



Strong. Smart. Beautiful.

T5X-02 TREADMILL SERVICE MANUAL

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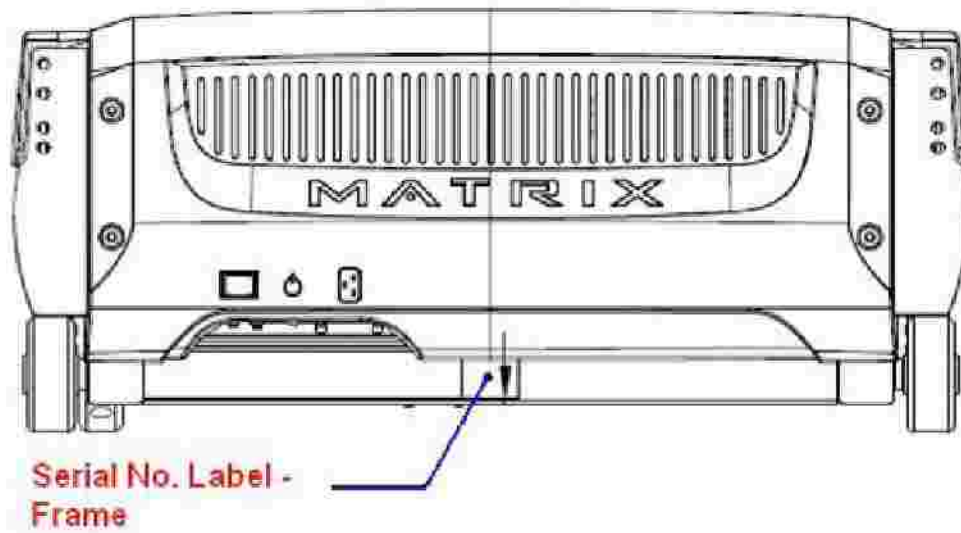
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CHAPTER 1: SERIAL NUMBER LOCATION

1.1 SERIAL NUMBER LOCATION

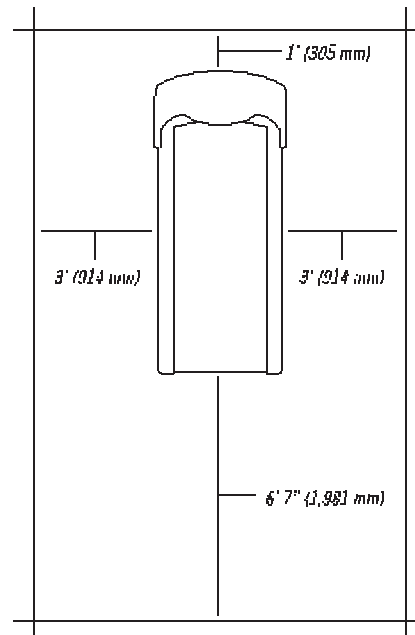


CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.1 LEGAL DISCLAIMER

2.2 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.

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

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 TSX-02 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:

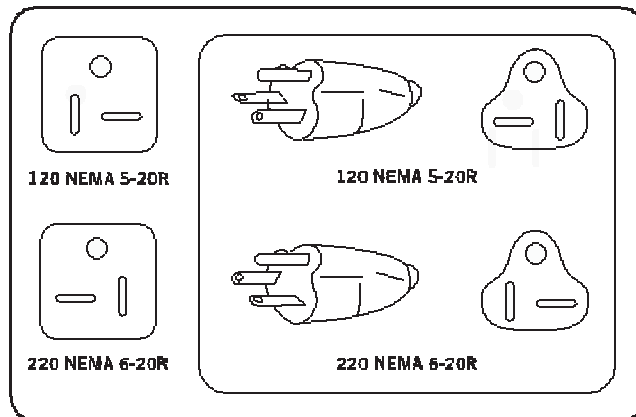
- An appliance should never be left unattended when plugged in. Unplug from outlet when not in use and before putting on or taking off parts.
 - This product must be used for its intended purpose described in this service manual. Do not use other attachments that are not recommended by the manufacturer. 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 clean, free of lint and hair.
 - Never operate product if it has a damaged cord or plug, if it is working properly, if it has been damaged, or immersed in water. Return the unit to a service center for examination and repair.
 - 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 disable persons.
 - Do not use outdoors.
 - Do not operate where aerosol (spray) products are being used or when oxygen is being administered.
 - To disconnect, turn all controls to the off position, then remove plug from outlet.
 - Connect this treadmill to a properly grounded outlet only.
- Do not use the equipment in any way other than designed or intended by the manufacturer. It is imperative that all Matrix Fitness Systems equipment is used properly to avoid injury.
 - Keep hands and feet clear of moving parts at all times to avoid injury.
 - Unsupervised children must be kept away from this equipment.
 - Do not wear loose clothing while on equipment.

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

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.4 ELECTRICAL REQUIREMENTS

For your safety and to ensure good treadmill performance, the ground on this circuit must be non-looped. Please refer to NEC article 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 ft or less, then 12 gauge wire may be used. For any distance greater than 100 ft from the circuit breaker box to the outlet, 10 gauge wire must be used.

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.1 RECOMMENDED CLEANING TIPS

Preventative maintenance and daily cleaning will prolong the life and look of your MATRIX 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 running belt for proper tension and routing.
- Adjust leveling feet when equipment wobbles or rocks.
- Maintain a clean area around equipment, free from dust and dirt.

3.2 CHECK FOR DAMAGED PARTS

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

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

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

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.3 CARE AND MAINTENANCE INSTRUCTIONS

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

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

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

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

DAILY MAINTENANCE ITEMS

- 1) Clean entire machine use water and mild detergent such as “Simple Green”, or other Matrix approved solution (cleaning agents MUST be alcohol and ammonia free).
- 2) Check the emergency stop button and cord for proper operation.

MONTHLY MAINTENANCE ITEMS

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

QUARTERLY MAINTENANCE ITEMS

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

- 2) Check drive belt for visible wear, ie., cracking, tears, etc. 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 plastic hood at the front of the machine. Start the unit and raise incline setting to maximum height. Turn power switch off at the front of the machine to prevent it from lowering accidentally. Lubricate incline motor Acme screw (Matrix recommends using Superlube brand grease with PTFE (Teflon) additive).

BI-ANNUAL MAINTENANCE ITEMS

- 1) Remove wax build up from front and rear rollers of the machine.
- 2) Inspect underside of running belt for damage, check for cracking or glazed surfaces.
- 3) If the belt has damage or wear to it that warrants replacement, please note that the running deck must also be flipped when a new belt is installed. If the deck has previously been flipped and no longer has an unused side available, it need to be replaced when the new belt is installed. A new belt must ALWAYS be installed to run on a new deck surface in order to maximize the lifespan of both items.
- 4) During normal operating conditions, the running belt replacement and deck service should be done every 25,000 miles.

3.4 PREVENTATIVE MAINTENANCE CHECKLIST

MAKE:	MODEL:	S/N:
LOCATION:	TECHNICIAN	DATE:

Inspect power cord _____

Check E-stop cord/button _____

Check hand grips _____

Vacuum under cover _____

Check motor drive belt _____

Check running belt _____

Lubricate elevation rack screw _____

Flip / replace deck _____

De-wax rollers _____

Notes / Comments _____

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.4 AUTO CALIBRATION INSTRUCTIONS

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

AUTO CALIBRATION PROCEDURE:

- 1) Press and hold the ELEVATION DOWN AND SPEED DOWN keys for three seconds until Manager Mode appears on the middle LED display.
- 2) Press any UP arrow key and Engineering Mode will appear on the display.
- 3) Press ENTER once Engineering Mode is displayed.
- 4) Scroll between programs in the Engineering Mode using any UP or DOWN key until Auto Calibration appears on the middle LED display.
- 5) Press ENTER once Auto Calibration is displayed, you should not be standing on the running belt.
- 6) After completion, the display will state whether the Auto Calibration

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 might 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.

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 TSX-02 CONSOLE DESCRIPTION

The Matrix treadmill is inspected before it is packaged. It is shipped in four pieces: the base, the upright console supports, the handlebar, and the console. Carefully unpack the unit and dispose of the box material.



WORKOUT KEYS: Simple program view and selection buttons. Press the Fitness Test button to cycle through available tests.

QUICK START / 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 show 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.

FAN: Allows for fan speed selection (fan has 3 operating speeds).

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.2 MANUAL WORKOUT OPERATION

QUICK START OPERATION

Press the GO or QUICK START 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 workout on a TSx, use the following guidelines:

- 1) Choose MANUAL by selecting the manual workout button and press ENTER.
- 2) Enter the desired workout length using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 3) Enter user weight (user 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.
- 4) Enter the desired initial incline value using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 5) Enter the desired start speed using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 6) Press GO or QUICK START to begin workout.

4.3 OPERATING LEVEL BASED PROGRAMS

Your Matrix treadmill offers a variety of level-based workouts to challenge users of all fitness levels. The following information will briefly explain the workout 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 ROLLING HILLS by selecting the rolling hills workout button and press ENTER.
- 2) Enter the desired intensity using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 3) Enter the desired workout length using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 4) Enter user weight (user 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) Press GO or QUICK START to begin the workout.

FAT BURN WORKOUT OPERATION

Fat burn is a level-based workout that is designed to help user's burn fat through various incline changes.

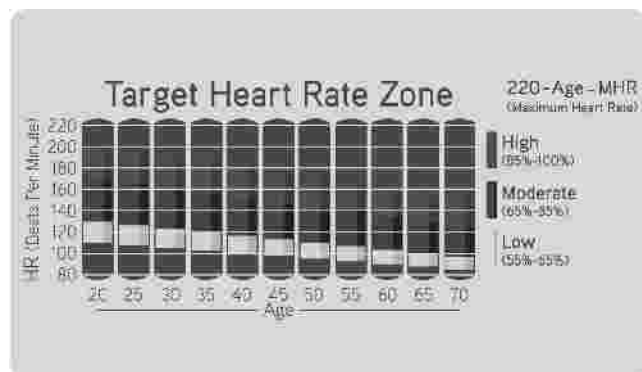
- 1) Choose FAT BURN by selecting the fat burn workout button and press ENTER.
- 2) Enter the desired intensity level using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 3) Enter the desired workout length using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 4) Enter user weight (user 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) Press GO or QUICK START to be

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.4 HEART RATE CONTROL WORKOUT OPERATION

Your Matrix 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 elevation and the treadmill will automatically adjust the elevation based upon the user's heart rate. The heart rate zone is calculated using the following equation: $(220 - \text{Age}) \times \% = \text{target heart rate zone}$. The user must wear a telemetric heart rate monitor or continually hold onto the contact heart rate grips for his workout.

- 1) Choose **TARGET HEART RATE** by selecting the target heart rate workout button and press **ENTER**.
- 2) Enter age using the **ARROW KEYS** or the **NUMBER KEYPAD** and press **ENTER**.
- 3) Enter the desired percent of maximum heart rate using the **ARROW KEYS** and press **ENTER**.
- 4) Enter the desired percent of maximum heart rate using the **ARROW KEYS** or the **NUMBER KEYPAD** and press **ENTER**.
- 5) Enter user weight (user 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**.
- 6) Press **GO** or **QUICK START** to begin the workout.



4.5 FITNESS TEST WORKOUT OPERATION

Your Matrix treadmill offers a variety of fitness test - the Gerkin firefighter protocol, the Army, Navy, USMC, and USAF as well as the Physical Efficiency Battery (PEB).

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% elevation.

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 elevation 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 elevation 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 $(220 - \text{Age}) \times \% = \text{target heart rate zone}$), 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 heart rate exceed the target for more than 15 seconds or 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% elevation.

- 1) Choose the Gerkin test by pressing the **FITNESS TEST WORKOUT** button until Gerkin is shown in the message window and press **ENTER**.
- 2) Enter age using the **ARROW KEYS** or the **NUMBER KEYPAD** 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 gender using the **ARROW KEYS** and press **ENTER**.
- 5) Enter user weight (user 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**.
- 6) The message window will notify the user that the start speed is 3.0 mph (4.8 kph) and 0% elevation during the warm-up.
- 7) Press **GO** or **QUICK START** to begin workout.

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.5 FITNESS TEST WORKOUT OPERATION - CONTINUED

SUBMAXIMAL 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	59.2
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

4.5 FITNESS TEST WORKOUT OPERATION - CONTINUED

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
EXCELLENT	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
EXCELLENT	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	25.5	24.3
VERY POOR	28.3	26.5	25.1	22.3
	25.9	25.1	23.5	21.1

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.5 FITNESS TEST WORKOUT OPERATION - CONTINUED

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 your desired Military test by pressing the FITNESS TEST WORKOUT button until your desired branch test is shown in the message window and press enter.
- 2) Enter age using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 3) Select gender using the ARROW KEYS and press ENTER.
- 4) Enter user weight (user 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 start speed using the ARROW KEYS or the NUMBER KEYPAD and press ENTER.
- 6) Press GO or QUICK START to begin the workout.

CHAPTER 5: MANAGER MODE

5.1 USING MANAGER MODE

- 1) To enter Manager mode, press & hold ELEVATION DOWN and SPEED DOWN at the same time for 3-5 seconds until Manager Mode appears on the display.
- 2) To enter the Manager Mode, press ENTER once Manager Mode appears on the display.



- 3) To scroll between programs in the Manager Mode, press any UP or DOWN key.
- 4) Press SELECT to modify the program settings once displayed.
- 5) Press any UP or DOWN keys to change value.
- 6) Once program setting is correct, press ENTER to save.
- 7) Press the EMERGENCY STOP to exit Manager Mode..

CHAPTER 5: MANAGER MODE

5.2 MANAGER MODE OVERVIEW

CUSTOM SETTINGS	DEFAULT	MINIMUM	MAXIMUM	UNIT	DESCRIPTION
MAXIMUM TIME	60	5	95	MINUTE	Maximum workout duration
DEFAULT TIME	60	5	95 (LIMITED TO MAX TIME SETTING)	MINUTE	Default start time in all programs
DEFAULT LEVEL	1	1	10	LEVEL	Default start level in all programs
DEFAULT AGE	30	15	100	AGE	Default age used in HR programs.
DEFAULT WEIGHT	150 LB / 68 KG	80 LB / 36 KG	400 LB / 182 KG	POUND / KILOGRAM	Default weight used in calorie calculations and HR programs.
ACCUMULATED DISTANCE	N/A	N/A	65,000 MILES / 104,000 KM	MILE / KILOMETER	Total distance on treadmill, not editable. TO RESET: Press and hold ELEVATION DOWN and SPEED DOWN for 3-5 seconds.
ACCUMULATED TIME	N/A	N/A	65,000 HOURS	HOUR	Total time on treadmill, not editable. TO RESET: Press and hold ELEVATION DOWN and SPEED DOWN for 3-5 seconds.
SOFTWARE	N/A	N/A	N/A	N/A	Software Version, not editable
START SPEED	1.0 MPH / 1.6 KPH	0.5 MPH / 0.8 KPH	2.0 MPH / 3.2 KPH	MPH / KPH	Controls the starting speed for all programs (does not affect minimum speeds).
MAXIMUM SPEED	12 MPH / 20 KPH	2.0 MPH / 3.2 KPH	12 MPH / 20 KPH	MPH / KPH	Controls the maximum speed for all programs
DEFAULT CHANNEL	1	1	30	CHANNEL	Controls the default channel for entertainment wired through the C-Safe port
TIMER MODE	DOWN	DOWN	UP	N/A	Controls whether the user time counts up or down.
DEFAULT VOLUME	16	1	30	VOLUME	Controls the default volume for entertainment wired through the C-Safe port.
SPEED MODE	MILE	MILE	KILOMETER	N/A	Measurement unit used for calorie calculations, distance, and speed.
OUT OF ORDER	NO	NO	YES	N/A	Locks the machine.
GENDER	MALE	MALE	FEMALE	N/A	Sets the user's gender.
LANGUAGE	ENGLISH	N/A	N/A	N/A	Sets the language shown on the console.
SOUND MODE	ON	ON	OFF	N/A	Controls whether the display broadcasts chime when buttons are pressed.

CHAPTER 6: ENGINEERING MODE

6.1 USING ENGINEERING MODE

1. To enter Engineering Mode, hold the ELEVATION DOWN AND SPEED DOWN keys for three seconds until Manager Mode appears on the middle LED display.
2. Press any UP arrow key and Engineering Mode will appear on the display.
3. Press ENTER once Engineering Mode is displayed.
4. To scroll between programs in the Engineering Mode, press any UP or DOWN keys.
5. Press ENTER to modify the program settings once displayed.
6. Press any UP or DOWN key to change value.
7. Once program setting is correct, press ENTER to save.
8. Press the EMERGENCY STOP to exit Engineering Mode.

6.2 ENGINEERING MODE OVERVIEW

CUSTOM SETTING	DEFAULT	MINIMUM	MAXIMUM	UNIT	DESCRIPTION
Disable Errors	ON	ON	OFF	N/A	Resets error log. Accomplished by pressing ELEVATION DOWN and SPEED DOWN for 3-5 seconds.
Elevation Minimum	28	20	239	N/A	Controls the low elevation parameter.
Elevation Maximum	230	20	239	N/A	Controls the high elevation parameter.
Auto Calibration	N/A	N/A	N/A	N/A	This function is to calibrate the treadmill elevation and speed.
Speed Units	MILE	MILE	KILOMETER	DISTANCE	Measurement unit used for calorie calculations, distance, and speed.
Pause Time	30 SECONDS	5 SECONDS	10 MINUTES	SECOND / MINUTE	Controls the maximum time the treadmill can be paused during a workout.
Machine Type	N/A	N/A	N/A	N/A	Sets the machine ID, not editable.
RPM Parameter	2055	100	3000	N/A	Checks and adjusts the low speed.

CHAPTER 7: SERVICE MODE

7.1 USING SERVICE MODE

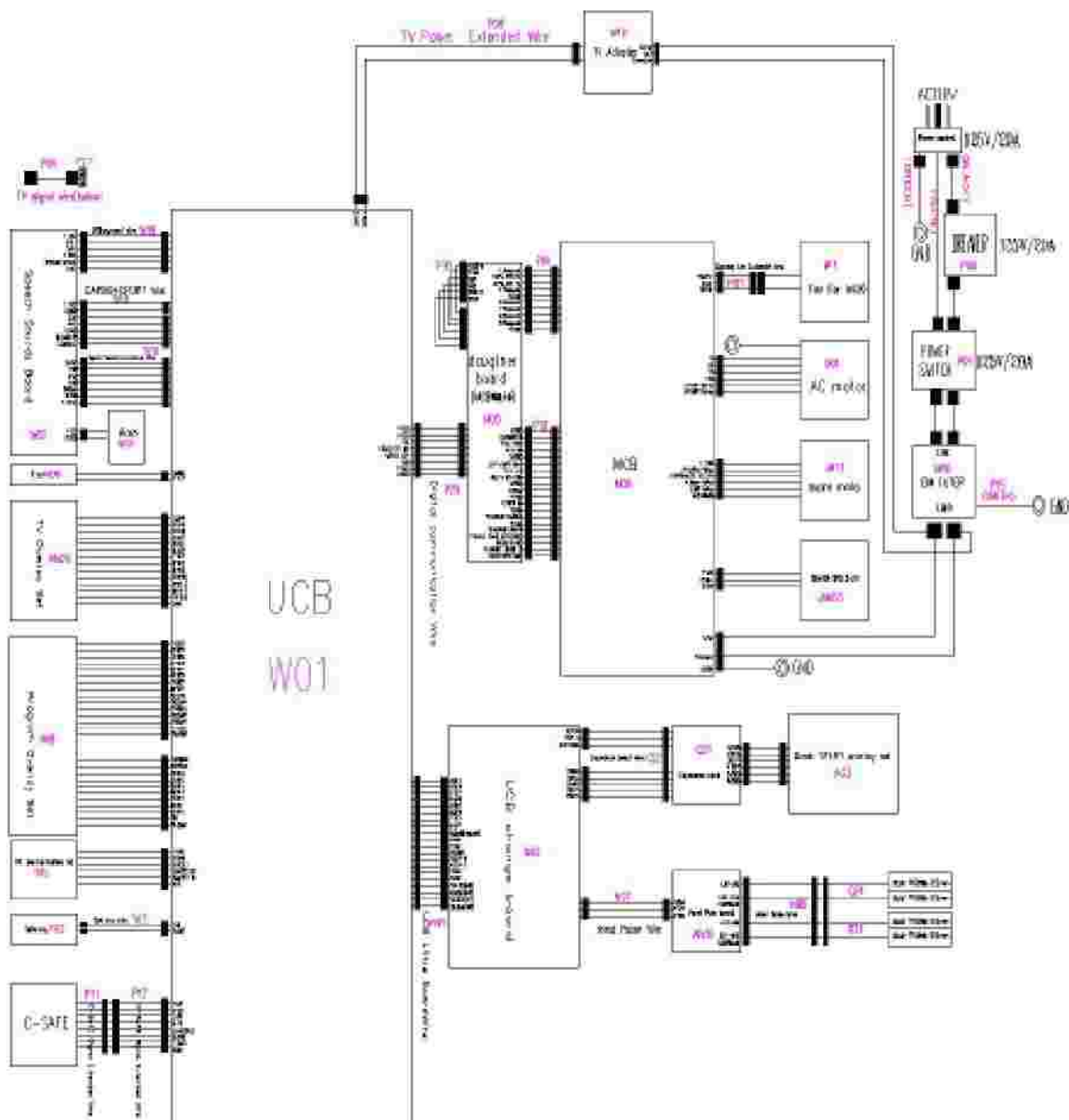
1. To enter Service Mode, hold the ELEVATION DOWN AND SPEED DOWN keys for three seconds until Manager Mode appears on the middle LED display.
2. Press any DOWN arrow key and Service Mode will appear on the display.
3. Press ENTER once Service Mode is displayed.
4. To scroll between programs in the Service Mode, press any UP or DOWN keys.
5. Press ENTER to modify the program settings once displayed.
6. Press any UP or DOWN key to see value.
8. Press the EMERGENCY STOP to exit Service Mode.

7.2 SERVICE MODE OVERVIEW

CUSTOM SETTINGS	DESCRIPTION
Service 1	Display Test
Service 2	Keypad Test
Service 3	Accumulated Distance / Accumulated Time
Service 4	CSafe / RF Test
Service 5	Error Log Message
Service 6	Setting the PCB System Date Data

CHAPTER 8: TROUBLESHOOTING

8.1 ELECTRICAL DIAGRAM



CHAPTER 8: TROUBLESHOOTING

8.1 ELECTRICAL DIAGRAM

P29 -- DIGITAL COMMUNICATION WIRE



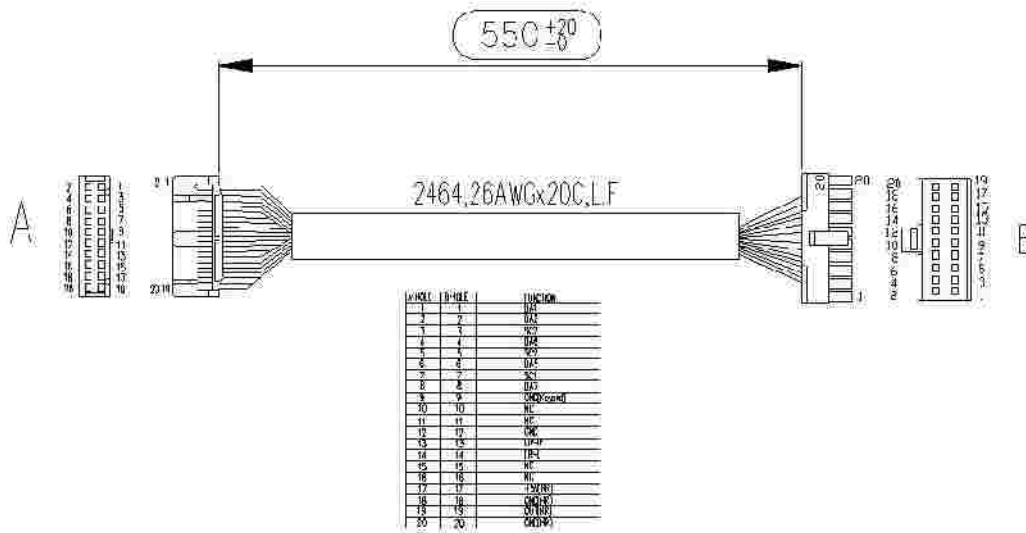
P04 -- MCB Board Signal Wire



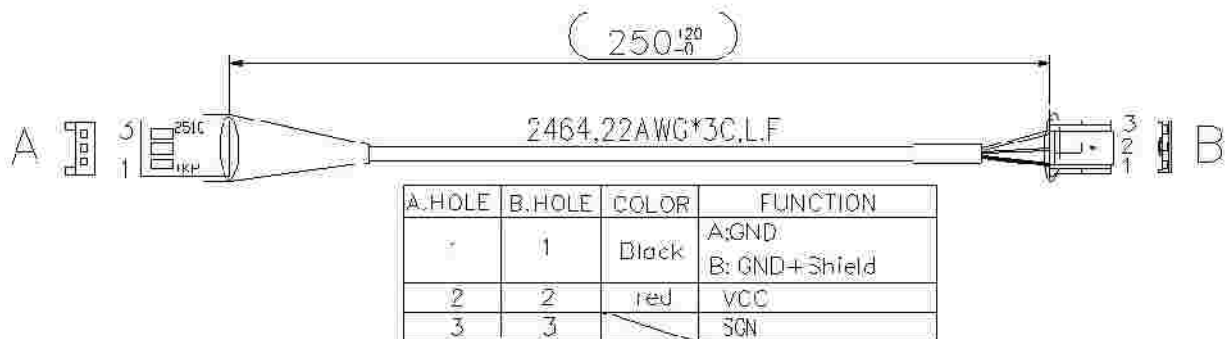
CHAPTER 8: TROUBLESHOOTING

8.1 ELECTRICAL DIAGRAMS

N95 – UCB Little Board Wire

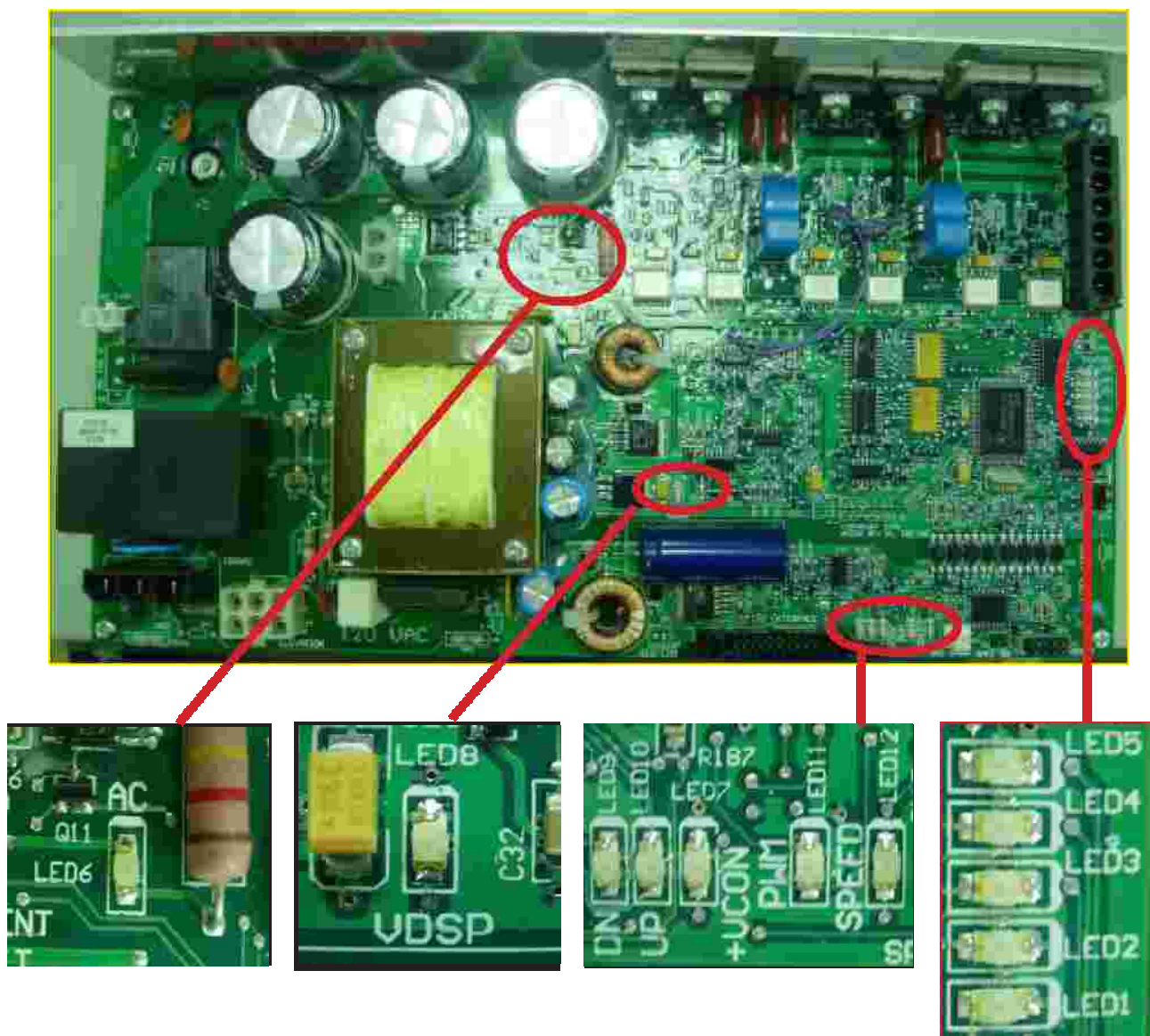


N97 -- Hand Pulse Wire



CHAPTER 8: TROUBLESHOOTING

8.2 MCB LED INSTRUCTIONS



CHAPTER 8: TROUBLESHOOTING

8.2 MCB LED INSTRUCTIONS

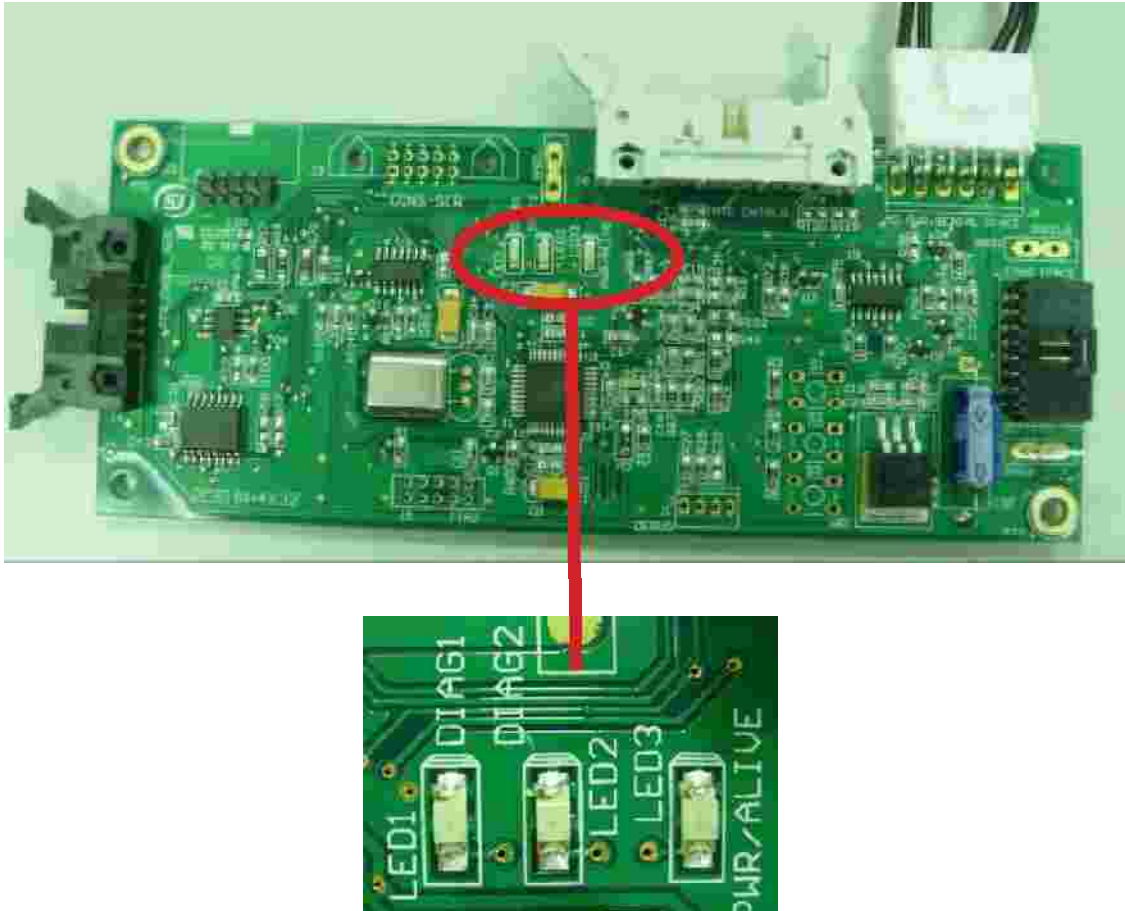
LED	REFERENCE DESIGNATOR	DESCRIPTION
Status	LED 1	Auxiliary Status LED
Status	LED 2	Auxiliary Status LED
Status	LED 3	Auxiliary Status LED
Status	LED 4	Auxiliary Status LED / Digital to Analog Output.
Status	LED 5	Main Status / Error LED
AC	LED 6	Indicates if the DC Buss is Energized (Voltage Present).
+VCON	LED 7	Indicates if Console Voltage Supply is present.
VDSP	LED 8	Indicates if the DSP Power Supply is present.
Down	LED 9	Indicates if the upper console is commanding Elevation Down.
Up	LED 10	Indicates if the upper console is commanding Elevation Up.
PWM	LED 11	Indicates if Console is commanding speed.
Speed	LED 12	Indicates the motor is moving via the encoder's feedback by blinking.

NORMAL OPERATION

- LEDs 1, 2, and 3 Sequence back and forth to indicate the processor is online and operational.
- LED 4 is used as a discrete / analog signal to the upper console.
- LED 5 indicates system status / mode. Currently 3 modes are defined safe mode, stand by mode and run mode. They are defined as follows:
 - Safe Mode - When the controllers safety relay is not energized and no error exists, LED 5 remains off.
 - Stand By Mode - When the safety relay is engaged but the system is not outputting an active PWM to the motor and no error exists, LED 5 blinks off and on at a fast rate.
 - Run Mode - When the system outputs an active PWM Control signal to the motor and no error exists, LED 5 remains ON.

CHAPTER 8: TROUBLESHOOTING

8.3 DAUGHTER BOARD LED INSTRUCTIONS



LED	REFERENCE DESIGNATOR	DESCRIPTION
DIAGNOSTIC 1	LED 1	Indicates the MCB with Daughter Board communication present.
DIAGNOSTIC 2	LED 2	Indicates the PCB with Daughter Board communication present.
POWER / ALIVE	LED 3	Indicates if MCB Voltage Supply is present

CHAPTER 8: TROUBLESHOOTING

8.4 ERROR MESSAGES ON THE CONSOLE

ERROR CODE	DESCRIPTION
0x0044	Actual speed is higher than commanded speed by limit and is accelerating.
0x0043	RPM read from RS232 mismatch RPM measured from the speed / RPM line only used for AC motors.
0x01A2	Elevation direction is reversed.
0x01A0	Elevation is disconnected.
0x0140	Elevation is stalled.
0x01A1	Calibration on the elevation motor fails.
0x02A0	Speed is commanded but no belt movement detected (could be missing magnet).
0x02AE	Checksum failure on critical NOVRAM loading.
0x02AF	Checksum failure on non-critical NOVRAM loading.
0x029F	Error (Drive Fault Report) created by the motor controller - only used for AD motors.
0x02B1	The emergency circuit on the interface board failed.
0x02B2	The emergency circuit on the interface board active.
0x04A0	The console's communications is lost.
0x04A1	The motor controller board's communication is lost.
0x0441	Receives a command from the console with its correct packet, but the interface board has no function to support it.
0x0442	The received command code from the console is correct and is supported, but it has less or more data arguments.
0x0301	Flash or EEPROM error.

CHAPTER 8: TROUBLESHOOTING

8.5 ERROR MESSAGE TROUBLESHOOTING

ERROR MESSAGE 0x0044

- 1) CAUSE - Actual speed is higher than commanded speed by limit and is increasing.
- 2) SOLUTION
 - a. Press and hold ELEVATION DOWN and SPEED DOWN at the same time for 3-5 seconds. The display should now read Manager Mode.
 - b. Press any UP arrow key to go to Engineering Mode and press ENTER.
 - c. Press any UP or DOWN arrow key until RPM Parameter is showing on the display (Figure A).
 - d. Press the ENTER key; the display should now show the Parameter number to get the unit to 1.0 MPH / 1.6 KPH and the belt should start (Figure B).
 - e. If the belt does not start, replace the MCB.
 - f. If the Parameter does not show a value, replace the console.



FIGURE A



FIGURE B

ERROR MESSAGE 0x0043

- 1) CAUSE - RPM read from RS232 does not match RPM read from the speed sensor - only used for AC motors.
- 2) SOLUTION
 - a. Press and hold ELEVATION DOWN and SPEED DOWN at the same time for 3-5 seconds. The display should now read Manager Mode.
 - b. Press any UP arrow key to go to Engineering Mode and press ENTER.
 - c. Press any UP or DOWN arrow key until RPM Parameter is showing on the display (Figure A).
 - d. Press the ENTER key; the display should now show the Parameter number to get the unit to 1.0 MPH / 1.6 KPH and the belt should start (Figure B).
 - e. If the belt does not start, replace the MCB.
 - f. If the MCB does not resolve issues, replace the Daughter Board (Figure C).
 - g. If the Parameter does not show a value, replace the console.



FIGURE A



FIGURE B



FIGURE C

CHAPTER 8: TROUBLESHOOTING

8.5 ERROR MESSAGE TROUBLESHOOTING

ERROR MESSAGES - 0x01A2, 0x01A0, 0x0140, and 0x01A1.

1) CAUSE - Elevation Direction is reversed.

2) SOLUTION:

- Check that the elevation motor cable is connected at the MCB.
- Press and hold ELEVATION DOWN and SPEED DOWN at the same time for 3-5 seconds. The display should now read Manager Mode.
- Press any UP arrow key to go to Engineering Mode and press ENTER.
- Press any UP or DOWN arrow keys until Auto Calibration is showing on the display, press ENTER. If unit passes auto calibration, delete error log, unit is operational.
- IF AUTO CALIBRATION FAILS, press any UP or DOWN arrow keys until Elevation Minimum is shown on the display and press ENTER (Figure A).
- Check to see if the LED UP and DOWN lights are lit on the MCB. If LEDs are not lit, check the console cable and console. If LEDs are lit, replace the elevation motor (Figure B).
- If elevation motor does not resolve issues, replace MCB.



FIGURE A



FIGURE B

CHAPTER 8: TROUBLESHOOTING

8.5 ERROR MESSAGE TROUBLESHOOTING

ERROR MESSAGE 0X02A0

- 1) CAUSE - Speed commanded but no belt movement detected.
- 2) SOLUTION:
 - a. Check the connection of the speed sensor cable to the MCB (Figure A)
 - b. Move the running belt, as it moves the MCB Speed LED should flash. If it does not, replace speed sensor. (Figure A)
 - c. If the LED is flashing with belt movement, replace MCB Signal Wire (Figure B).



FIGURE B

ERROR MESSAGES 0X02AE AND 0X02AF

- 1) CAUSE - Checksum failure on critical NOVRAV loading (0x02AE) or Checksum failure on non - critical NOVRAV loading (0x02AF).
- 2) SOLUTION:
 - a. Power Unit off / on.
 - b. If the issue is not resolved by power reset, replace daughter board (Figure A).



FIGURE A

CHAPTER 8: TROUBLESHOOTING

8.5 ERROR MESSAGE TROUBLESHOOTING

ERROR MESSAGE 0X029F

- 1) CAUSE - Error (drive Fault Report) created by the motor controller - used for AC Motors only
- 2) SOLUTION:
 - a. Power unit off / on.
 - b. Press any UP arrow key to go to Engineering Mode and press ENTER.
 - c. Press any UP or DOWN arrow key until RPM Parameter is showing on the display (Figure A).
 - d. Press the ENTER key, the display should now show the Parameter number to get the unit to 1.0 MPH / 1.6 KPH and the belt should start (Figure B).
 - e. If the belt does not start, replace the MCB.
 - f. If the Parameter does not show a value, replace the console.



FIGURE A



FIGURE B

ERROR MESSAGES 0x02B1 and 0x02B2

- 1) CAUSE - The emergency circuit on the Interface board fails (0x02B1) or the emergency circuit on the Interface board active (0x02B2).
- 2) SOLUTION:
 - a. Check the emergency stop for function.
 - b. If emergency stop is not working (always open or closed or a short), replace emergency stop switch (Figure A).
 - c. If emergency stop does not resolve issue, replace console.



FIGURE A

CHAPTER 8: TROUBLESHOOTING

8.5 ERROR MESSAGE TROUBLESHOOTING

ERROR MESSAGE 0x04A0

- 1) CAUSE - The console's communications is lost
- 2) SOLUTION:
 - a. Check connection and condition of the Digital Communication Wire at the daughter board (Figure A).
 - b. If no signal is present through the Digital Communication Wire, LED 1 on the daughter board should be unlit (Figure B).
 - c. Replace Digital Communication Wire.
 - d. Replace the daughter board.



FIGURE A - (LEFT SIDE OF DAUGHTER BOARD).



FIGURE B (TOP / MIDDLE OF DAUGHTER BOARD).

CHAPTER 8: TROUBLESHOOTING

8.5 ERROR CODE TROUBLESHOOTING

ERROR MESSAGE 0x04A1

- 1) CAUSE - The motor controller board's communication is lost.
- 2) SOLUTION:
 - a. Check the connection and condition of the MCB signal wire (goes from the daughter board to the MCB) (Figure A).
 - b. If no signal is present through the MCB signal wire, LED 2 on the daughter board should be unlit (Figure B).
 - c. Replace the MCB signal wire.
 - d. Replace the daughter board.



FIGURE A

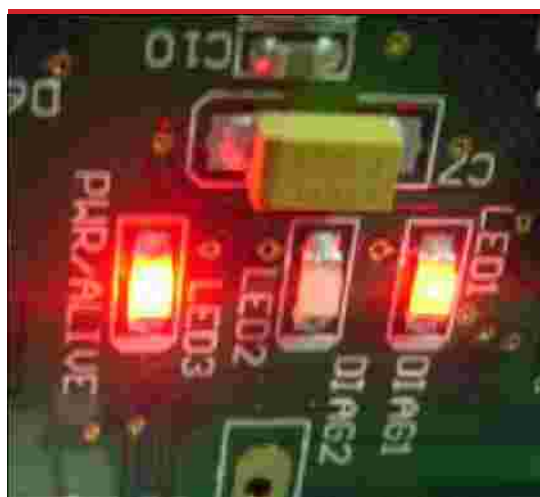


FIGURE B (TOP / MIDDLE OF DAUGHTER BOARD).

ERROR MESSAGE 0x0301

- 1) CAUSE - Flash or EEPROM error.
- 2) SOLUTION:
 - a. Power unit off / on.
 - b. If the issue is not resolved by power reset, replace the console.

CHAPTER 8: TROUBLESHOOTING

8.5 ERROR CODE TROUBLESHOOTING

ERROR MESSAGE 0x0441 and 0x0442

1) CAUSE - A command is received from the console with its correct packet, but the daughter board has no function to support it (0x0441) or The received command code from the console is correct and is supported, but it has less or more data arguments.

2) SOLUTION:

- a. Turn power off / on.
- b. If the issue is not resolved by power reset, replace daughter board (Figure A).



FIGURE A

CHAPTER 8: TROUBLESHOOTING

8.5 ENTERTAINMENT



Figure A



Figure B

1. This chapter will help with diagnosing problems with TV and entertainment related equipment that is produced by Matrix fitness.
2. Verify that your TV equipment is Matrix brand equipment. Compare your TV to the TV in Figure A. Compare your controller to Figure B. If your equipment looks different contact Matrix or the manufacturer of your TV equipment if known.
3. Verify how your TV is mounted, compare your machine to Figure C which shows TV directly mounted to the Machine. Figure D shows a TV mounted using a TV stand separate from the machine.
4. For Matrix produced and mounted equipment you can use the information outlined in this chapter to help with any connection and power issues you may have. If you have questions that are specific to the TV alone (settings, programming, menu options etc) please see the entertainment owner's manual.



Figure C



Figure D

CHAPTER 8: TROUBLESHOOTING

8.5.1 ENTERTAINMENT – PICTURE FUZZY OR UNCLEAR



Figure E



Figure F

1. Using a verified piece of coax cable, hook directly from the TV to the jack that feeds your equipment. (This bypasses internal connections for your machine or TV stand.)
2. If this clears your picture move to step 3. If not, connect the cable to a known good cable jack. If this clears your picture your first cable jack needs to be repaired.
3. Check your internal cables and fittings (inside your machine (see section 9.6 for how to access internal wiring) or TV stand) to make sure you have no damage (kinks, cuts etc) and no stray wires or poor fittings on the ends of the cables. Fittings should look like Figure E, with a clean flush connector and no stray aluminum strands touching the center conductor. Replace or repair any suspect cables.
4. If no damage can be found on cables or end fittings check each connection (Figure F). (see entertainment owners manual for connections are part of the entertainment kit). If nothing is visibly wrong with any of the cables, fittings, or connectors begin replacing cables and connectors with known good parts until the damaged part is found.

8.5.2 ENTERTAINMENT – TV WILL NOT TURN ON



Figure A



Figure B



Figure C

1. If you have no picture at all check to see if you have any status lights on your controller or TV. (TV light is after the x in the "Matrix" logo, controller light is next to power button). Status lights should be red when off or in standby mode, and green when the TV is powered on. If you have lights of any color skip to section 8.5.3.
2. Check all electrical connections associated with the TV - connections at the TV, outlet, adapter, machine and controller. After you have verified all connections are secure and problem still exists verify power at the outlet. (Figure A)
3. If outlet passes check power supply for the TV to make sure it is outputting 12 Volts, if not replace power supply. (Figure B)
4. If power supply passes detach TV mounting bracket from the mast and separate the connection for the power. (Figure C) Verify 12 Volts coming from the wires inside the mast; if not replace the wires/connections inside the machine. Reconnect if 12 Volts present
5. If internal wiring passed, verify 12 Volts at the TV connection plug. Replace the wire inside the TV mounting tube if there is no power at the TV connection point. If 12 Volts present at the TV plug it is likely a TV problem - contact Matrix Fitness.

CHAPTER 8: TROUBLESHOOTING

8.5.3 TV CONTROLLER NOT FUNCTIONING

1.If you have status lights on both the controller and the TV but On/Off button gives no response, disconnect and then reconnect the power from the wall. Attempt to turn on the TV again using the On/Off button. If TV powers on contact Matrix for parts to resolve the "TV lockup problem".

2. If TV does not power on check controller and cable by swapping them from a known working unit if possible. If controller and/or the cable from the controller to the TV test bad, contact Matrix for a replacement.

3. If TV does not power on, attempt to power on TV using the small handheld remote that came with the TV. (Used for changing menu and other settings) If TV will not function with handheld remote it is likely a TV problem, contact Matrix fitness.

8.6 RESISTANCE FUNCTION

CHAPTER 9: PART REPLACEMENT GUIDE

9.1 PLASTIC SHROUD REMOVAL

- 1) Remove the front shroud using a 6mm Allen wrench (Figures A & B).
- 2) The shroud is split into two pieces. The upper shroud is held with two screws, the lower shroud is held with four screws.
- 3) Both covers are removed (Figure C).



FIGURE A



FIGURE B

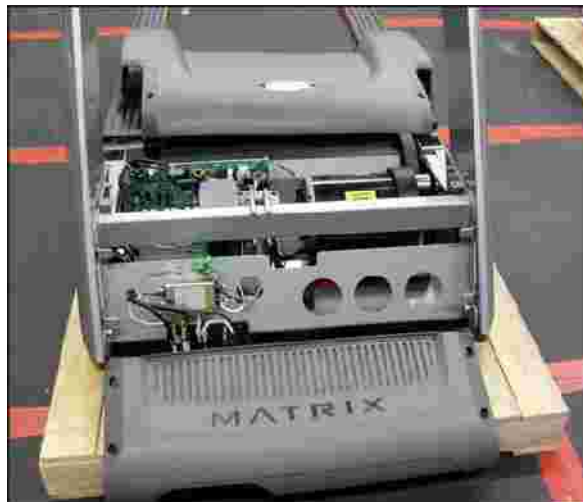


FIGURE C

9.2 REAR ROLLER REMOVAL

- 1) Turn off power and disconnect the cord from the machine.
- 2) Remove one of the end caps using a Phillips screwdriver (Figure A).
- 3) Remove both roller adjustment screws using an 8mm Allen wrench (Figure B).
- 4) Remove roller from running belt (Figures C & D).



FIGURE A



FIGURE B



FIGURE C



FIGURE D

CHAPTER 9: PART REPLACEMENT GUIDE

9.3 DECK REMOVAL

- 1) Remove the front shroud as outlined in Section 9.1.
- 2) Remove four deck screws using a 5mm Allen wrench (Figure A).
- 3) Remove the deck from the running belt (Figures B & C).
- 4) Be careful not to pinch fingers during removal / Installation of deck board.
- 5) Deck is waxed on both sides so opposite side surface may be usable.
- 5) New deck surfaces must ALWAYS be matched to a new running belt.



FIGURE A



FIGURE B



FIGURE C

CHAPTER 9: PART REPLACEMENT GUIDE

9.4 DECK CUSHION REMOVAL

- 1) Remove the deck as outlined in Section 8.3.
- 2) Holding the bolt with 5 mm Allen wrench, loosen the nut with 13 mm socket (Figure A & B).
- 3) For the rear cushion, hold the cushion and remove the 13 mm nut (Figure C).



FIGURE A



FIGURE B

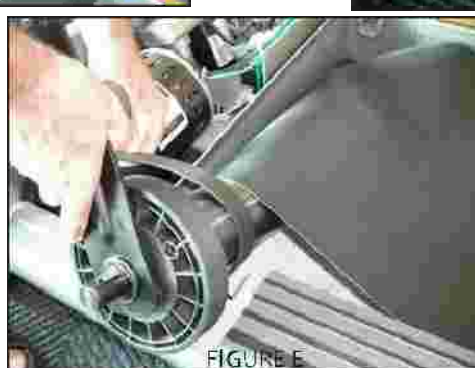


FIGURE C

CHAPTER 9: PART REPLACEMENT GUIDE

9.5 FRONT ROLLER REMOVAL

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



CHAPTER 9: PART REPLACEMENT GUIDE

9.5 RUNNING BELT REMOVAL

- 1) Remove front shrouds as outlined in Section 9.1.
- 2) Remove 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 with new belt (Figures A & B).
- 6) 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

CHAPTER 9: PART REPLACEMENT GUIDE

9.2 SIDE RAIL REMOVAL

- 1) Remove the end caps as outlined in Section 9.2.
- 2) Loosen the four screws under the frame using a 5 mm Allen wrench (figure A).
- 3) Slide the rail off the back of the treadmill (Figures B & C).
- 4) After reinstalling the side rail, make sure end cap is on first before tightening screws for proper gap spacing.
- 5) Be careful not to over tighten the screws, or they will poke through the top of the side rail.



FIGURE A



FIGURE B

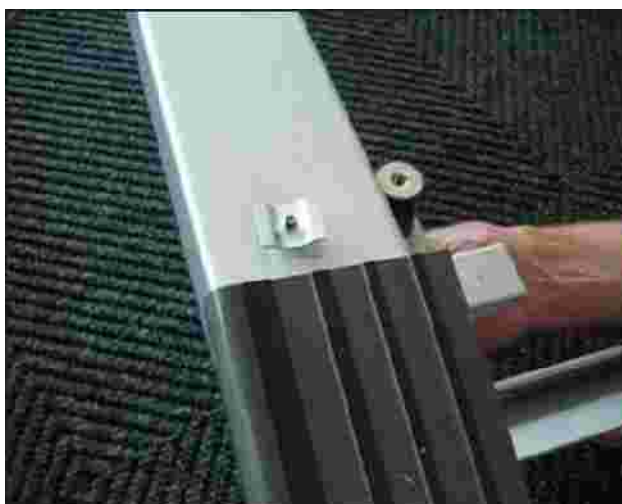


FIGURE C

CHAPTER 9: PART REPLACEMENT GUIDE

9.8 MOTOR CONTROL BOARD REMOVAL (MCB)

- 1) Unplug treadmill.
- 2) Remove front shroud as outlined in Section 9.1.
- 3) Cut any wire ties that are secured to the MCB panel (Figure A).
- 4) Disconnect wires from the MCB - seven total connections (Figure B).
- 5) Remove two MCB mounting screws using a Phillips head screwdriver (Figures C & D).
- 6) Auto Calibration must ALWAYS be run after replacing the MCB



FIGURE A



FIGURE B



FIGURE C



FIGURE D

CHAPTER 9: PART REPLACEMENT GUIDE

9.9 MOTOR REMOVAL

- 1) Unplug treadmill.
- 2) Remove the front shroud as outlined in Section 9.1.
- 3) Release drive belt tensioner as outlined in Section 9.5.
- 4) Disconnect the motor power cable from the MCB (Figure A).
- 5) Using a 8 mm Allen wrench, remove the four motor mounting screws (Figure B).
- 6) Lift the motor away from the treadmill (Figure C).
- 7) When reinstalling the motor, make sure the red vibration pad is in place (Figure D)
- 8) Auto Calibration must ALWAYS be run when installing a new motor.



FIGURE A



FIGURE B



FIGURE C



FIGURE D

CHAPTER 9: PART REPLACEMENT GUIDE

9.10 DRIVE BELT REPLACEMENT

- 1) Remove front shroud as outlined in Section 9.1.
- 2) Release drive belt tensioner from drive belt as outlined in Section 9.5.
- 3) Remove the front roller screw on the drive belt side and loosen the screw on the opposite side (Figure A).
- 4) Lift roller and remove old drive belt (Figure B).
- 5) After installing new belt, check it for correct alignment to the motor pulley before setting tensioner in place.



FIGURE A



FIGURE B

CHAPTER 9: PART REPLACEMENT GUIDE

9.11 SPEED SENSOR REPLACEMENT

- 1) Unplug treadmill.
- 2) Remove front shroud as outlined in Section 9.1.
- 3) Remove speed sensor from the left side of the motor using a Phillips screwdriver (Figure A).
- 4) Cut the wire ties holding the speed sensor wire to the motor and MCB (Figures B & C).
- 5) Unplug speed sensor from MCB (Figure D).
- 6) Auto Calibration must ALWAYS be run after installation of a new speed sensor.



FIGURE A



FIGURE B



FIGURE C



FIGURE D

CHAPTER 9: PART REPLACEMENT GUIDE

9.12 ELEVATION MOTORS REMOVAL

- 1) Unplug treadmill.
- 2) Lift the treadmill and support it so that the front wheels are off the floor, or the unit may be tipped on it's side (Figure A).
- 3) Remove the clip from the pin attaching the motor to the rack (Figure B & C).
- 3) Disconnect the elevation motor power cable from the MCB (Figure D).
- 4) Disconnect the pin from the elevation motor (Figure E).
- 5) Lift the elevation motor away from the treadmill (Figure F).
- 6) When installing the elevation motor, make sure to replace the white washers at the top and bottom (Figure G).
- 7) Auto Calibration must ALWAYS be run after replacing the elevation motor.



FIGURE A



FIGURE B



FIGURE C

CHAPTER 9: PART REPLACEMENT GUIDE

9.12 ELEVATION MOTOR REMOVAL - CONTINUED



FIGURE D



FIGURE E



FIGURE F



FIGURE G

CHAPTER 9: PART REPLACEMENT GUIDE

9.13 CONSOLE REPLACEMENT

- 1) Unplug treadmill.
- 2) Remove the six 6 mm screws from underneath the console. There are arrows stamped in the plastic at the proper openings (Figure A).
- 3) Disconnect the wires from the console and set the console aside (Figure B).



FIGURE A



FIGURE B

CHAPTER 9: PART REPLACEMENT GUIDE

9.14 CONSOLE MAST ARM REPLACEMENT

- 1) Unplug treadmill.
- 2) Remove console as outlined in Section 9.13.
- 3) Take off the cup holder from the right side of the treadmill (Figure A).
- 4) Use a 6 mm Allen wrench to remove one screw and take off plastic hand rail (Figure B).
- 5) Remove the 5 Phillips screws and remove the right side upper plastic cover (Figures C, D, & E).
- 6) Cut the wire ties and begin to unthread the console cable (Figures F & G).
- 7) Remove the screws holding the console frame to the mast arms with a 6 mm Allen wrench in the openings with arrows (Figure H).
- 8) Lift the frame from the mast arms and set it aside (Figure I).
- 9) Use a 6 mm Allen wrench to remove lower mast arm mounting screws (Figure J).
- 10) Pull mast arm from the side of the machine (Figure K).
- 11) If replacing the right side mast arm, the console cable must be threaded through it.



FIGURE A



FIGURE B



FIGURE C



FIGURE D



FIGURE E

CHAPTER 9: PART REPLACEMENT GUIDE

9.14 CONSOLE MAST ARM REPLACEMENT - CONTINUED



FIGURE F



FIGURE G

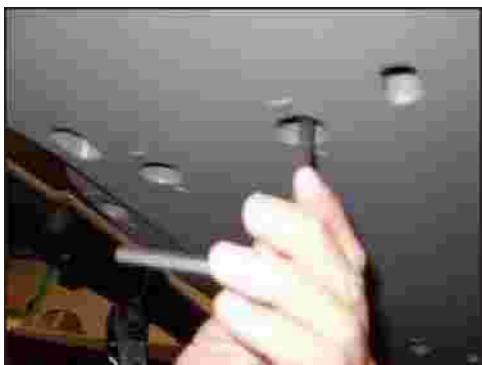


FIGURE H



FIGURE I



FIGURE J



FIGURE K

CHAPTER 9: PART REPLACEMENT GUIDE

9.15 CONSOLE CABLE REPLACEMENT

- 1) Unplug treadmill.
- 2) Remove console as outlined in Section 9.13.
- 3) Take off the cup holder from the right side of the treadmill (Figure A).
- 4) Use a 6 mm Allen wrench to remove one screw and take off plastic hand rail (Figure B).
- 5) Remove the 5 Phillips screws and remove the right side upper plastic cover (Figures C, D, & E).
- 6) Cut the wire ties and begin to unthread the wire harness (Figures F & G).
- 7) Remove the spiral protective wrap from the top and bottom portion of the wire harness (Figures H & I).
- 8) Attach a pulling wire to the top of the defective console cable (Figure J).
- 9) Slowly remove the defective console cable starting at the bottom of the machine and pulling it down to the motor compartment (Figure K).
- 10) Attach new console cable to the pulling wire and gently pull new cable up through the machine.
- 11) Once wire is in place, reinstall spiral wrap and wire ties.
- 12) Auto Calibration must ALWAYS be run after the installation of a new console cable.



FIGURE A



FIGURE B



FIGURE C



FIGURE D



FIGURE E

CHAPTER 9: PART REPLACEMENT GUIDE

9.15 CONSOLE CABLE REPLACEMENT - CONTINUED



FIGURE F



FIGURE G



FIGURE H



FIGURE I



FIGURE J



FIGURE K

CHAPTER 9: PART REPLACEMENT GUIDE

9.16 HANDLE BAR SERVICE

- 1) Unplug treadmill.
- 2) All items on the handle bar are removed using a Phillips screwdriver from the underside of the bar.
- 3) Once screws are removed, lift part carefully and disconnect any wire connections to fully remove handle bar.
- 4) Replace parts as needed on handle bar including the Quick Start Key, Resistance and Elevation Toggles, and the HeartRate Grip Plates (figures A-F).



FIGURE A



FIGURE B



FIGURE C



FIGURE D



FIGURE E



FIGURE F

CHAPTER 9: PART REPLACEMENT GUIDE

9.17 EMERGENCY STOP SWITCH REPLACEMENT

- 1) Unplug treadmill.
- 2) Use a Phillips screwdriver to remove two screws, one from each side of the red button (Figure A).
- 3) Lift button from bracket by pulling one side out at a time (Figure B).
- 4) Use A Phillips screwdriver to remove two screws, one from each side of the mounting bracket (Figure C).
- 5) Turn bracket and use a straight screwdriver or pliers to compress each end of the switch and release it from the bracket (Figures D & E).
- 6) Make sure new switch has the same orientation as the old one when installing, and wires are properly connected.



FIGURE A



FIGURE B



FIGURE C



FIGURE D



FIGURE E

CHAPTER 9: PART REPLACEMENT GUIDE

9.18 HEARTRATE BOARD REPLACEMENT

- 1) Unplug treadmill.
- 2) Remove console as outlined in Section 9.12.
- 3) Heartrate Board is located in front of the red Emergency Stop button (Figure A).
- 4) Disconnect wires from each side of the Heartrate Board (Figure B).
- 5) Use a Phillips screwdriver to remove two screws, one from each side of the Heartrate Board mounting bracket (Figure C).
- 6) Be sure to fully seat the wires on the new Heartrate Board and test grips after console is reinstalled.



FIGURE A



FIGURE B

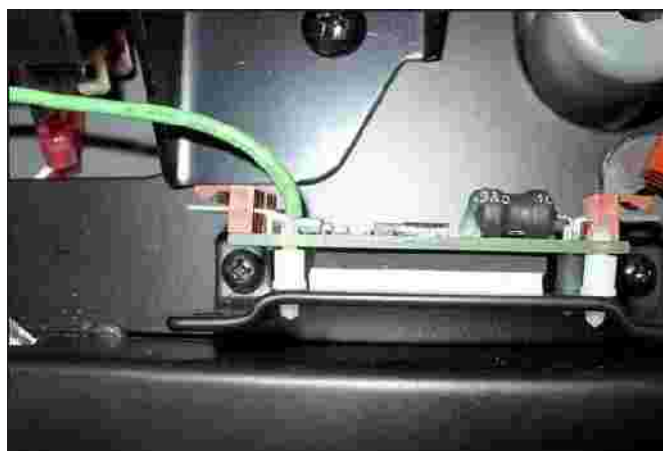


FIGURE C

CHAPTER 9: PART REPLACEMENT GUIDE

9.19 BLOWER MOTOR REMOVAL

- 1) Unplug treadmill.
- 2) Remove console as outlined in Section 9.12.
- 3) Lay console face down and remove four screws using a Phillips screwdriver (Figure A).
- 4) Console shell will now separate. Unplug the wire connections from the main circuit board to completely split the front and rear sections (Figure B).
- 5) Use a Phillips screwdriver to remove two screws and washers holding the blower motor in place (Figure C).
- 6) Carefully separate blower motor from duct and connect new motor. (Figure E).
- 7) Reinstall screws and washers, connect wires to main board, and reassemble console halves.
- 8) Be sure to test blower motor once console is reinstalled.



FIGURE A



FIGURE B



FIGURE C



FIGURE D

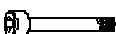
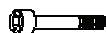
CHAPTER 10: TREADMILL SPECIFICATIONS AND ASSEMBLY GUIDE

10.1 TREADMILL SPECIFICATIONS

	FEATURES	
	Deck Type	Ultimate Hard-Wax reversible 1" deck
	Bed Type	Habisat - 2 ply commercial grade
	Running area	60" x 22"
	Deck Step Height	9.5"
	Cushlon System	Ultimate Deck Cushioning System
	Elevation Range	0 - 15% (1,300 lb thrust elevation motor)
	Speed Range	0.5 - 12 mph / 0 - 19 km/h
	Contact HR Sensors	Yes
	Telemetric HR Receiver	Yes
	Transport Wheels	Yes
	DRIVE SYSTEM	
	Motor/De	Matrix 5.0 hp AC Dynamic Response Drive System
	Motor Controller	DCI Club Treadmill AC Drive
	CONSOLE	
	Display Type	Dot Matrix LED
	Display Feedback	Time, Distance, Calories, Speed, Elevation, Pace, Heart Rate, METS, Watts
	Workouts	Manual, Rolling Hills, Fat Burn, SK, Target HR, Gerkin Protocol, Army PFT, Navy PRT, Marine PFT, Air Force PRT, Physical Efficiency Battery ("PEB_
	One-button Quick Start	Yes
	CSAFE, FitLinxx ready	Yes
	Pause Function	Yes
	On-the-fly program change	Yes
	Fit Touch Technology	No
	Wireless Data Transmitter	Yes
	Personal Fan	Yes
	Crossbar Controls	Quick start, Stop, Cool Down
	Manager Mode	Resettable defaults with accumulated time and distance.
	TECH SPECS	
	Overall Dimensions	84"L x 33.25"W x 58"H
	Maximum User Weight	400 lbs / 181.4 kg
	Weight	370 lbs / 168 kg
	Shipping Weight	487 lbs / 221 kg

CHAPTER 10: TREADMILL SPECIFICATIONS AND ASSEMBLY GUIDE

10.2 FASTENERS AND ASSEMBLY TOOLS

	Part #:	Part Name:	Outline:	Dimensions:	Quantity:	Bag Color:
10	020090-00	Socket head cap screw		M8 x 20mm	10	Black
14	0000086571	Flat Washer		6.2 x 12 x 1.6	10	Black
20	0000084935	Left Connection Bracket		SPHC 4.0T	1	
21	0000084936	Right Connection Bracket		SPHC 4.0T	1	
11	004541-AC	Socket Head Cap Screw		M8 x 1.25P x 45 mm	2	White
12	035882-AB	Socket Head Cap Screw		M8 x 1.25P x 75 mm	4	White
14	0000086571	Flat Washer		6.2 x 12 x 1.6T	6	White
17	004539-AD	Socket Head Cap Screw		M8 x 1.25P x 25mm	2	Blue
19	0000088905	Spacer		6.2 x 12.0 x 1.6	2	Blue
15	004859-AC	Button Socket Head Cap Screw		M8 x 1.25 x 20 mm	6	Red
14	0000086571	Flat Washer		6.2 x 12 x 1.6T	6	Red
13	020072-00	Socket Head Cap Screw		M8 x 1.25 x 60mm	4	Yellow
16	062769-00	Socket Head Cap Screw		M8 x 1.25 x 15mm	2	Yellow
23	0000089835	Ribbed Lock Washer		8.5 x 12.8 x .8/1.3H	6	Yellow
22	0000086284	Power Cord Holder		SPHC 1.6	1	Green
	002153-C	Power Cord			1	Green
18	004386-00	Button Head Screw		6.2 x 12.0 x 1.6T	2	Green

CHAPTER 10: TREADMILL SPECIFICATIONS AND ASSEMBLY GUIDE

10.3 ASSEMBLY INSTRUCTIONS

ATTENTION

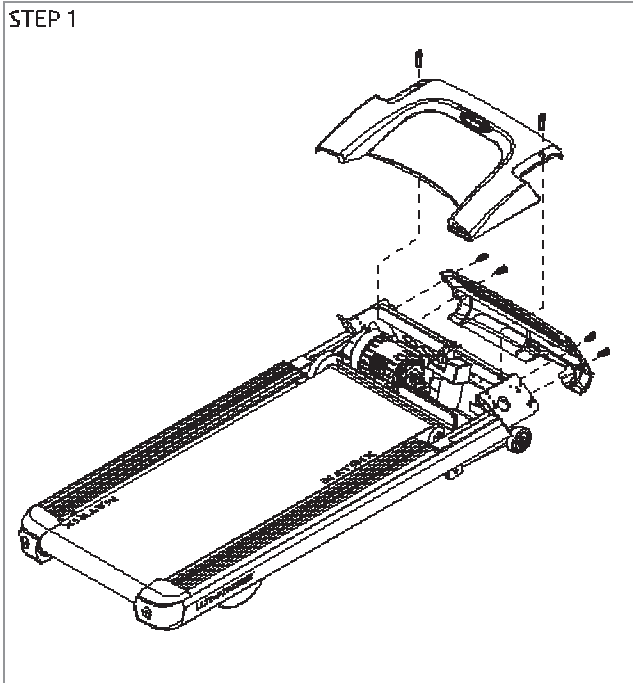
After assembly and installation is complete, the treadmill will need to be calibrated using the auto-calibration procedure outlined in Section 3.5. **DO NOT** stand on the belt while the auto-calibration sequence is in progress.

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

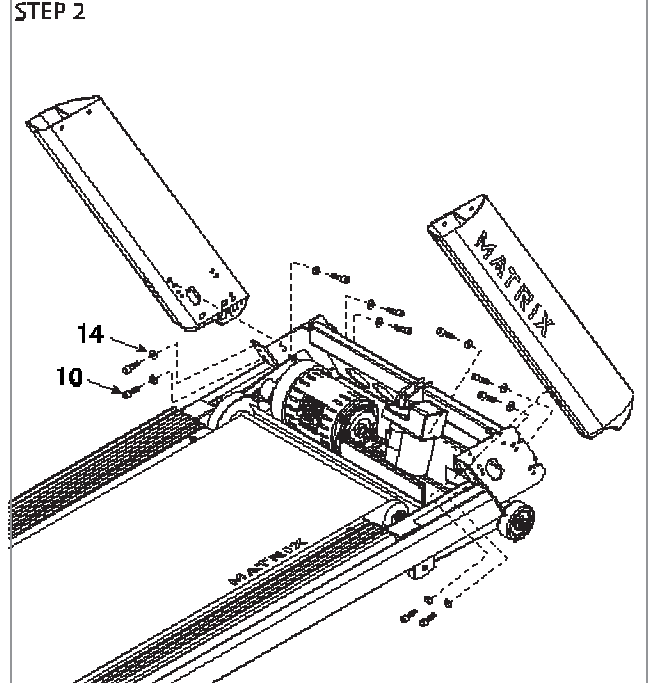
Please make sure that the power plug is not plugged into the wall outlet while completing the following procedure. To ensure correct assembly of the treadmill, carefully read and follow these steps:

STEP 1



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.

STEP 2

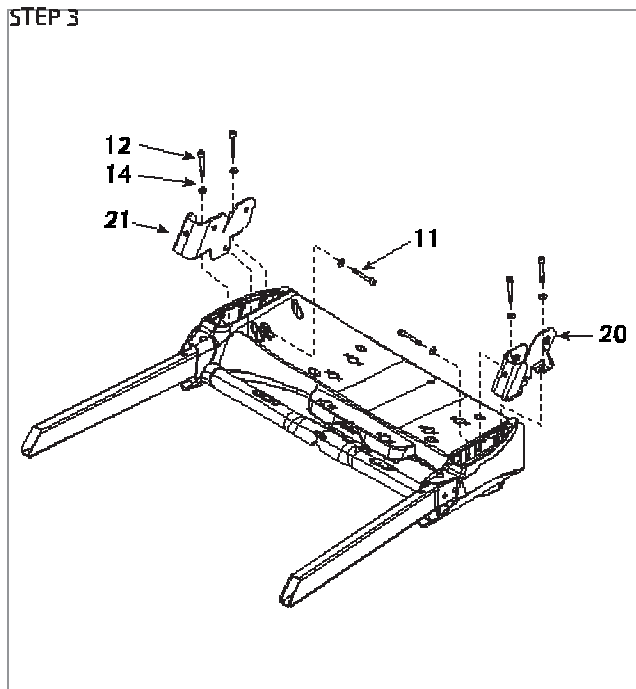


Open Black Assembly Bag. Assemble both the left and right console masts to the treadmill base using item 10 socket head cap screw and item 14 washer.

CHAPTER 10: TREADMILL SPECIFICATIONS AND ASSEMBLY GUIDE

103. ASSEMBLY INSTRUCTIONS - CONTINUED

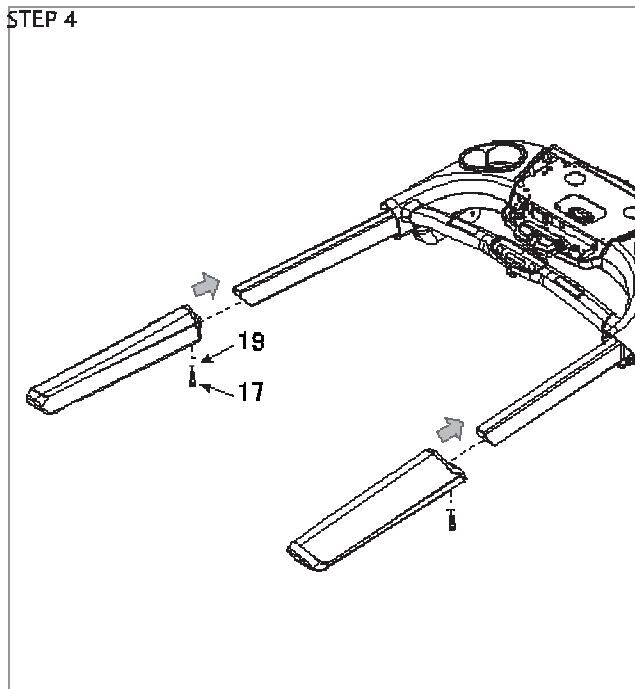
STEP 3



Open White Assembly Bag. Assemble the left and right bracket (Items 20 and 21) to the console base using item 12 socket head cap screw, item 14 flat washer and item 11 socket head cap screw.

Assembly Tip: It is much easier to accomplish this task if the console base is left inside its shipping container.

STEP 4

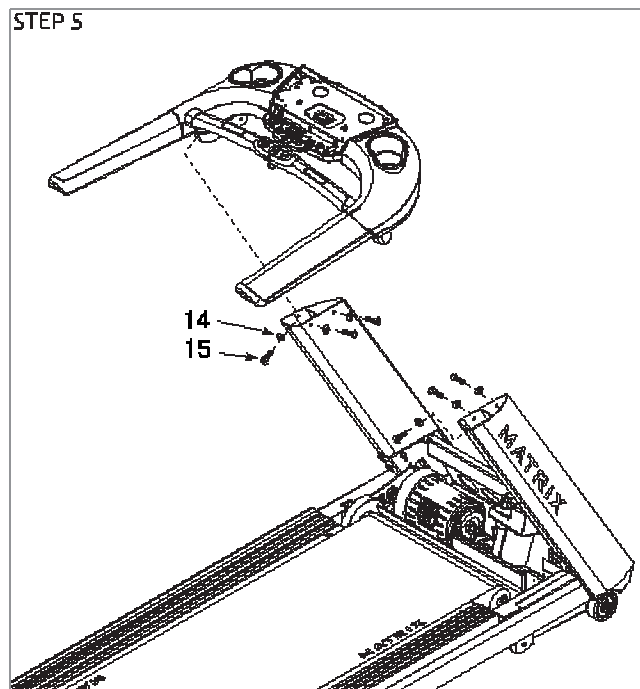


Open blue assembly Bag. Slide the urethane arms over the steel tubes on the console base. Fasten the urethane arms to the steel tubes using item 17 socket head cap screw and item 19 spacer.

CHAPTER 10: TREADMILL SPECIFICATIONS AND ASSEMBLY GUIDE

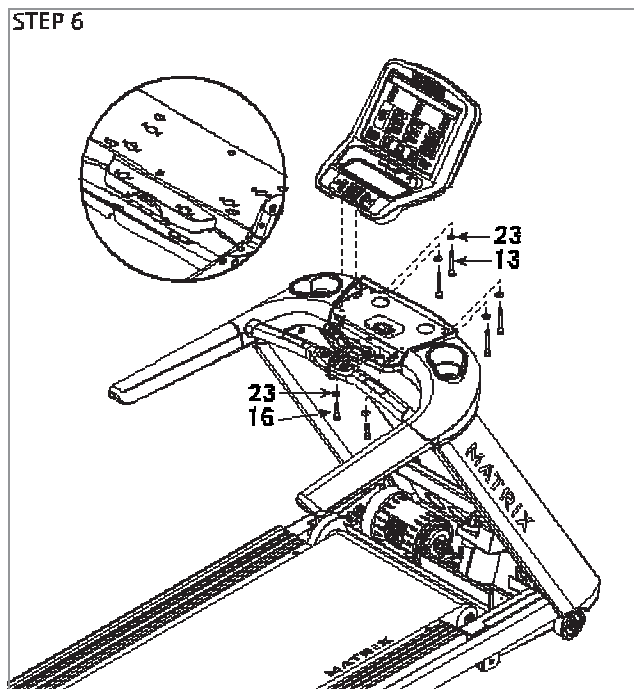
10.3 ASSEMBLY INSTRUCTIONS - CONTINUED

STEP 5



Open Red Assembly Bag. Assemble the console base to the console masts using item 15 button head cap screw and item 14 flat washer. Be sure to route the console cables down the console mast through the larger opening in the mast which is closest to the running belt. Make all appropriate wire connections within the motor compartment.

STEP 6

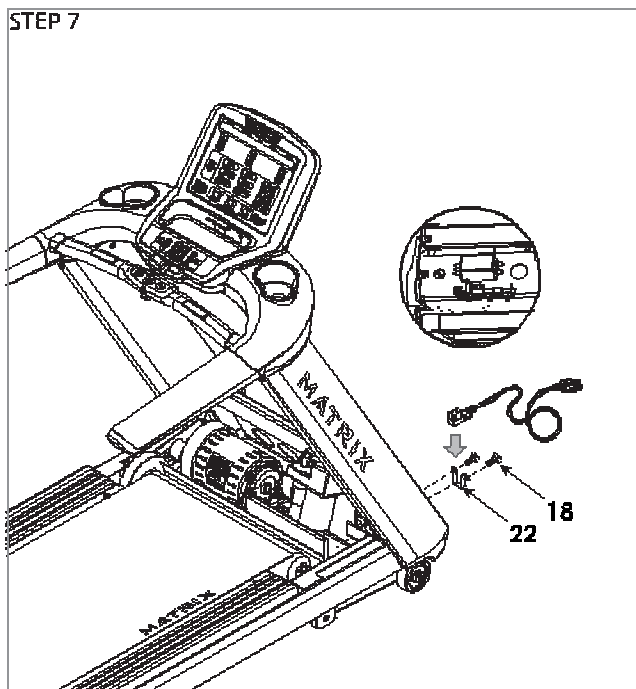


Open Yellow Assembly Bag. Make appropriate wire connections to the faceplate and then assemble to the console base using item 13 socket head cap screw, item 23 lock washers, and item 16 socket head cap screw. Item 16 is a shorter socket head cap screw and gets assembled into the holes closest to the running surface. All holes applicable to the assembly step can be noted by the embossed arrow next to the hole.

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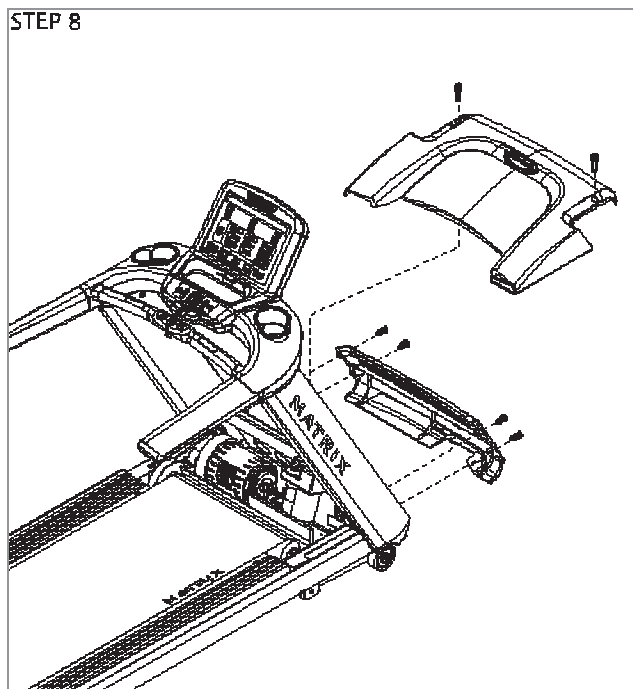
10.3 ASSEMBLY INSTRUCTIONS - CONTINUED

STEP 7



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.

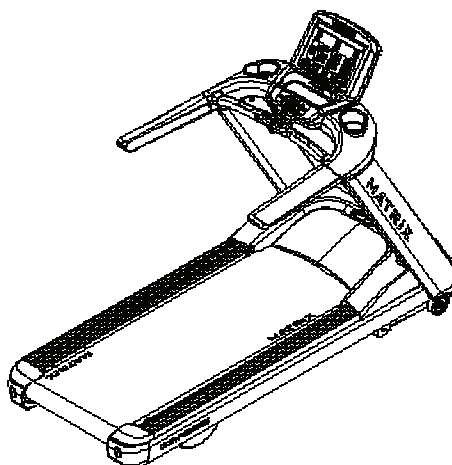
STEP 8



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

ASSEMBLY COMPLETE

Assembly is complete, the running belt should be adjusted as needed and the auto calibration sequence must now be run as outlined in sections 3.5 and 3.6

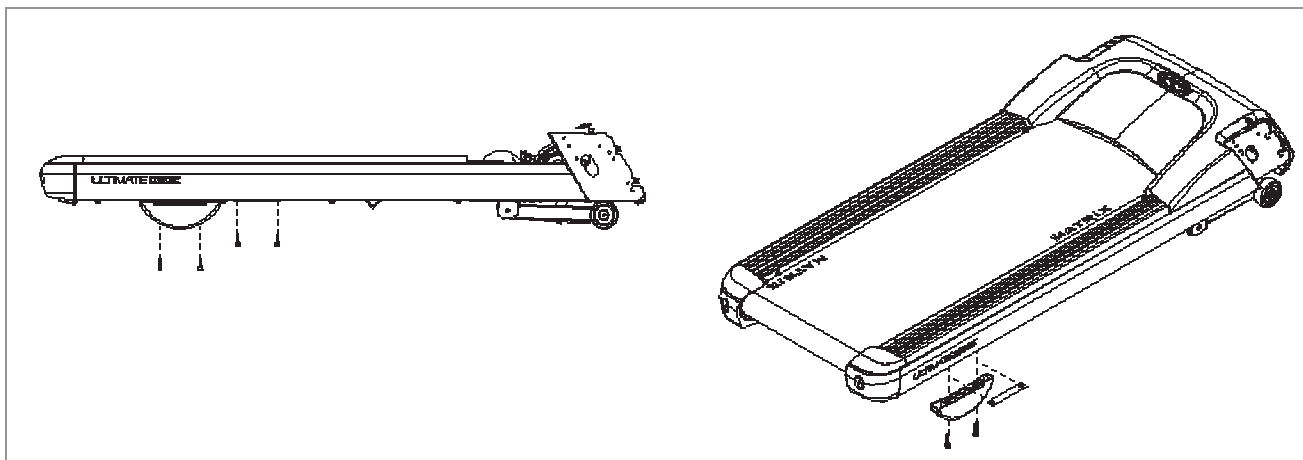


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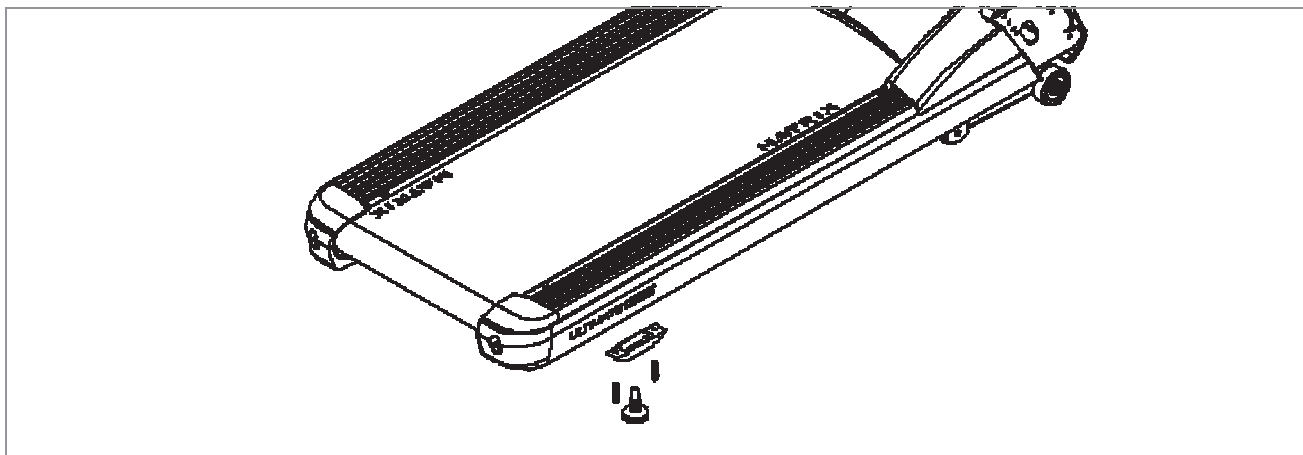
10.4 LEVELING THE TREADMILL

OPTIONAL LEVELING ASSEMBLY TECHNIQUES: USE OF SHIM OR BY ADDING A LEVELING FOOT.

Note: It is extremely important that the levelers are correctly adjusted for proper operation. An unbalanced unit may cause belt misalignment or other issues. Use of a level is recommended.



Remove the leveling shim provided on the underside of the treadmill. The shim can be found mounted on the underside of the right hand side rail. Remove the rear foot on the side of the treadmill that is resting low. Install the shim as shown above and return the the rear foot.



When installing the optional rear leveling foot accessory, remove the existing rear foot. Replace with new leveling foot and fasten to the frame using the existing fasteners that held in the half-moon foot.



NOTES



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