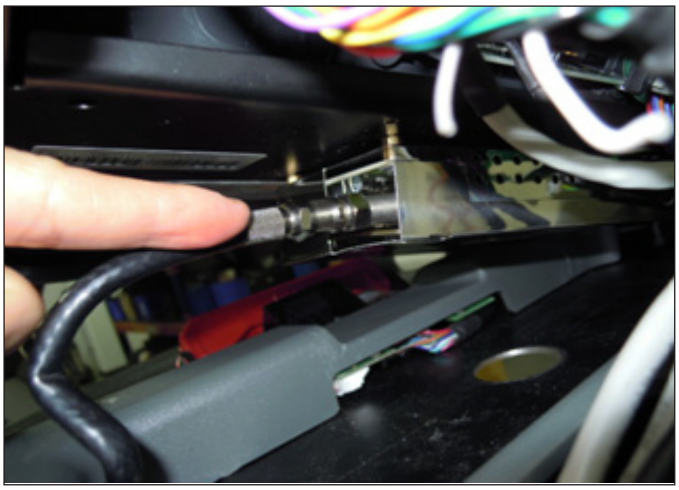


FIGURE C

9.1 MOTOR COVER REPLACEMENT

1) Remove the 2 screws holding the motor cover to the frame using a 6 mm Allen wrench (Figures A).
2) The motor cover is velcroed to the frame, so you will have to pull up with some force (Figure B).



FIGURE A



FIGURE B

3) Figure C shows the motor area with the motor cover removed.
4) Reverse Steps 1-2 to install a new motor cover. ***NOTE:*** When reinstalling the motor cover, be sure to tuck the sides in so they do not bow outward (Figure D).



FIGURE C



FIGURE D

9.2 REAR ROLLER REPLACEMENT

1) Remove one of the rear end caps using a Phillips screwdriver (Figure A).
2) Remove both roller adjustment screws using an 8 mm Allen wrench (Figure B).



FIGURE A



FIGURE B

3) Remove the rear roller from the running belt (Figures C & D).



FIGURE C



FIGURE D

4) Reverse Steps 1-3 to install a new rear roller.
5) Test the treadmill for function as outlined in Section 9.21.

9.3 DECK REMOVAL

1) Remove the motor cover as outlined in Section 9.1.
2) Remove the four deck screws using a 5 mm Allen wrench (Figure A).

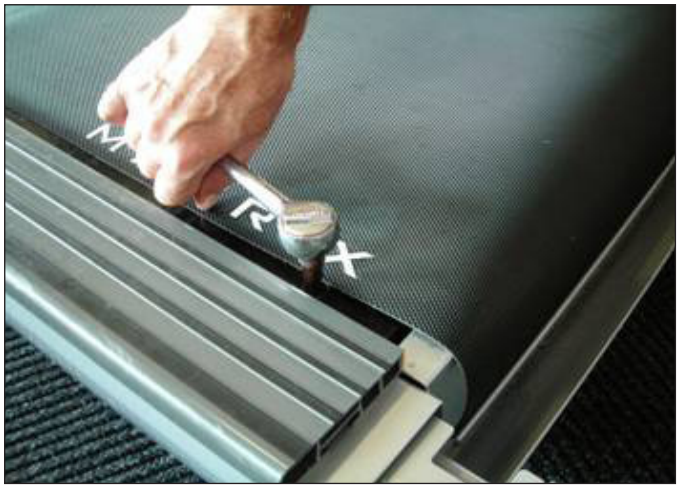


FIGURE A

3) Remove the deck from the running belt (Figures B & C). ***NOTE:*** Be careful not to pinch fingers during removal / installation of the deck.



FIGURE B



FIGURE C

4) Reverse Steps 1-3 to install a new deck. ***NOTE:*** New deck surfaces must ALWAYS be matched to a new running belt, but the deck is waxed on both sides so the opposite side surface may be usable.
5) Test the treadmill for function as outlined in Section 9.21.

9.4 DECK CUSHION REPLACEMENT

1) Remove the deck as outlined in Section 9.3.
2) Holding the bolt with a 5 mm Allen wrench, loosen the nut with a 13 mm socket (Figure A & B).



FIGURE A



FIGURE B

3) For the rear cushion, hold the cushion and remove the 13 mm nut (Figure C).



FIGURE C

4) Reverse Steps 1-3 to install new deck cushions.
5) Test the treadmill for function as outlined in Section 9.21.

9.5 FRONT ROLLER REPLACEMENT

1) Remove the motor cover as outlined in Section 9.1.
2) Using a hook or loop of wire, remove the spring from the drive belt tensioner (Figure A). The tensioner should now pivot away from the drive belt.
3) Loosen the rear roller screws to remove tension from the running belt.
4) Remove the front roller mounting screws using an 8 mm Allen wrench (Figures B & C).
5) Remove the drive belt from the front roller and remove the roller from the running belt (Figure D).

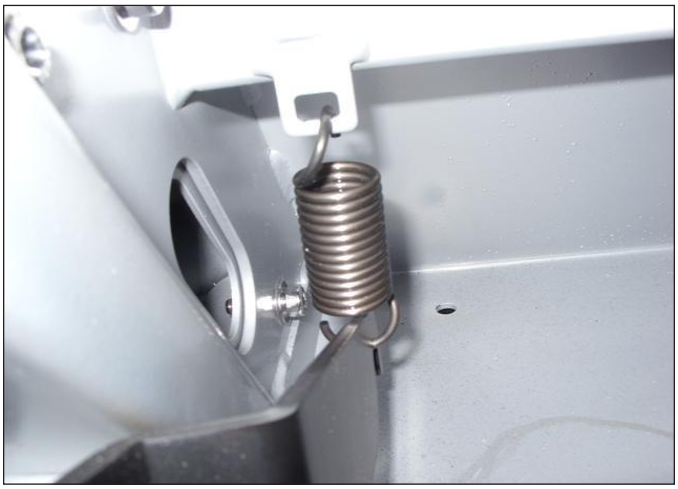


FIGURE A

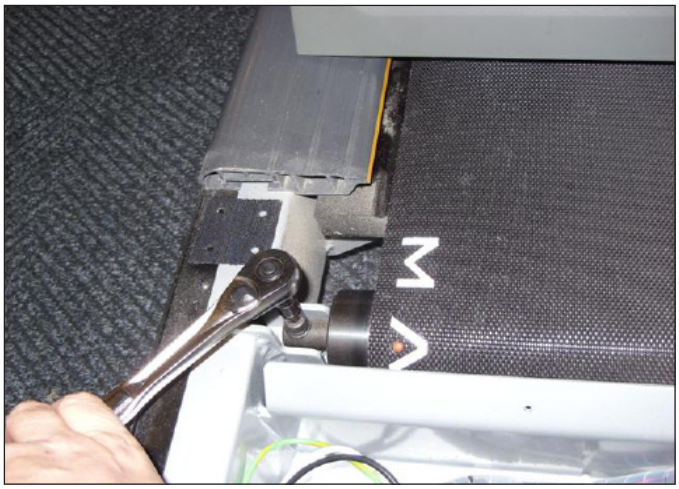


FIGURE B



FIGURE C



FIGURE D

6) Reverse Steps 1-4 to install a new roller.
7) Test the treadmill for function as outlined in Section 9.21.

9.6 RUNNING BELT REPLACEMENT

1) Remove the motor cover as outlined in Section 9.1.
2) Remove the rear roller as outlined in Section 9.2.
3) Remove the deck as outlined in Section 9.3.
4) Remove the front roller as outlined in Section 9.5.
5) Remove the running belt and replace it with a new belt (Figures A & B). ***NOTE:*** New running belts should ALWAYS be installed on a new deck surface (deck should either be flipped or replaced to gain a new surface).

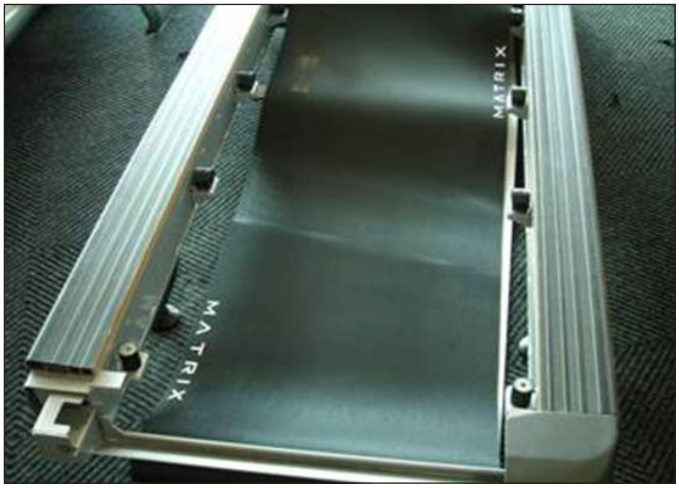


FIGURE A



FIGURE B

6) Reverse Steps 1-5 to install a new running belt.
7) Test the treadmill for function as outlined in Section 9.21.

9.7 SIDE RAIL REPLACEMENT

1) Remove the rear end cap using a Phillips screwdriver (Figure A).
2) Loosen the four screws under the frame using a 5 mm Allen wrench (Figure B).



FIGURE A



FIGURE B

3) Slide the rail off the back of the treadmill (Figures C & D).

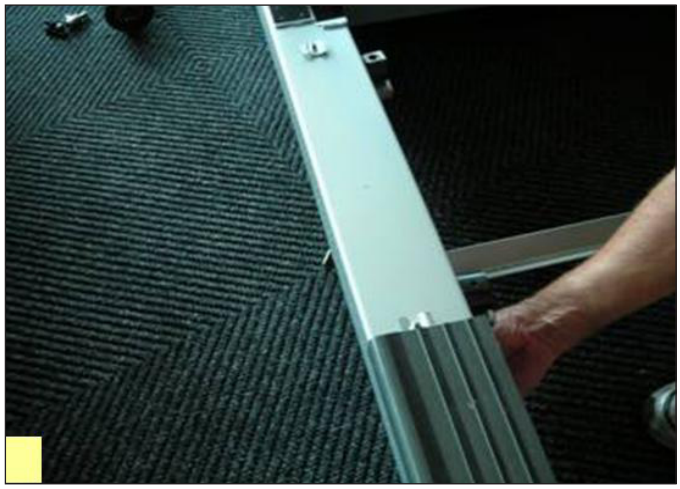


FIGURE C

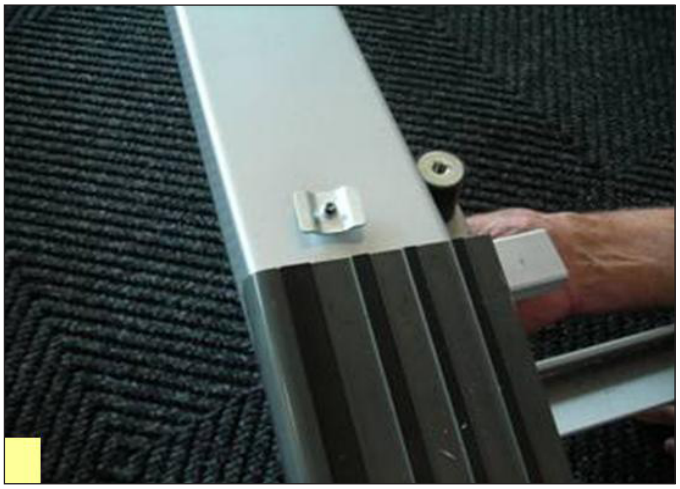


FIGURE D

4) Reverse Steps 1-3 to install a new side rail. ***NOTE:*** After reinstalling the side rail, make sure the rear end cap is on first before tightening the screws for proper gap spacing. Also be careful not to over tighten the screws, or they will poke through the top of the side rail.

9.8 MOTOR CONTROL BOARD (MCB) REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove the motor cover as outlined in Section 9.1.
3) Remove the wire connections to the MCB.
4) Remove the 2 screws holding the MCB to the base frame (Figures A & B).

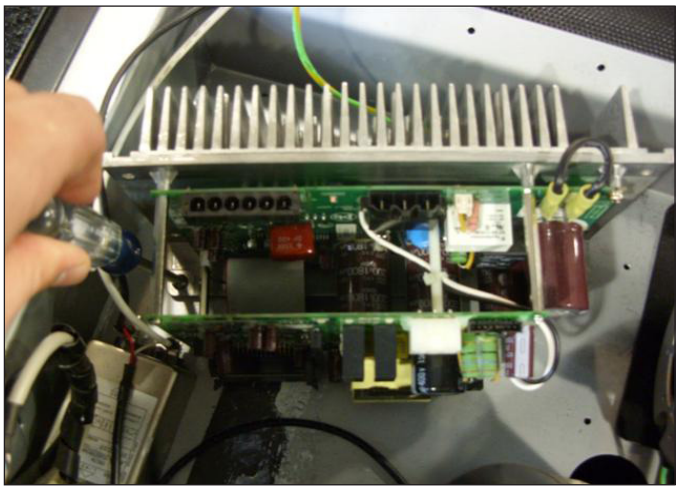


FIGURE A

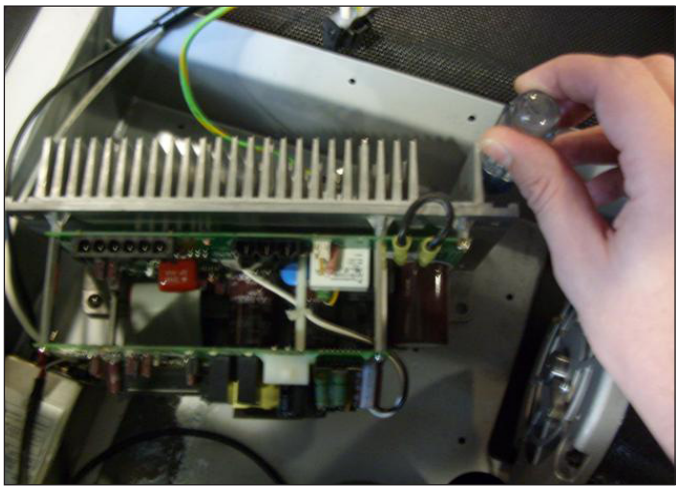


FIGURE B

5) Remove the MCB.
6) Reverse Steps 1-5 to install a new MCB. ***NOTE:*** Be sure to plug in all wire connections removed in Step 3 (Figure C). The wire coming from the speed sensor on the motor is not used on this model and should not be plugged in.
7) Test the treadmill for function as outlined in Section 9.21.

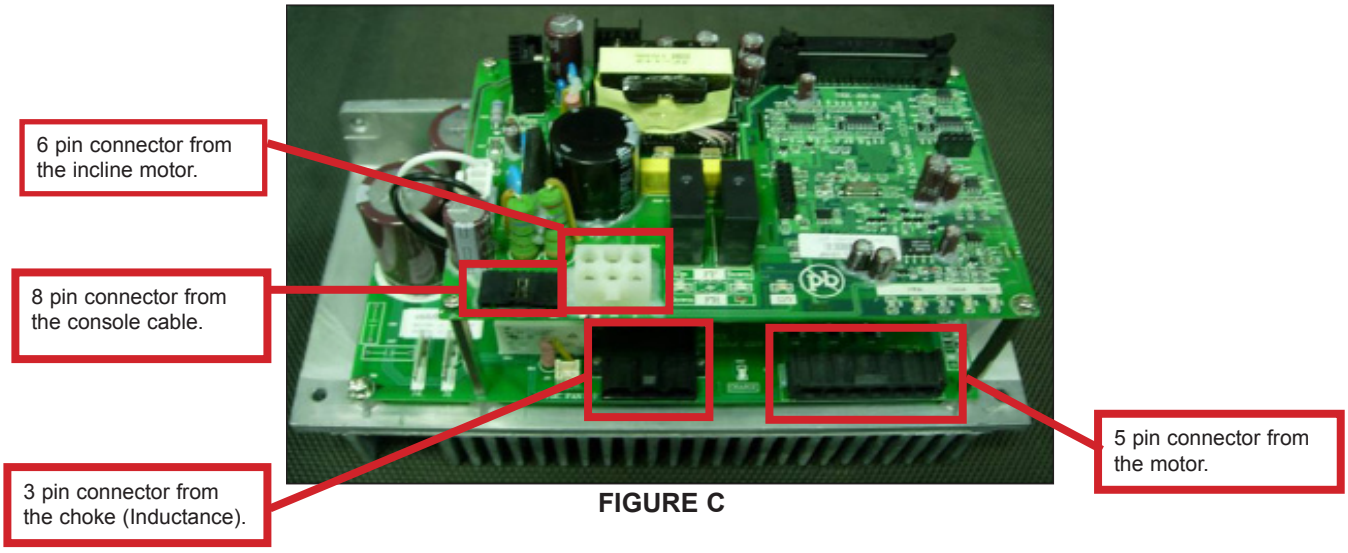


FIGURE C

9.9 MOTOR REPLACEMENT

1) Turn off power to the treadmill and disconnect the power cord.
2) Remove the motor cover as outlined in Section 9.1.
3) Use a hook or length of wire to release the drive belt tensioner spring (Figure A).
4) With the spring released, rotate the tensioner to relieve tension on the drive belt (Figure B).

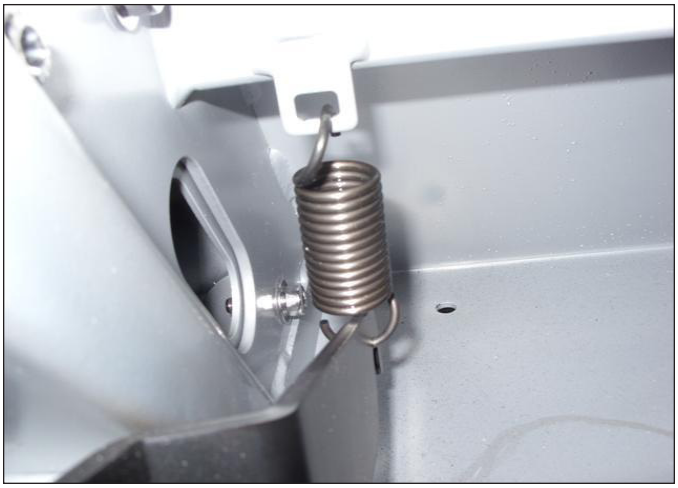


FIGURE A

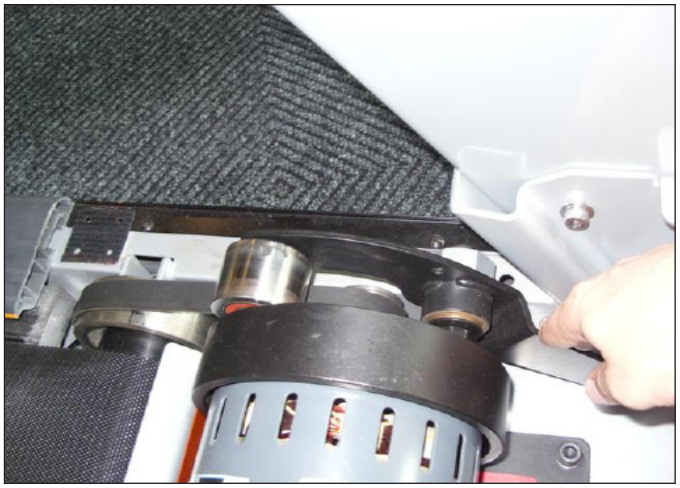


FIGURE B

5) With the tension on the belt released, walk the drive belt off of the motor pulley (Figure C).
6) Disconnect the motor cables from the MCB and cut any tie straps holding them in place (Figure D).



FIGURE C

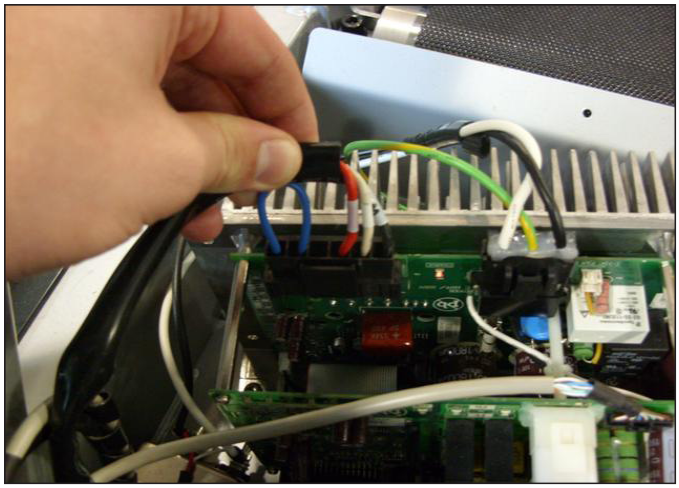


FIGURE D

9.9 MOTOR REPLACEMENT - CONTINUED

7) Disconnect the motor ground wire from the motor and cut any tie straps holding the ground wire in place (Figure E).

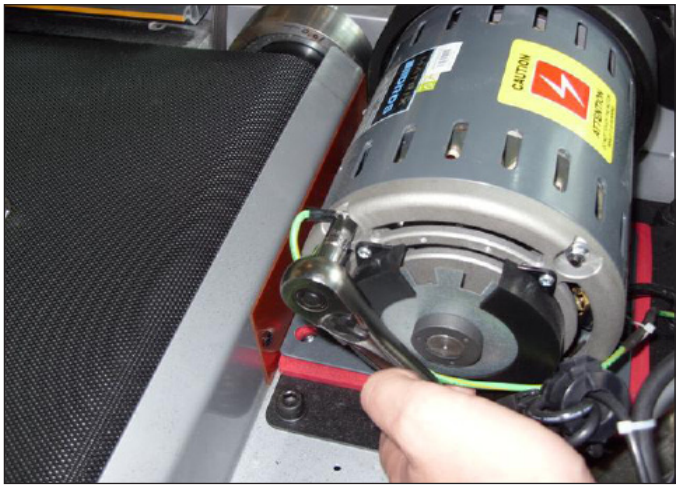


FIGURE E

8) Using an 8 mm Allen wrench, remove the four motor mounting screws (Figure F).
9) Lift the motor away from the treadmill (Figure G).

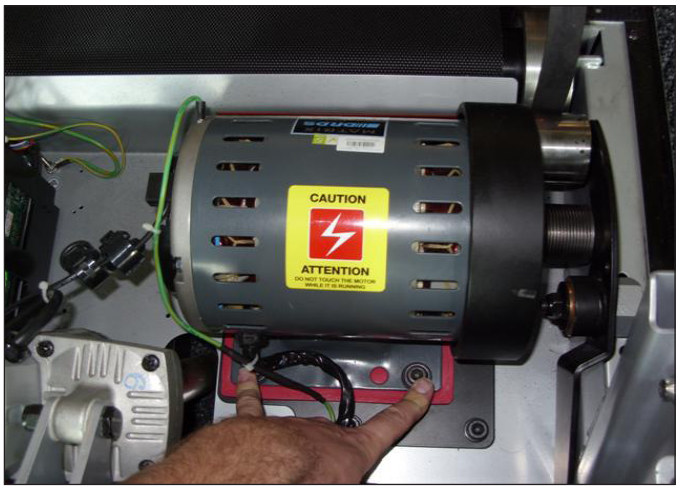


FIGURE F

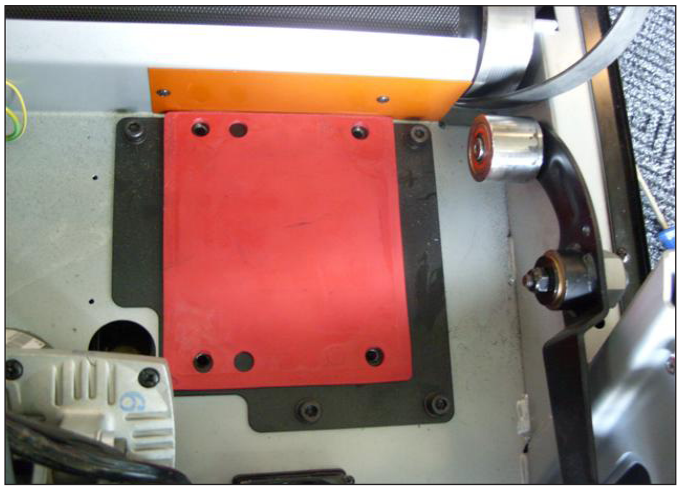


FIGURE G

10) Reverse Steps 1-9 to install a new motor. ***NOTE:*** The speed sensor on the motor is not used on this model and should not be plugged into the MCB.
11) Test the treadmill for function as outlined in Section 9.21.

9.10 DRIVE BELT REPLACEMENT

1) Turn off power to the treadmill and disconnect the power cord.
2) Remove the motor cover as outlined in Section 9.1.
3) Release the drive belt tensioner spring (Figure A).

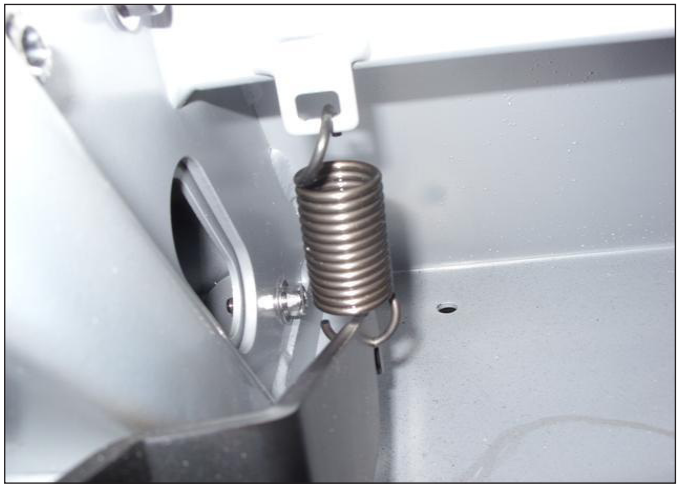


FIGURE A

4) With the spring released, rotate the tensioner to relieve tension on the drive belt and walk the drive belt off of the motor pulley (Figures B & C).

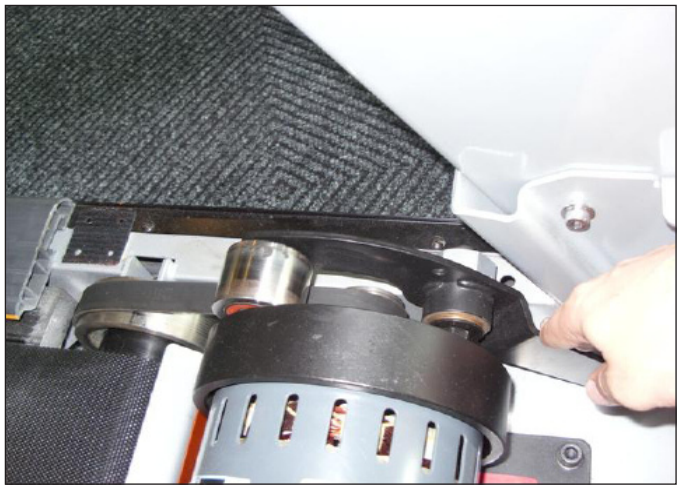


FIGURE B



FIGURE C

9.10 DRIVE BELT REPLACEMENT - CONTINUED

5) Loosen the rear roller screws to relieve tension on the running belt (Figure D).
6) Remove the two 8 mm front roller screws (Figures E & F).
7) Lift the roller and remove the old drive belt (Figure G).



FIGURE D

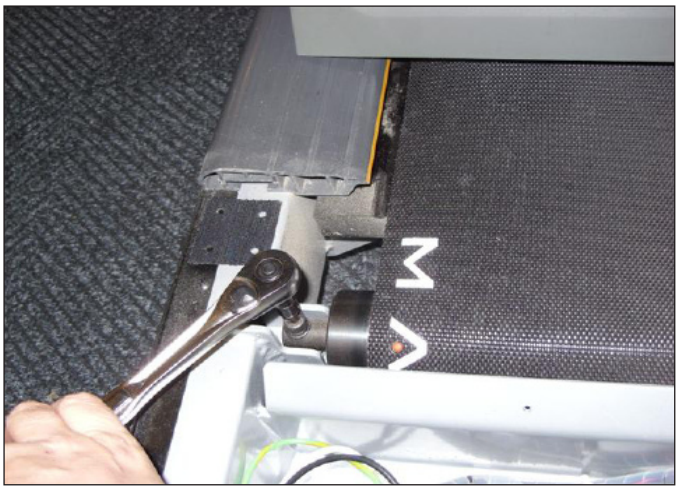


FIGURE E



FIGURE F



FIGURE G

8) Reverse Steps 1-7 to install a new drive belt. ***NOTE:*** After installing a new belt, check it for correct alignment to the motor pulley before setting the tensioner in place.
9) Test the treadmill for function as outlined in Section 9.21.

9.11 INCLINE MOTOR REPLACEMENT

1) Turn off power to the treadmill and disconnect the power cord.
2) Lift the treadmill and support it so that the front wheels are off the floor, or the unit may be tipped on its side (Figure A).



FIGURE A

3) Remove the clip from the pin and remove the pin attaching the incline motor to the rack (Figure B & C).



FIGURE B



FIGURE C

9.11 INCLINE MOTOR REPLACEMENT - CONTINUED

4) Disconnect the incline motor power cable from the MCB (Figure D).
5) Disconnect the incline motor from the top mounting bracket (Figure E).

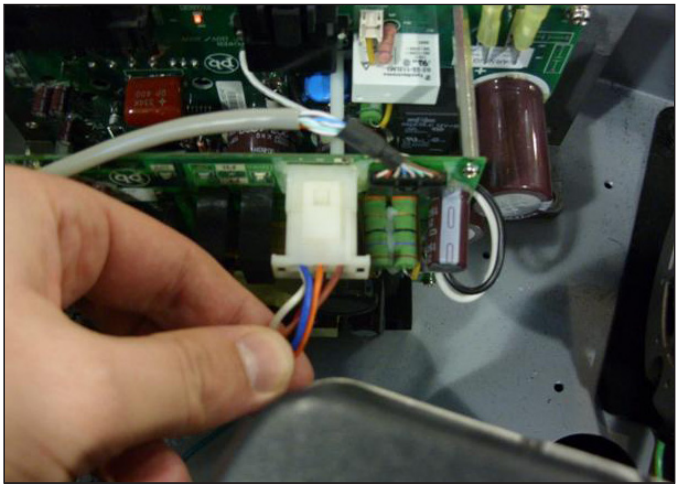


FIGURE D

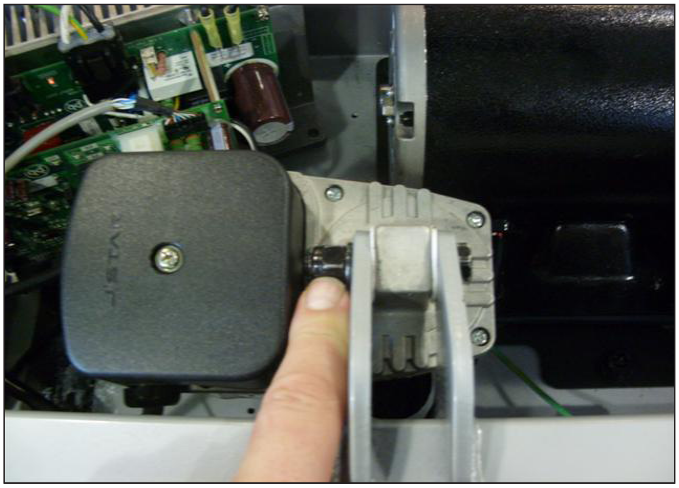


FIGURE E

6) Lift the incline motor away from the treadmill (Figure F).
7) Reverse Steps 1-6 to install a new incline motor. ***NOTE:*** When installing the new incline motor, make sure to replace the white washers at the top and bottom (Figure G).

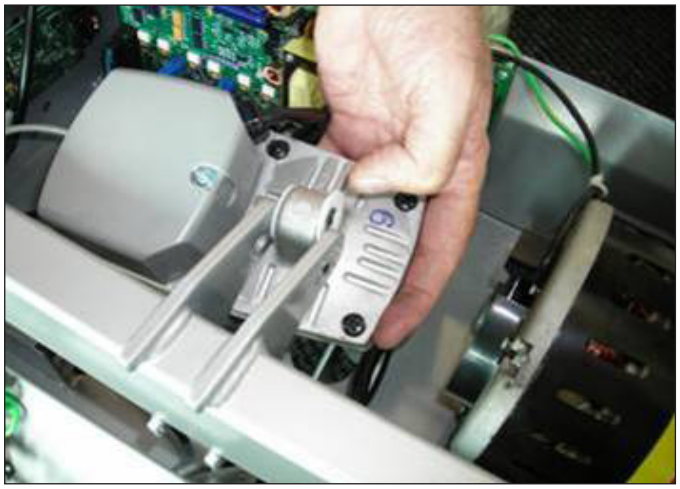


FIGURE F



FIGURE G

8) Test the treadmill for function as outlined in Section 9.21.

9.12 CONSOLE REPLACEMENT

1) Turn off power to the treadmill and disconnect the power cord.
2) Remove the 4 screws holding the back cover onto the console (Figure A).
3) Remove the four 6 mm screws from underneath the console (Figure B).



FIGURE A



FIGURE B

4) Disconnect the 6 wire connections from the console (Figure C).
5) Remove the console (Figure D).

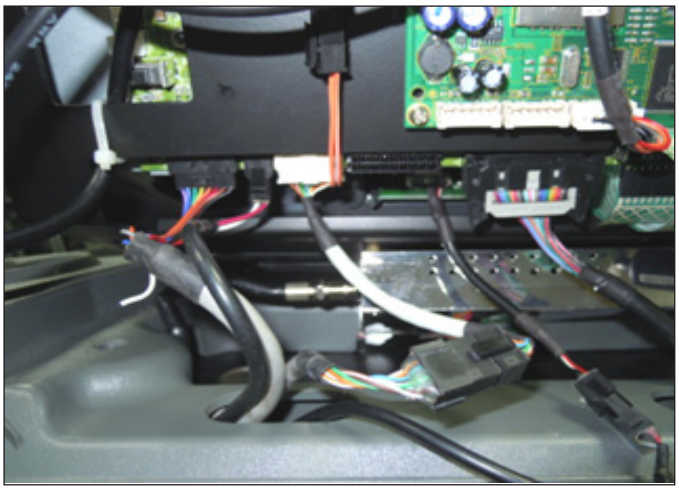


FIGURE C



FIGURE D

6) Reverse Steps 1-5 to install a new console.
7) Test the treadmill for function as outlined in Section 9.21.

9.13 EMERGENCY STOP SWITCH REPLACEMENT

1) Turn off power to the treadmill and remove the power cord.
2) Remove the console as outlined in Section 9.12.
3) Remove the 2 screws holding the red emergency stop key to the emergency stop frame (Figure A).
4) Remove the 2 screws holding the emergency stop frame to the console frame (Figure B).



FIGURE A



FIGURE B

5) Using a flat screwdriver, flex the red emergency stop key to remove it from the emergency stop frame (Figures C & D).

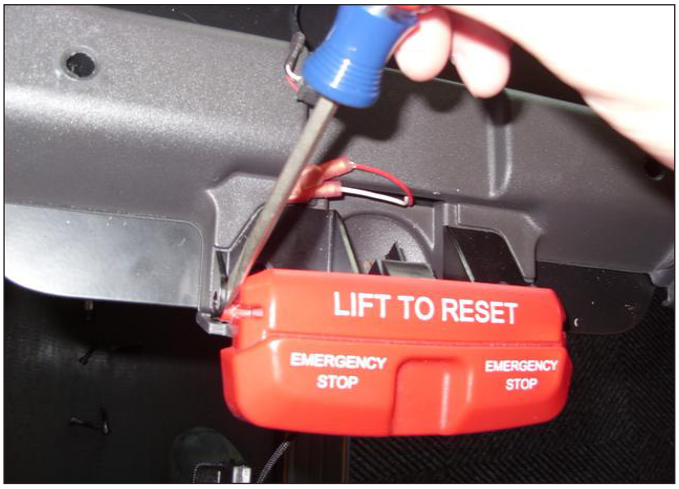


FIGURE C



FIGURE D

9.13 EMERGENCY STOP SWITCH REPLACEMENT - CONTINUED

6) Disconnect the 2 wires plugged into the back of the emergency stop switch (Figure E).
7) Depress the tabs on the top and the bottom of the emergency stop switch (Figure F).



FIGURE E

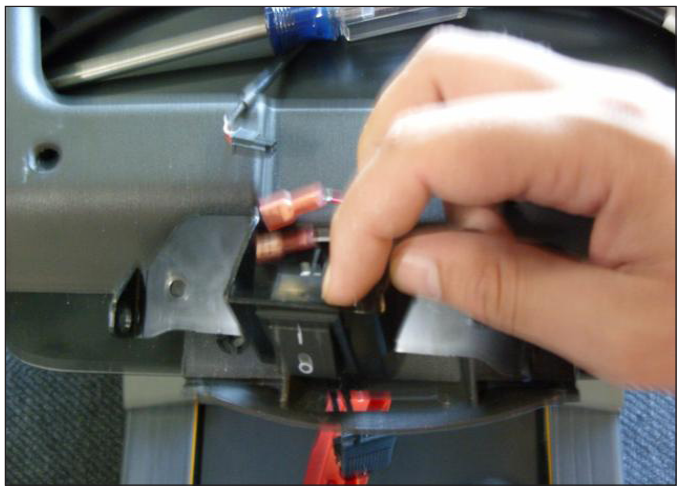


FIGURE F

8) With the tabs depressed, the emergency stop can be removed from the emergency stop frame (Figure G).
9) Reverse Steps 1-8 to install a new emergency stop switch. ***NOTE:*** If replacing the red emergency stop key, be sure to attach the safety clip string to the red emergency stop key before re-installing it (Figure H).

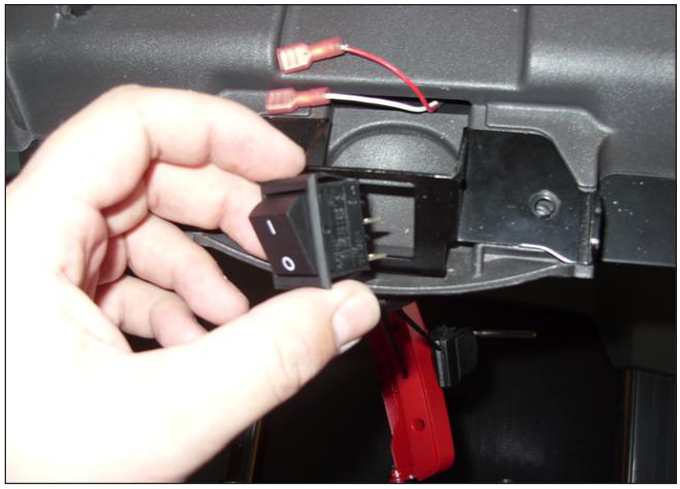


FIGURE G



FIGURE H

10) Test the treadmill for function as outlined in Section 9.21.

9.14 CONSOLE FRAME REPLACEMENT

1) Turn off power to the treadmill and disconnect the power cord.
2) Remove the console as outlined in Section 9.12.
3) Remove the 2 screws on each side holding the console frame to the handlebar frame (Figure A).



FIGURE A

4) Remove the console frame from the handlebar frame. ***NOTE:*** The console cable wiring will need to be removed from the console frame as it is removed (Figure B).

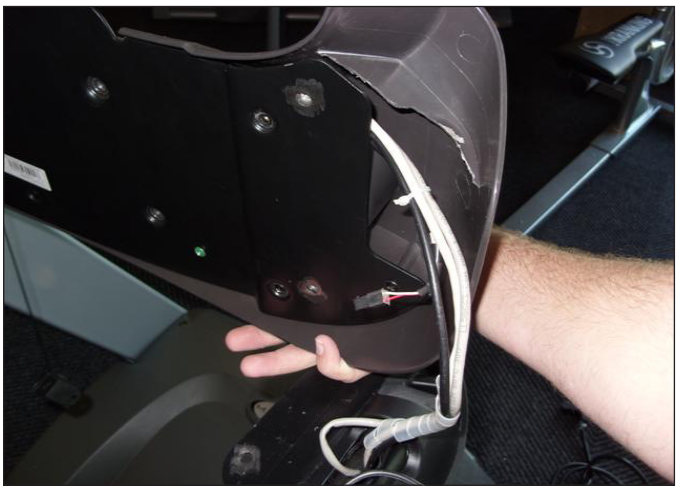


FIGURE B

5) Reverse Steps 1-4 to install a new console frame.
6) Test the treadmill for function as outlined in Section 9.21.

9.15 HEART RATE BOARD REPLACEMENT

1) Turn off power to the treadmill and remove the power cord.
2) Remove the console as outlined in Section 9.12.
3) Remove the console frame as outlined in Section 9.14.
4) Remove the 2 screws holding the emergency stop frame to the console frame (Figure A).
5) Lay the console frame on its face and remove the 7 screws holding the back panel to the console frame and lean the console back out of the way (Figure B).



FIGURE A

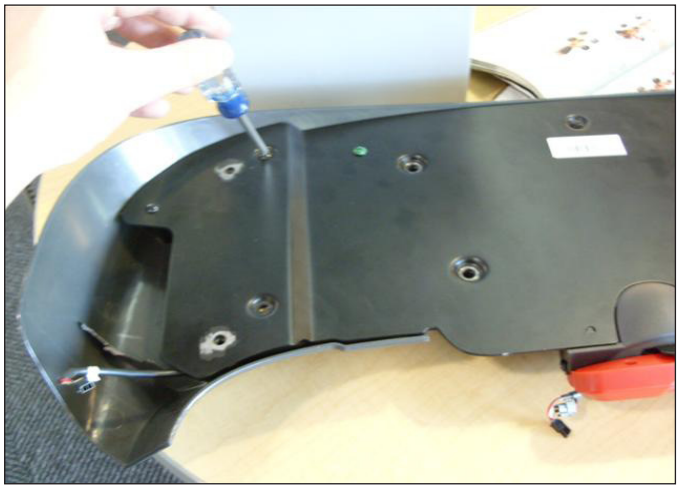


FIGURE B

6) Disconnect the wire connections that go to the heart rate board (Figure C).
7) Remove the 2 screws holding the heart rate board to the console frame and remove it (Figure D).

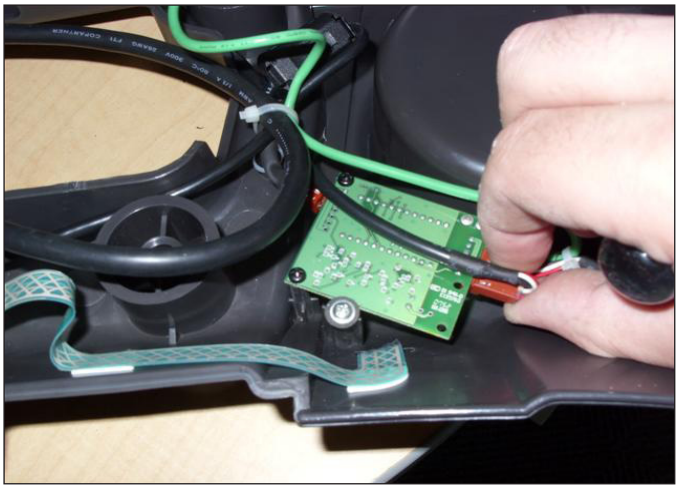


FIGURE C



FIGURE D

8) Reverse Steps 1-7 to install a new heart rate board.
9) Test the treadmill for function as outlined in Section 9.21.

9.16 SPEED OR INCLINE KEYPAD REPLACEMENT

1) Turn off power to the treadmill and remove the power cord.
2) Remove the console as outlined in Section 9.12.
3) Remove the console frame as outlined in Section 9.14.
4) Remove the 2 screws holding the emergency stop frame to the console frame (Figure A).
5) Lay the console frame on its face and remove the 7 screws holding the back panel to the console frame and lean the console back out of the way (Figure B).

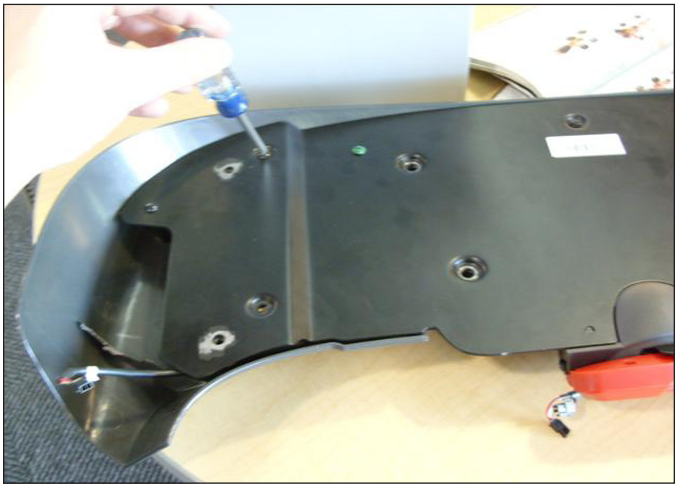


FIGURE A

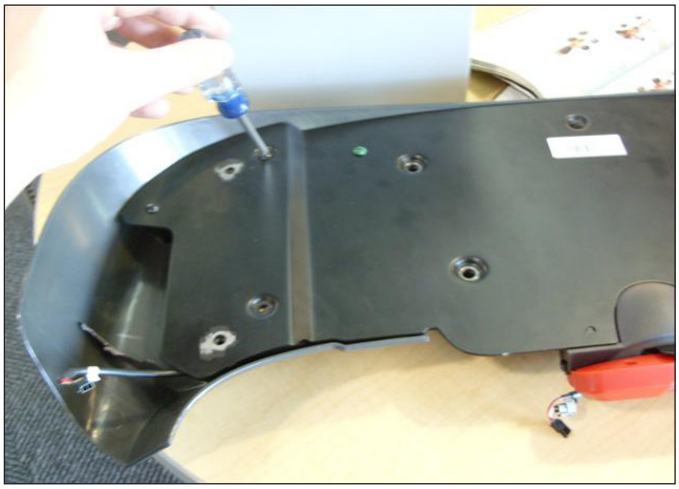


FIGURE B

6) Disconnect the ribbon cable of the affected keypad (Figures C & D).

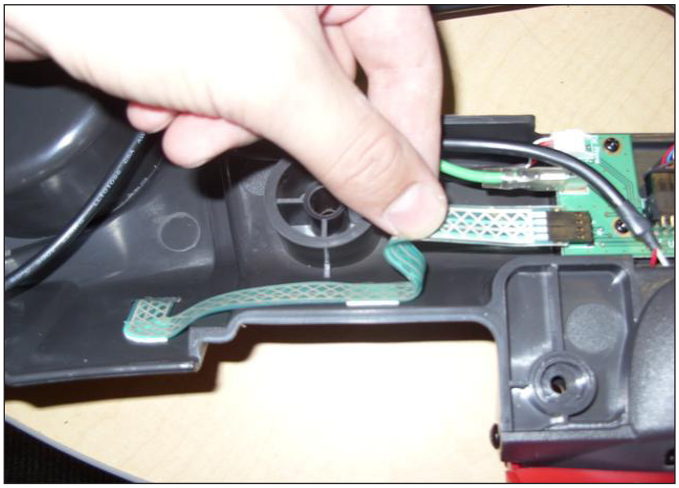


FIGURE C



FIGURE D

7) Peel the keypad up from the front side of the console and remove it.
8) Reverse Steps 1-7 to install a new keypad.
9) Test the treadmill for function as outlined in Section 9.21.

9.17 HANDLEBAR FRAME REPLACEMENT

1) Turn off power to the treadmill and remove the power cord.
2) Remove the console as outlined in Section 9.12.
3) Remove the console frame as outlined in Section 9.14.
4) Remove the 3 screws on each side holding the handlebar frame to the console mast (Figure A).



FIGURE A

5) Lift the handlebar frame up and away from the console mast (Figure B). ***NOTE***: The console cable wiring will need to be removed from the handlebar frame on the user's right side as it is removed.

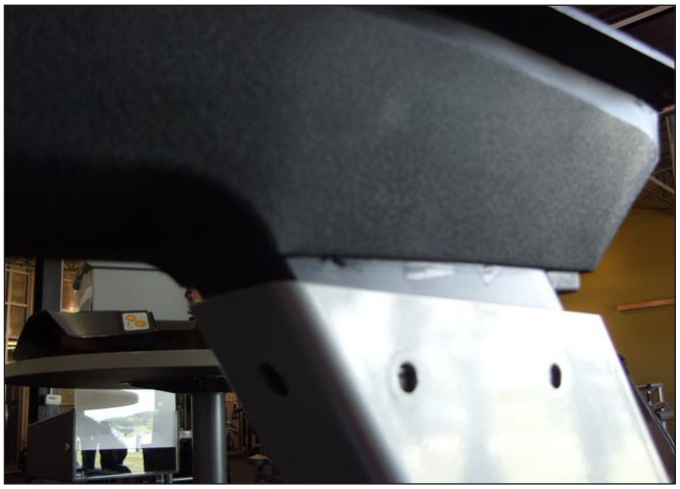


FIGURE B

6) Reverse Steps 1-5 to install a new handlebar frame.
7) Test the treadmill for function as outlined in Section 9.21.

9.18 HEART RATE HANDLEBAR REPLACEMENT

1) Turn off power to the treadmill and remove the power cord.
2) Remove the console as outlined in Section 9.12.
3) Remove the console frame as outlined in Section 9.14.
4) Remove the 3 screws on each side holding the handlebar frame to the console mast (Figure A).
5) Lift the handlebar frame up and away from the console mast (Figure B). ***NOTE:*** The console cable wiring will need to be removed from the handlebar frame on the user's right side as it is removed.



FIGURE A

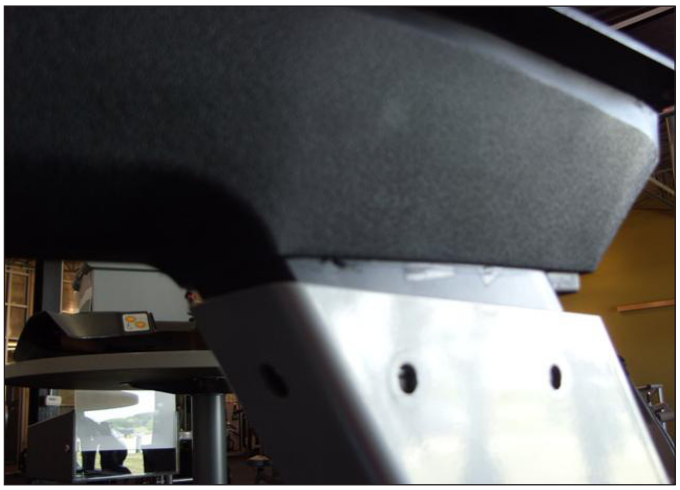


FIGURE B

6) Remove the screw on each side holding the heart rate handlebar to the handlebar frame (Figure C).



FIGURE C

7) Pull the two sides of the handlebar frame away from each other and remove the heart rate handlebar from the handlebar frame.
8) Reverse Steps 1-7 to install a new heart rate handlebar.
9) Test the treadmill for function as outlined in Section 9.21.

9.19 HEART RATE GRIPS REPLACEMENT

1) Turn off power to the treadmill and remove the power cord.
2) Remove the 2 Phillips screws holding the 2 halves of the HR grip together (Figure A).
3) Disconnect the white wire from the bottom HR terminal and remove it (Figure B).



FIGURE A



FIGURE B

4) Disconnect the red wire from the top HR terminal and remove it (Figure C).



FIGURE C

5) Reverse Steps 1-4 to install new HR grips.
6) Test the treadmill for function as outlined in Section 9.21.

9.20 CONSOLE MAST REPLACEMENT

1) Turn off power to the treadmill and remove the power cord.
2) Remove the console as outlined in Section 9.12.
3) Remove the console frame as outlined in Section 9.14.
4) Remove the handlebar frame as outlined in Section 9.17.
5) Remove the motor cover as outlined in Section 9.1.
6) Remove the 4 screws holding the console mast to the base frame (Figure A).
7) Remove the console mast. ***NOTE:*** You will need to pull the console cable wiring through the hole in the bottom of the right side console mast (Figure B).



FIGURE A



FIGURE B

8) Reverse Steps 1-7 to install a new console mast. ***NOTE:*** Be sure to run the console cable wiring through the right side console mast prior to mounting it to the base frame.
9) Test the treadmill for function as outlined in Section 9.21.

9.21 TESTING THE TREADMILL

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

1) If the treadmill was just assembled or if any electronic component has been replaced (including if the console cable is unplugged for any reason), the treadmill MUST be auto calibrated. Refer to the procedure in Section 3.4.

2) If the treadmill was just assembled or if the running belt, deck, or rollers are replaced, center the running belt. Refer to the procedure in Section 3.5.

3) Once Auto Calibration has been run and the running belt is centered, press GO on the display. Listen for any odd noises or squeaks.

4) Press the INCLINE UP key until the treadmill is raised to the maximum incline, then lower back down to the minimum incline. Listen for any odd noises or squeaks during this procedure.

5) Press the SPEED UP key until the treadmill is raised to the maximum speed, then lower back down to the minimum speed. Listen for any odd noises or squeaks during this procedure.

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

7) Press and release the Emergency Stop to return to normal operation.

10.1 TREADMILL SPECIFICATIONS

FEATURES	
Deck Type	Ultimate Hard-Wax reversible 1" deck
Belt Type	Habisat - 2 ply commercial grade
Running Area	60" x 20"
Deck Step Height	7.5"
Cushion System	Ultimate Deck Cushioning System
Incline Range	0 - 15% (1300 lb. thrust incline motor)
Speed Range	0.5 - 12 mph / 0.8 - 20 km/h
Contact HR Sensors	Yes
Telemetric HR Receiver	Yes
Transport Wheels	Yes
DRIVE SYSTEM	
Motor	Matrix 4.2 hp AC Dynamic Response Drive System™
Motor Controller	Commercial Treadmill AC Drive
CONSOLE	
Display Type	7" LED
Display Feedback	Time, Distance, Calories, Calories per Hour, Speed, Incline, Pace, Heart Rate, METs, Watts, and Profile.
Workouts	Manual, Rolling Hills, Fat Burn, 5K, Target HR, Gerkin Protocol, Army PFT, Navy PRT, Marine PFT, and Air Force PRT
One-Button Quick Start	Yes
CSAFE, FitLinxx Ready	Yes
Pause Function	Yes
On-the-fly Program Change	Yes
Integrated Vista Clear Digital Ready TV	Yes
Manager Mode	Re-settable defaults with accumulated time and distance.
TECH SPECS	
Overall Dimensions	84"L x 33.25"W x 52"H
Maximum User Weight	400 lbs / 181.4 kg
Weight	356 lbs / 157 kg
Shipping Weight	350 lbs / 159 kg
Electrical Requirements	120 Volt 20 Amp Dedicated Circuit required with a non-looped ground.

FRAME SET

PART #	PART NAME	DIAGRAM	SPECIFICATION	QUANTITY	COLOR
11	Hex Head Cap Screw		M8 x 1.25P x 25L	8	Blue
12	Flat Washer		8.2 x 19 2.0t	8	Blue
13	Hex Head Cap Screw		M8 x 1.25P x 15L	6	Black
14	Button Head Screw		M8 x 1.25P x 25L	6	White
15	Flat Washer		8.2 x 19 x 2.0t	6	White

CONSOLE SET

PART #	PART NAME	DIAGRAM	SPECIFICATION	QUANTITY	COLOR
41	Hex Head Cap Screw		M8 x 1.25P x 40L	4	Yellow

10.3 ASSEMBLY INSTRUCTIONS

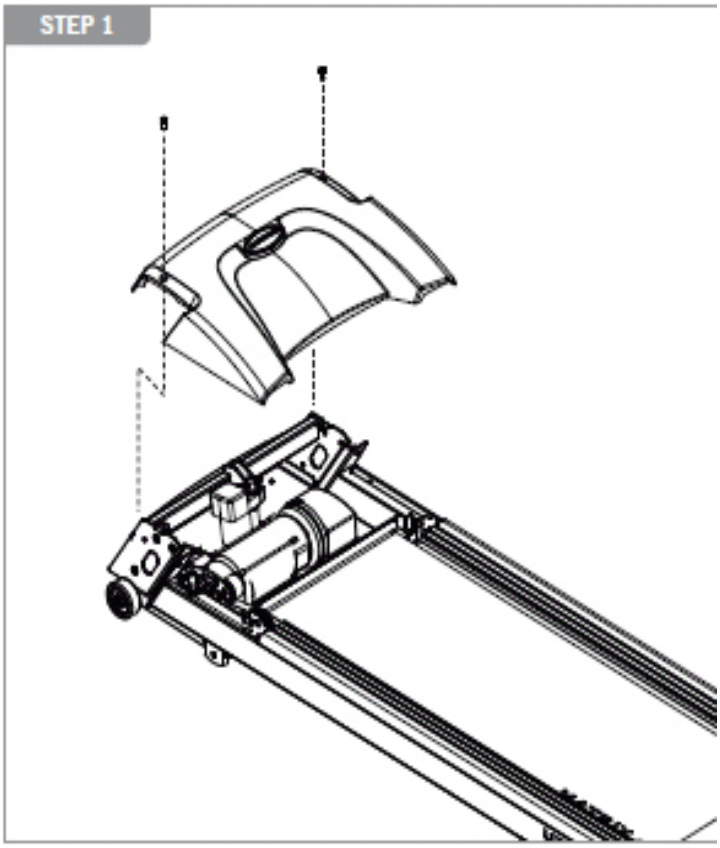
ATTENTION

After assembly and installation is complete, the treadmill will need to be calibrated using the auto-calibration procedure outlined in Section 3.4.
DO NOT stand on the belt while the auto-calibration sequence is in progress.

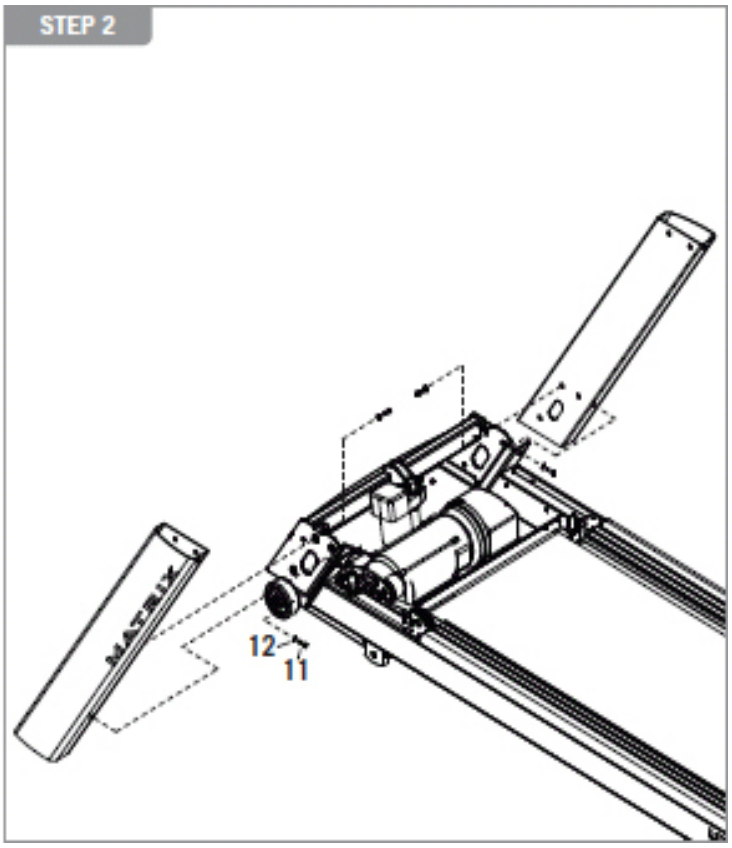
Prior to assembling the treadmill, unpack all of the contents of the box and make sure that all necessary components are present. Review the contents of the hardware package for completeness. Contact Matrix customer service at 866.693.4863 to report any missing items.

ASSEMBLY INSTRUCTIONS

Please make sure that the power cord is not plugged into the wall outlet while completing the following procedure.
To ensure correct assembly of the treadmill, carefully read and follow these steps:

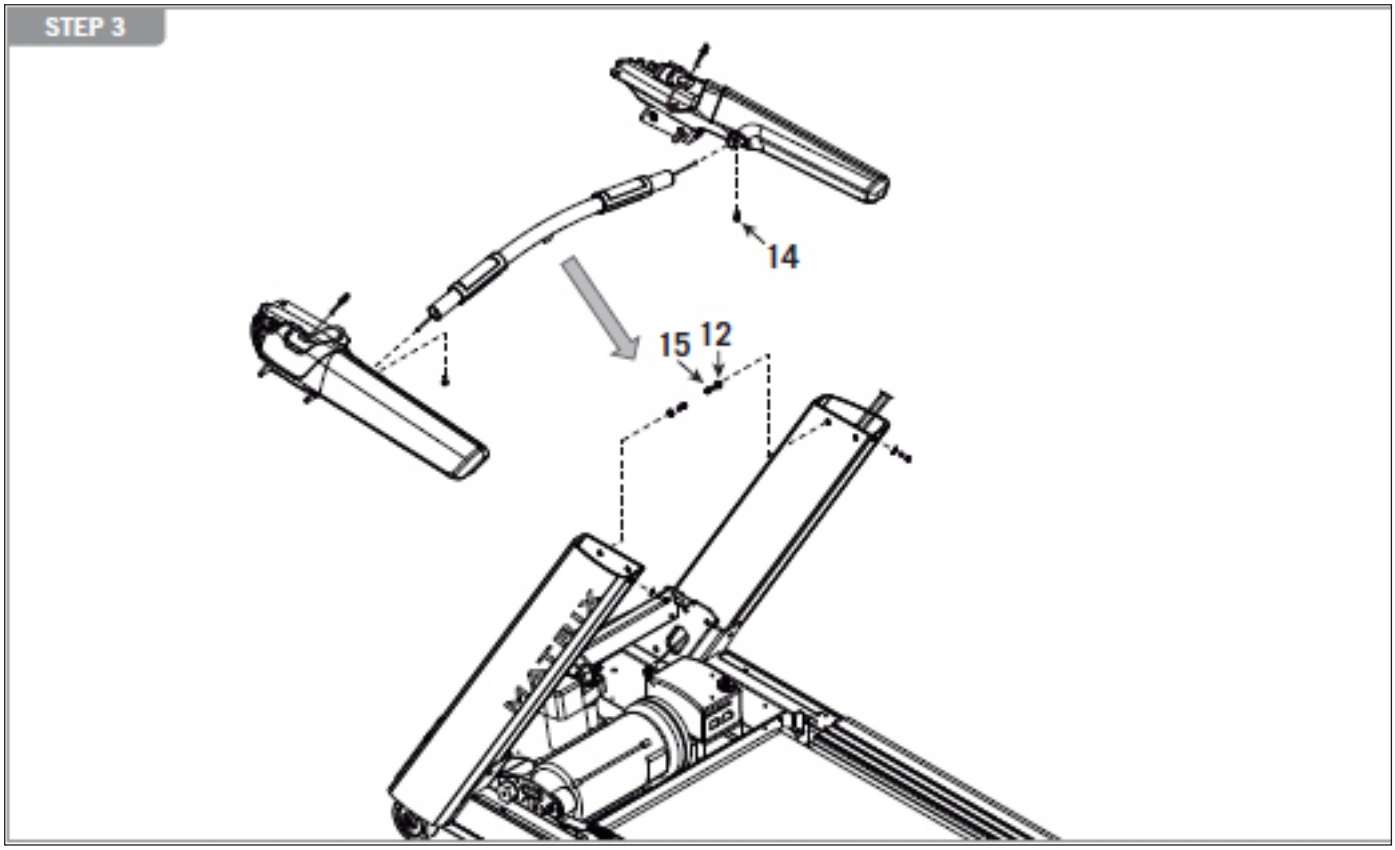


Remove the motor cover(s) and set aside. The motor cover(s) need to be removed to gain access to the motor compartment so that wire harness connections can occur.



Open Blue Assembly Bag. Assemble both the left and right console masts to the treadmill base using item 11 hex head cap screw and item 12 flat washer. Thread the console cable through the right console mast as you attach it.

10.3 ASSEMBLY INSTRUCTIONS - CONTINUED

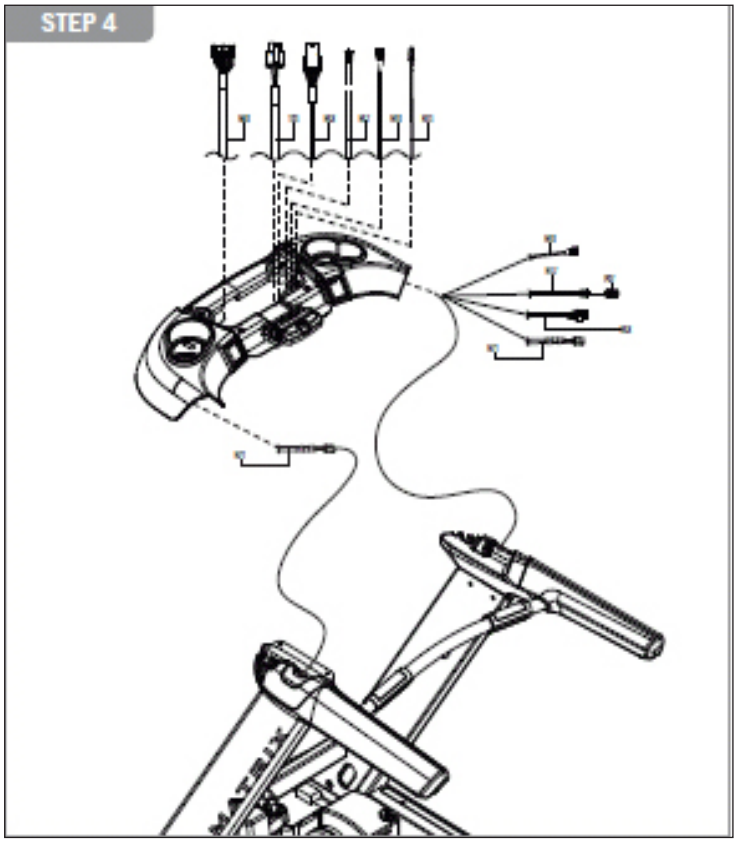


Open Black & White Assembly Bag. Assemble the HR handlebar to the left and right handlebars using item 14 - hex head cap screw. Fasten the contact HR handlebar assembly to the console masts using item 15 - button head screw and item 12 - flat washer.

Pull the HR wires through the handlebar using the wire pull. Pull the mast wire through the handlebar.

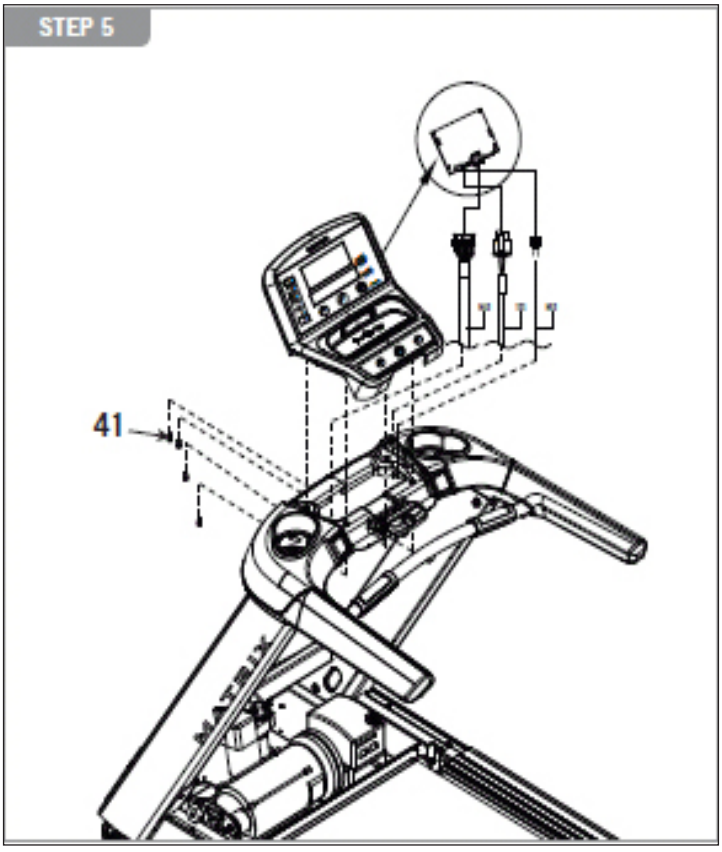
Assembly tip: Look at the labels on the HR wire coming from the HR handlebar to ensure that contact with the left and right handlebars are assembled in the proper orientation.

10.3 ASSEMBLY INSTRUCTIONS - CONTINUED



Open Black Assembly Bag. Assemble the console frame to the handlebars using item 14 - hex head cap screw. Be sure to route the console cables down the console mast and connect the HR handlebar wires. Make all appropriate wire connections within the motor compartment.

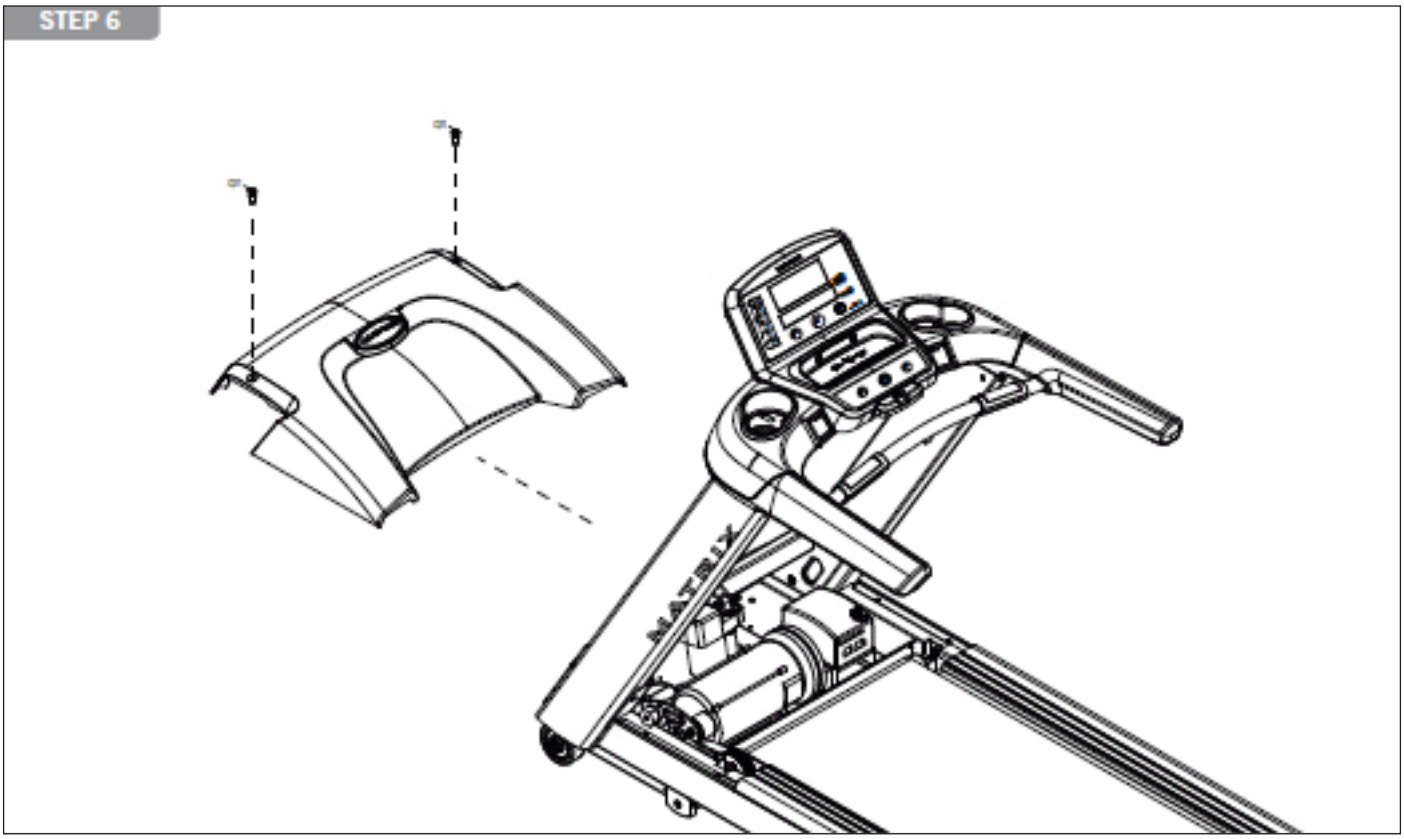
NOTE: For the T3xe, three connections need to be made in the motor compartment.



Open Yellow Console Assembly Bag. Make the appropriate color coded wire connections to the faceplate then assemble to the console frame using item 41 - hex head cap screw.

10.3 ASSEMBLY INSTRUCTIONS - CONTINUED

STEP 6



Open Green Assembly Bag. Install the power cord and assemble item 18 power cord holder with item 22 button head screw. If your hardware pack is missing item 22, check to see if the screws are already assembled on the treadmill.

Replace the motor cover(s) and power the treadmill on. The power button is located next to the power cord inlet.

10.4 TV PROGRAMMING INSTRUCTIONS

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

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

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



FIGURE A



FIGURE B

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

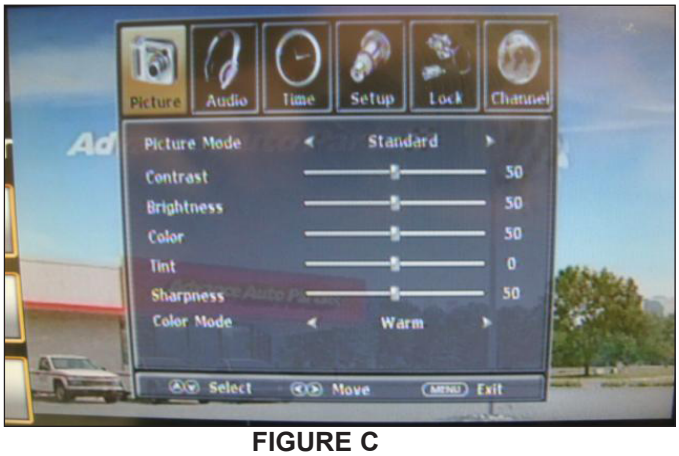


FIGURE C



FIGURE D

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



FIGURE E



FIGURE F

10.4 TV PROGRAMMING INSTRUCTIONS - CONTINUED

Auto Scan (continued):

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



FIGURE G

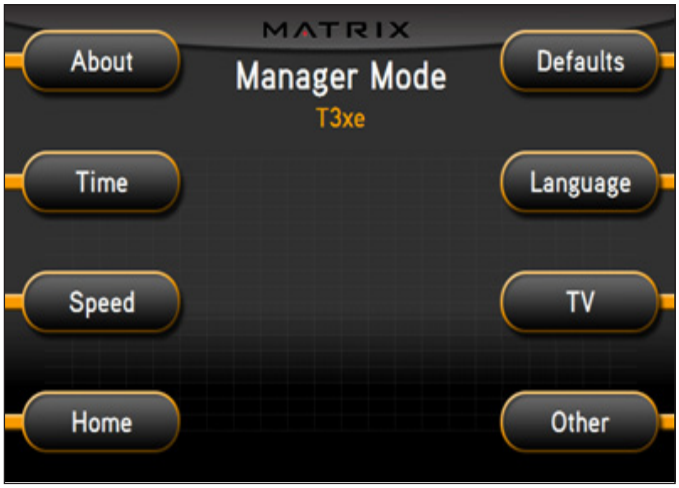


FIGURE H

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

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



FIGURE I



FIGURE J

10.4 TV PROGRAMMING INSTRUCTIONS - CONTINUED

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

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



FIGURE K



FIGURE L

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



FIGURE M



FIGURE N

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



FIGURE O



FIGURE P

11.1 SOFTWARE UPGRADE PROCEDURE

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

1) Copy five software files (3xeAllDeploy.cab, NK, IO_XXX, updateLMM.cofige and Extract_CE) onto a USB drive.
2) Turn on the power to the Treadmill, wait until the standby picture has come up (Figure A).
3) Insert the USB drive into the USB Port in the console (Figure B).



FIGURE A



FIGURE B

4) After a few seconds, the treadmill will run the auto update processing (Figure C). The achieved percentage of the scheduled process will be displayed (Figure D).

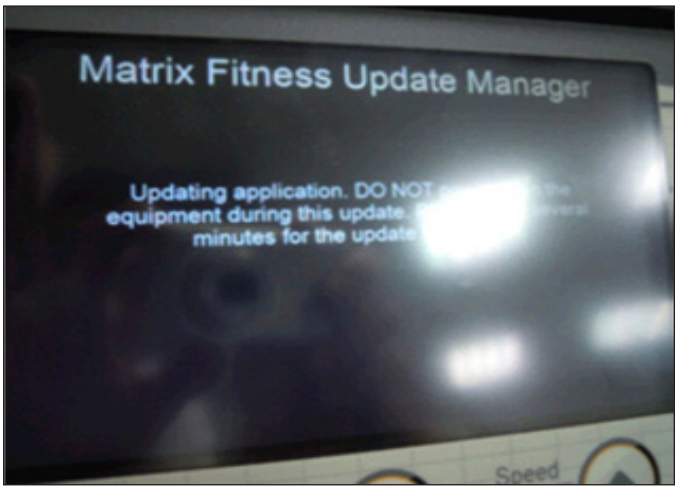


FIGURE C

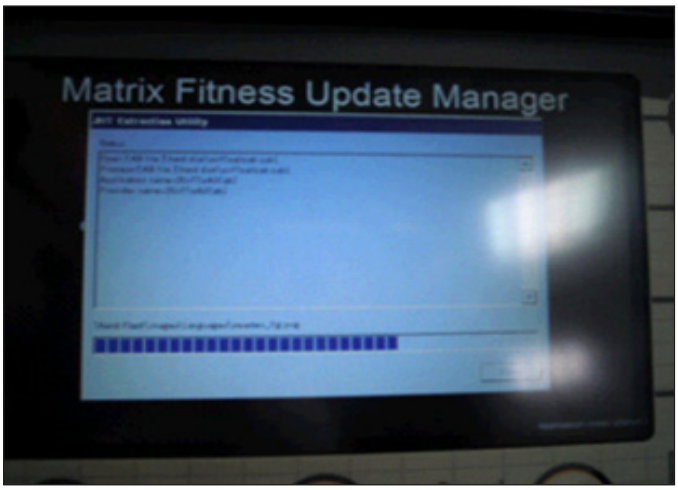


FIGURE D

11.1 SOFTWARE UPGRADE INSTRUCTIONS

5) When the update is complete, the display will ask you to remove the USB drive (Figure E). Once the USB is removed, the treadmill should reboot immediately. ***NOTE:*** If the console does not reboot normally, reset the unit power using the power switch. Also reset the console power by pressing and holding the CHANNEL UP and DOWN keys together for 3-5 seconds. Update the software again if problems persist.
6) Press ENTER, 1, 0, 0, 1, ENTER on the upper keypad to enter Manager Mode, then press the key next to ABOUT (Figure F).

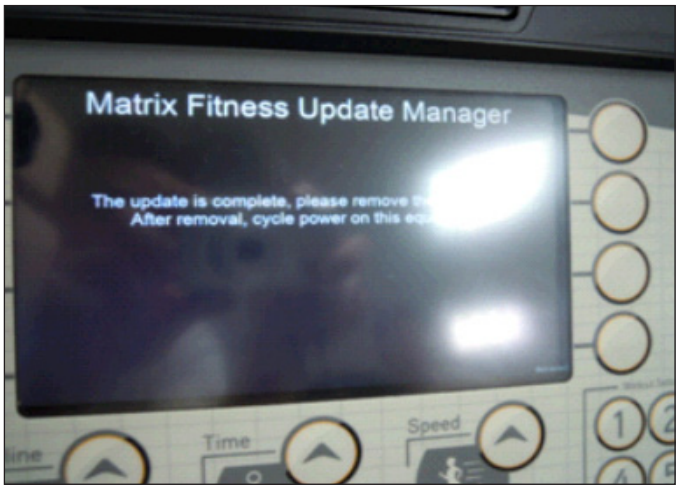


FIGURE E



FIGURE F

7) Press the key next to VERSIONS to verify the new software version (Figure G).
8) All of the software versions will now be displayed (Figure H). Press the HOME key to return to the standard display picture.
9) Press ENTER, 3, 0, 0, 1, ENTER to go into Service Mode. Check to see if the Machine Type is correct. If the Machine Type is not correct, press ENTER, 3, 0, 0, 2, ENTER. This will do a software parameter reset. Then change the Machine Type. Once the Machine Type is changed cycle unit and console power. Press the HOME key to return to the standard display picture if the Machine Type is correct.

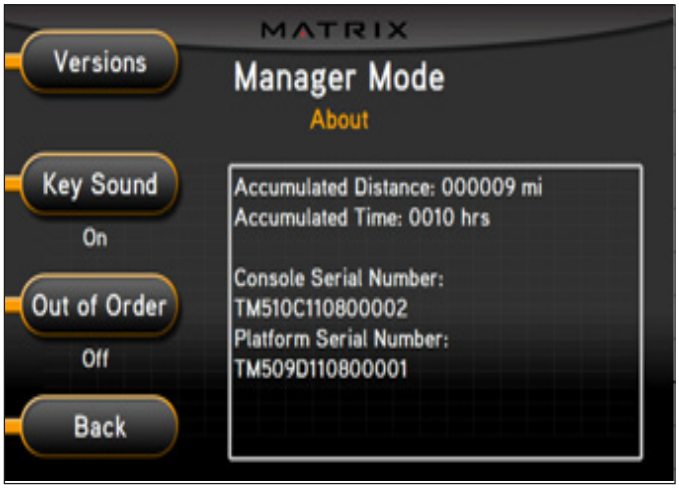


FIGURE G

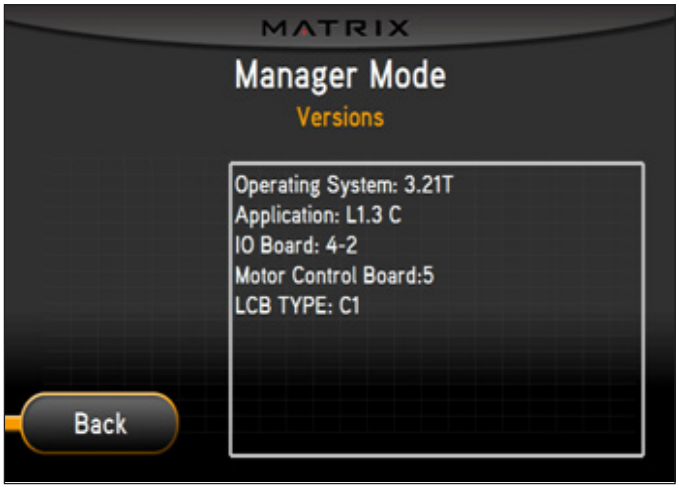


FIGURE H

NOTES



Strong. Smart. Beautiful.

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

KO
REV. B