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Johnson Industries (Shanghai) Co., Ltd

T3XM
Frame
Service Manual

MATRIX

Strong • Smart • Beautiful

Approval	Review	Editor
Kyle Schweitzer		Jerry Zhu

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1.1 Frame Overview

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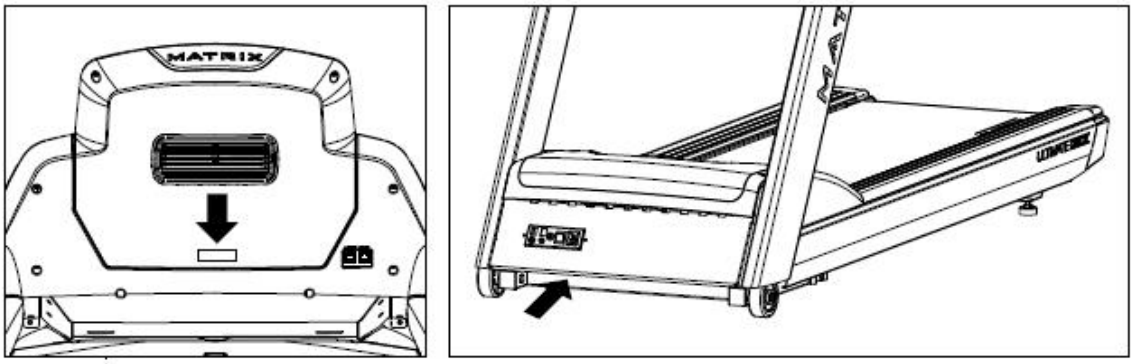
CONSOLE GUIDE

SERIAL NUMBER LOCATIONS



Before proceeding, find the serial numbers located on barcode stickers and enter them in the spaces provided below.

CONSOLE SERIAL NUMBER

FRAME SERIAL NUMBER

MODEL

☐ T1x	☐ T3x	☐ T1xe	☐ T3xe	☐ T3xm	☐ T3xh

* Use the information above when calling for service.

CHAPTER 2: PREVENTATIVE MAINTENANCE

2.1 RECOMMENDED CLEANING TIPS

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

YOU WILL NEED:

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

DAILY:

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

WEEKLY:

1. With a clean dry 100% lint free cloth and water / soap mixture, wipe any dust and dirt from the sides of the running deck between the running belt and side rails.
2. With a clean dry 100% lint free cloth and water / soap mixture, wipe the dust from the top of the motor cover.
3. With a clean dry 100% lint free cloth and water / soap mixture, wipe down the entire console area including the hand grips and hand rails.

MONTHLY:

1. Vacuum under and around the Treadmill. If you need to move it, unplug the unit first.
2. Vacuum the air vent on the front of the unit.

QUARTERLY:

1. Unplug the unit. Remove the motor cover. Use a vacuum with a soft brush extension, vacuum the dust and dirt from the motor, MCB, fan,

2.2 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. and surrounding areas. Be careful not to hit any of the wire connections.

2.3 Preventative Maintenance

Preventative maintenance is the key to smoothly operating equipment, as well as keeping the user's liability to a minimum. 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.

EVERY DAY (DAILY)

Clean and inspect, following these steps:

- Turn off the treadmill with the ON / OFF switch, then unplug the power cord at the wall outlet.
- Wipe down the running belt, deck, motor cover, and console casing with a damp cloth. Never use solvents, as they can cause damage to the treadmill.
- Inspect the power cord. If the power cord is damaged, stop using and contact Customer Technical Support.

  Make sure the power cord is not underneath the treadmill or in any other area where it can become pinched or cut.
- Check the tension and alignment of the running belt. Make sure that the treadmill belt will not damage any other components on the treadmill by being misaligned.
- If any labels are damaged or illegible, contact Customer Technical Support for replacements.

EVERY WEEK (WEEKLY)

Clean underneath the treadmill following these steps:

- Turn off the treadmill with the ON / OFF switch, then unplug the power cord at the wall outlet. Fold the treadmill into the upright position, making sure that the lock latch is secured.
- Move the treadmill to a remote location.
- Wipe or vacuum any dust particles or other objects that may have accumulated underneath the treadmill. Return the treadmill to its previous position.

EVERY MONTH • IMPORTANT!

Turn off the treadmill with the ON / OFF switch, then unplug the power cord at the wall outlet.

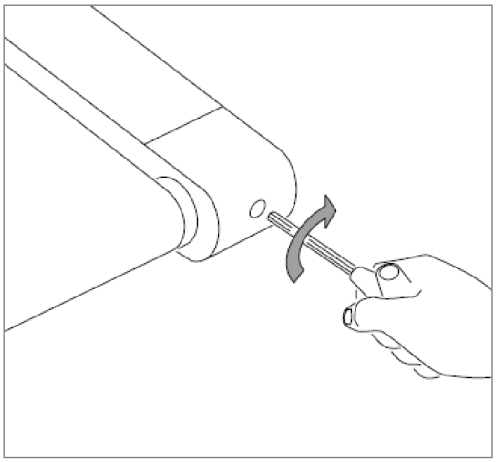
- Inspect all assembly bolts of the machine for proper tightness.
- Remove the motor cover. Wait for ALL display screens to be off.

Clean the motor and lower board area to eliminate any lint or dust particles that may have accumulated. Failure to do so may result in premature failure of key electrical components.

- Vacuum and wipe down the belt with a damp cloth. Vacuum any black / white particles that may accumulate around the unit. These particles may accumulate from normal treadmill use.

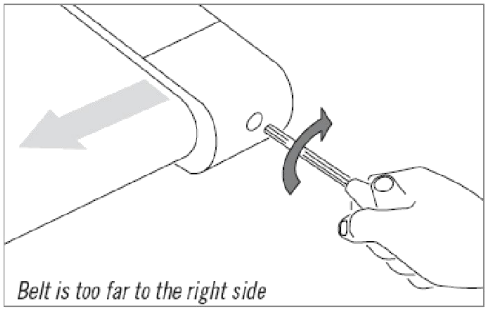
2.4 TENSIONING & CENTERING THE RUNNING BELT

If you can feel a slipping sensation when running on the treadmill, the running belt must be tightened. In most cases, the belt has stretched from use, causing the belt to slip. This is a normal and common adjustment. To eliminate this slipping, turn the treadmill off and tension both the rear roller bolts using the supplied Allen wrench, turning them ¼ turn to the right as shown. Turn the treadmill on and check for slipping. Repeat if necessary, but never turn the roller bolts more than ¼ turn at a time. Belt is properly tensioned when the slipping sensation is gone.



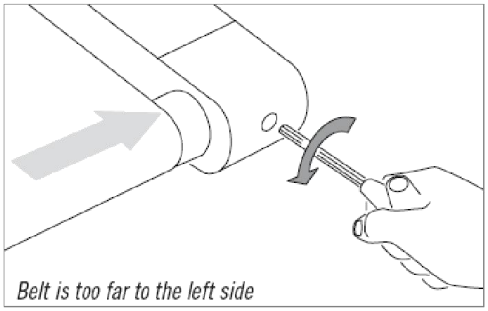
The running belt has been properly adjusted at the factory before it was shipped. At times the belt can move off-center during shipment. Before operating the treadmill, make sure the belt is centered and remains centered to maintain smooth operation.

If the running belt is too far to the right side: With the treadmill running at 1 mph, turn the left adjustment bolt counter-clockwise ¼ turn at a time (using the supplied Allen wrench). Check the belt alignment. Allow belt to run a full cycle to gauge if more adjustment is needed. Repeat if necessary, until the belt remains centered during use.



Belt is too far to the right side

If the running belt is too far to the left side: With the treadmill running at 1 mph, turn the right adjustment bolt counter-clockwise ¼ turn at a time (using the supplied Allen wrench). Check the belt alignment. Allow belt to run a full cycle to gauge if more adjustment is needed. Repeat if necessary, until the belt remains centered during use.

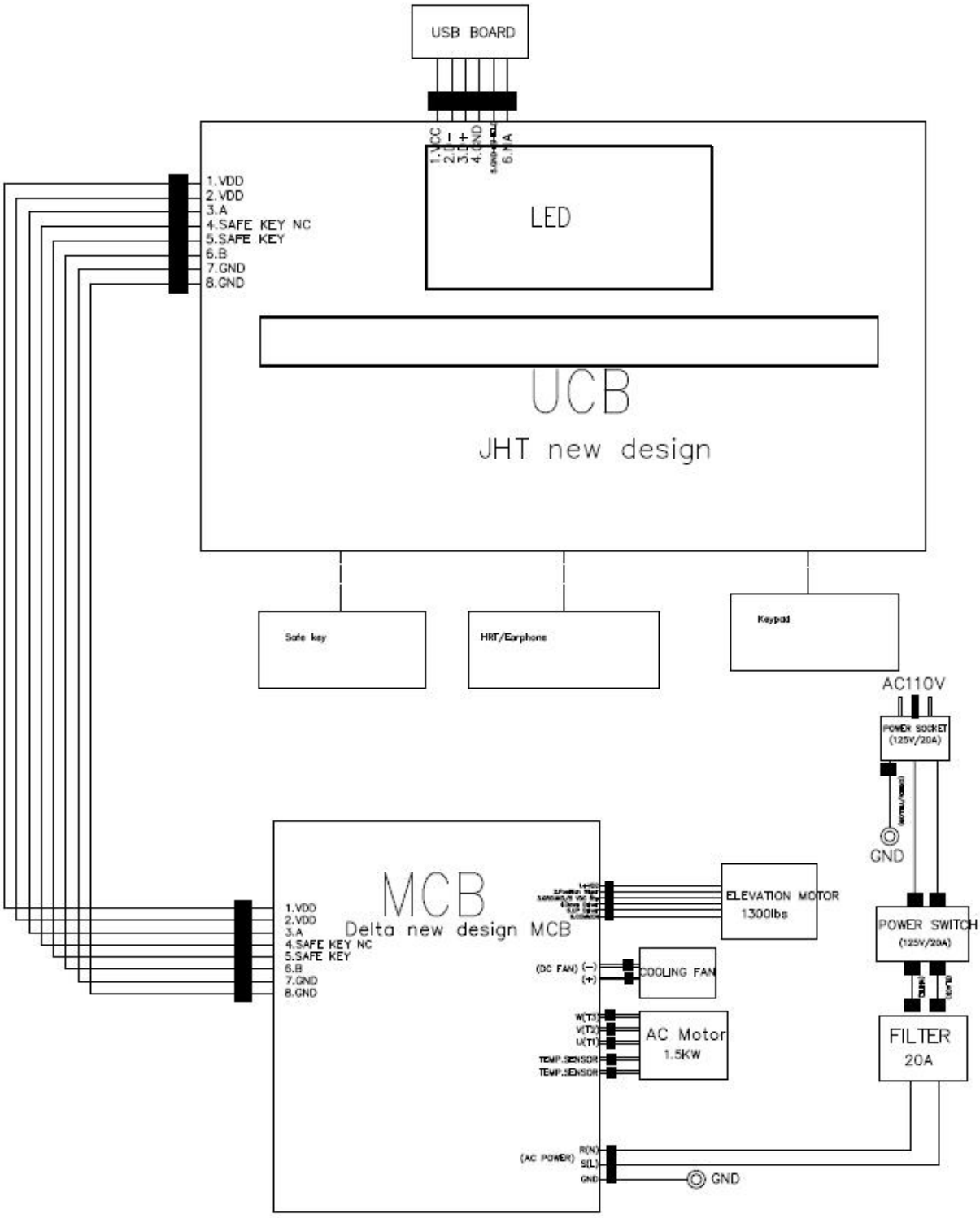


Belt is too far to the left side

CHAPTER 3: TROUBLESHOOTING

3.1 MCB Instructions

Electrical Diagram



CHAPTER 3: TROUBLESHOOTING

MCB WIRING INSTRUCTIONS.

MCB LED FUNCTION

LED No	Function	Symptom
LED 1	The flashing light represent normal communication	LED 1 Flashing
LED 2	Flashing once per second, said drive action and Power ON, often goes out the Power OFF, normally ON said drive failure	LED 2 Flashing
LED 3	The indication when the lift motor drops	LED 3 Light on
LED 4	The indication when the lift motor rises	LED 4 Light on
LED 5	The indication of console working power(+12V)	LED 5 Light on

CHAPTER 3: TROUBLESHOOTING

3.2 Troubleshooting - No Power to the Console

1) ***SYMPTOM:***

a. Turn on the power switch, but the console will not light up.

2) ***SOLUTION:***

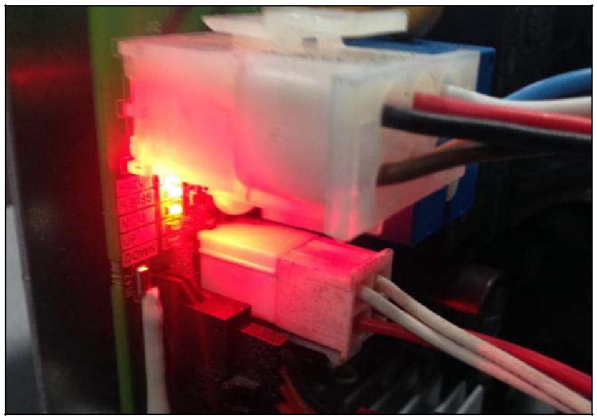
a. Check if the power cord connected well.

- If the power cord connected well but console doesn't turn on, try another one.

b. Check if the outlet is well.

- If no, please try another functional outlet.

c. Check if the MCB has power. There is a red power LED on the MCB that should be lit.



d. If the MCB does not have power, check the connection of the power wiring from the power receptacle to the MCB. Use a multi-meter to measure AC1 & AC2, AC voltage shall be same as local's standard voltage (110V-240V)

- If AC voltage value is standard, replace the MCB as it shall be defective.

e. If the MCB does have power, check the connection of the console cable wire at the MCB and UCB.

- Remove the console cable from MCB, and use a multi-meter to measure the DC voltage between the "GND pin" (Pin 1&2) and the " + 12V Pin" (Pin7 & 8)-. DC output is normally around DC 12V. If no output, replace the MCB.

- If output is around DC 12V, check the console cable. If it is defective, replace the console cable.

- If the console cable connections are all good, replace the PCB.

CHAPTER 3: TROUBLESHOOTING

3.3 Troubleshooting - No Function for Safety Key

1) ***SYMPTOM:***

a. The safety key inserted in console, but display window still shows “safety key off”.

2) ***SOLUTION:***

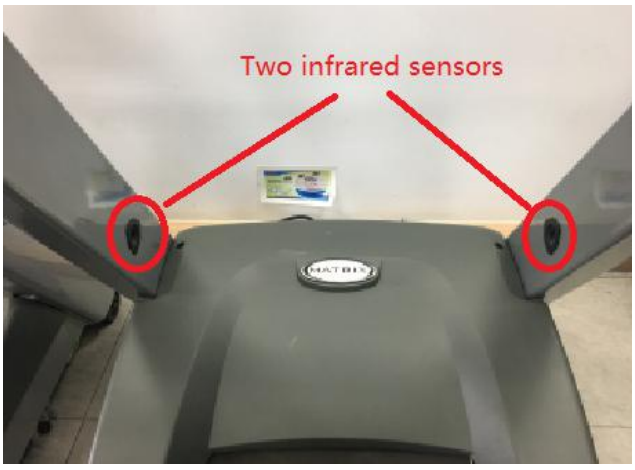
a. There is switch in the safety key, make sure it is function.

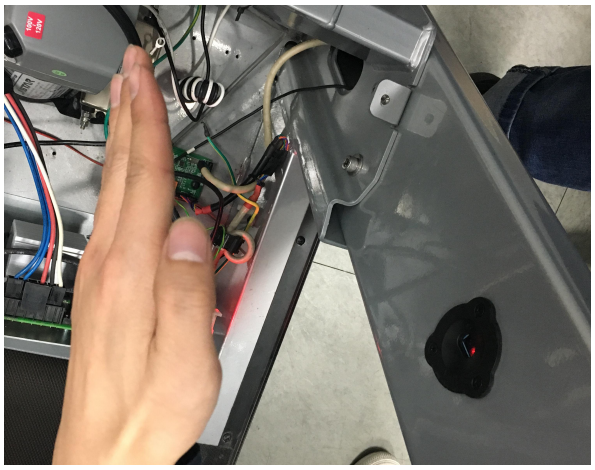
b. Check if the wires connected well. If re-connect it, but still not work, suggest change a new switch.

3.4 Troubleshooting - No Function for Infrared Induction

1) SYMPTOM:

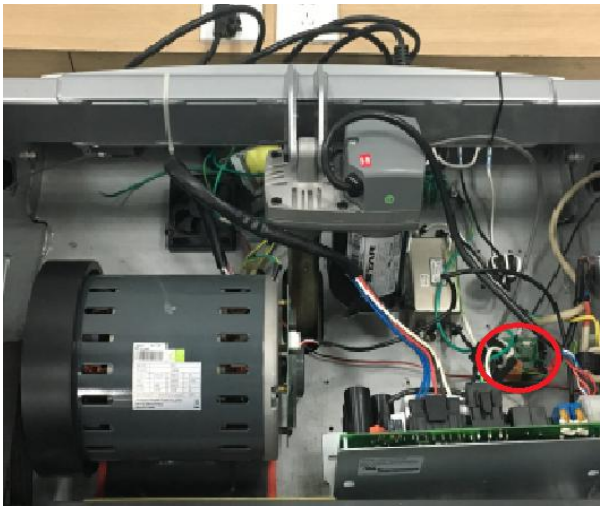
a. Turn on the power switch, but the infrared sensor don't light up.
b. Under the precondition that two infrared sensors light up, start the running belt and put your hand between two sensors, the running belt will not stop within 5 seconds.

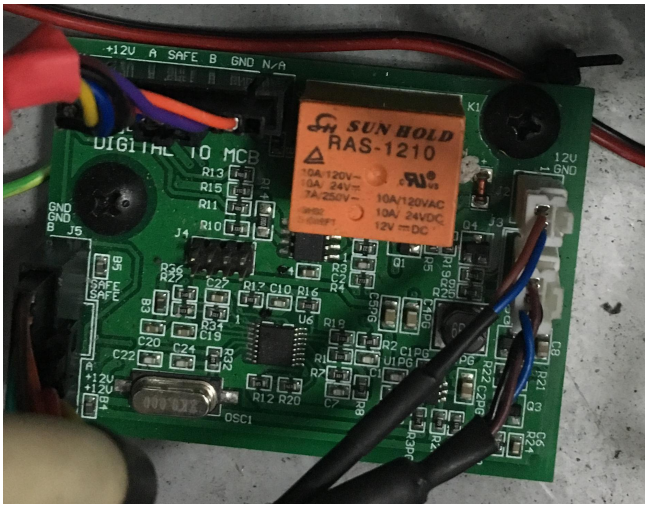




2) SOLUTION:

a. Check if the sensor's control board cord connected well
- if sensor's control board cord connected well and sensors still don't light up, try another one.
- if the moving belt doesn't stop within 5 seconds when you put your hand between sensors, try another one.





3.5 Troubleshooting - No Response for Machine (Console & Motor)

THE POWER IS ON, BUT MACHINE HAS NO RESPONSE

1) ***SYMPTOM:***

a. The power is on and the console lights up, but the treadmill does not run when keys are pressed.

2) ***SOLUTION:***

a. Press the key pad to check if it is function. If no, check if all wires connected well. If all wires connected well but still not work. Replace the key pads.

b. If the touch panel light up but no response, suggest change the control board.

c. Turn off the power switch, and open the motor upper cover. Remove the red & black wires of motor from the MCB, and use a multi-meter to measure the resistance of drive motor.

If the resistance is bigger than 10 Ω, the drive motor is defective. **Replace the drive motor.**

If the resistance is lower than 10 Ω, the drive motor is ok. Then,

- Check the connection of the speed sensor (encoder disk group) at the MCB.
- Remove the speed sensor from the motor and clean it, then re-test.
- If the speed sensor is clean and has a good connection but still will not operate, replace the speed sensor.
- Replace the MCB as the last step if machine does still not run after to take above actions.

3.6 Troubleshooting - Incline Motor Issues

INCLINE MOTOR ISSUES

1) ***SYMPTOM:***

   a. The incline motor does not lift up or down.

2) ***SOLUTION:***

   a. Enter Engineering Mode, and enter into calibration. Press "Start" to do auto calibration.

3.7 Troubleshooting - Noise Issues

NOISE ISSUES

1) SYMPTOM:

a. Thumping noise twice per rotation on new machine.

b. Rubbing / grinding noise.

c. High pitched "bell-like" sound from under the motor cover.

d. Banging or clunking sound.

e. Slapping / thunking / squeaking sound with each footstep.

f. Rubbing sound underneath the treadmill.

g. Squeaking noise when raising / lowering the deck into storage positions.

h. Squeaking / grinding noise when using elevation.

2) SOLUTION:

a. This noise is from the roller or running belt.

- If this is a new unit, some noise is normal as the running belt forms around the rollers.
- Check that the belt is centered and tensioned correctly.
- Remove and clean the rollers if needed.
- Replace the rollers or running belt as needed.

b. This sound is likely a moving component.

- Remove the motor cover and check the drive belt for alignment and make sure it is not slipping or is frayed / cut in any way. Replace the drive belt if needed.
- Make sure the optic disk on the motor is not rubbing the speed sensor.
- Turn the motor by hand to see if motor brushes or bearings are rubbing. Replace the motor if needed.
- Check the front and rear rollers, replace if needed.

c. This sound is likely caused by the optic disk.

- Check that the optic disk is tight on the motor and not rubbing the speed sensor.

d. The sound is likely due to the unit not being level.

- Check that all levelers are touching the ground.
- Move the treadmill to another flat surface.

e. This sound is from the running deck / belt.

- Check that the running deck is tightly attached to the frame.
- Check the deck shocks for detioration or crumbling. Replace if needed.
- Check to see if the air shock is making this noise, lubricate or replace if needed.

f. This sound is likely due to the air shock.
- Lubricate or replace the air shock as needed.

g. This sound is likely from the incline motor.
- Check that the incline motor connection points include Teflon washers.
- Lubricate the incline motor worm screw and connection points with grease.
- Replace the incline motor.

3.8 Troubleshooting - Speaker/Audio Issues

Speaker / Audio Issues

1) SYMPTOM:

a. No sound through the speakers but headphones work.

b. No sound through headphones but the speakers work.

c. No sound through speakers or headphones.

d. Speakers buzzing.

e. Sound from one speaker only.

f. Shock from headphones.

2) SOLUTION:

a. One of the speaker boards has a bad connection or is faulty.

- Check the connection of the wires going from the speakers to the speaker power board.
- Check the connection of the wires going from the speaker power board to the amp board.
- Check the connection of the wires going from the amp board to the console.
- Replace the speaker or amp boards and wiring.
- Replace the speakers.
- If the speaker board, amp board, wiring, and speakers do not solve the issue, replace the console.

b. There is a bad connection between the headphones and the console.

- Verify the connection of the music player to the dock or audio adaptor cable.
- Verify the audio adaptor cable connection at the console.
- Replace the headphone jack.
- Replace the audio adaptor cable.

c. There is a bad connection between one of the audio boards and the console.

- Verify the connection of the music player to the dock or audio adaptor cable.
- Verify the audio adaptor cable connection at the console.
- Replace the audio adaptor cable.
- Replace the console.

d. Speakers are not getting a clear signal through the speaker wires.

- Check the speaker wire connections.

- Replace the speaker wiring.
- Replace the speakers.

e. The speaker or speaker wiring is bad.
- Check the speaker wire connections.
- Switch the speaker connections from one speaker to the other to see if sound switches sides.
- If the sound does not switch sides, replace the speaker board.
- If the sound does switch sides, replace the speaker and speaker wires.

f. Grounding issue.
- Try a different set of headphones.
- Check the grounding of the console.

3.9 Troubleshooting - Heart Rate Function Issue

Heart rate function does not work or is reading incorrectly

1) ***SYMPTOM:***

a. The chest strap being used is not making good contact with the user's chest.

b. The chest strap is at a low battery status.

c. The chest strap is damaged.

d. The HR grips are damaged.

e. Heart rate board damaged

f. The UCB is damaged.

2) ***SOLUTION:***

a. Re-center the chest strap below the user's pectoral muscle and check again.

b. Replace the battery in the chest strap.

c. Replace the chest strap.

d. If there is no HR present, replace the HR grips.

e. If there is a HR present but it is much higher than normal, replace the HR board.

f. If replacing the HR grips and board does not resolve the issues, replace the console

4.1 Motor Cover Replacement

1) Remove the 2 screws holding the motor cover to the frame using a 6 mm Allen wrench (FIGURE A).

2) The motor cover is secured to the frame with velcro, 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 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

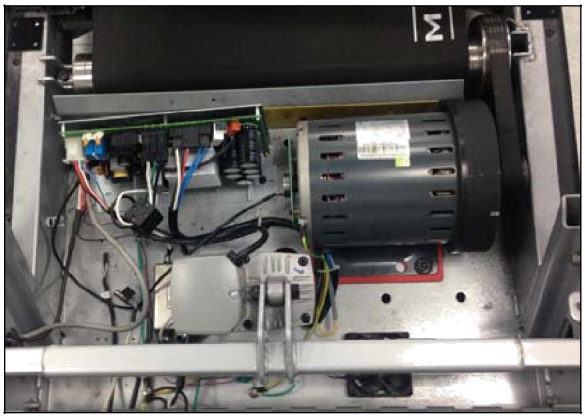


FIGURE C

FIGURE D

4.2 Part 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

2) Remove the rear roller from the running belt (FIGURE C & D).

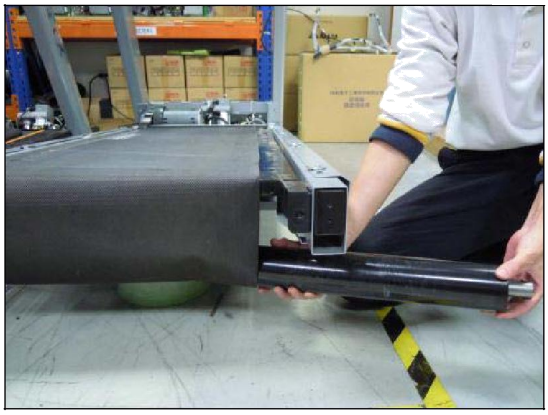


FIGURE C

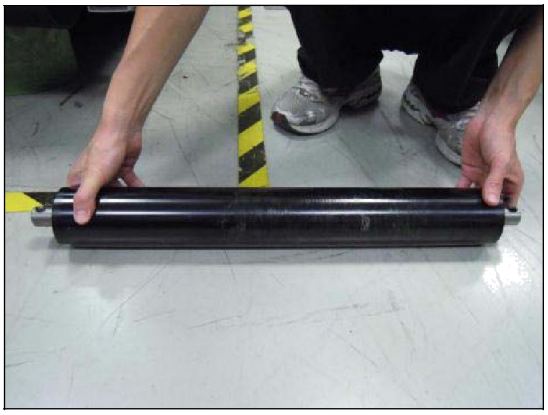


FIGURE D

4) Reverse Steps 1-3 to install a new rear roller.

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

4.3 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

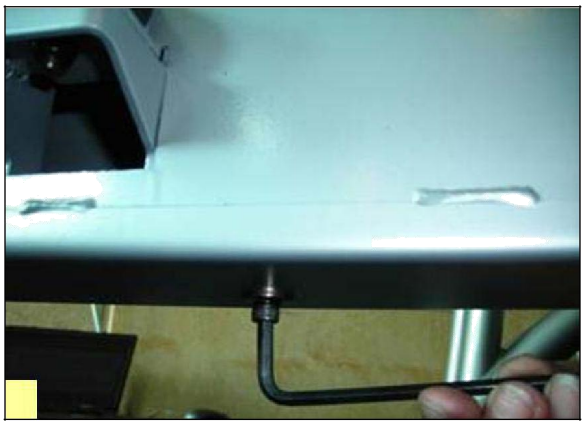


FIGURE B

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

FIGURE C

FIGURE D

3) Reverse Steps 1-3 to install a new side rail.

4) ***NOTE:*** After reinstalling the side rail, make sure the rear end cap is on first before tightening the screws for proper gap spacing. Be careful not to over tighten the screws, or they will poke through the top of the side rail.

4.4 Running Deck Replacement

1) Remove the motor cover as outlined in Section 6.1.

2) Remove the side rail as outlined in Section 6.3.

3) Remove the four running deck screws using a 5 mm Allen wrench (FIGURE A).

FIGURE A

4) Remove the running deck from the running belt (FIGURE B & C).

FIGURE B

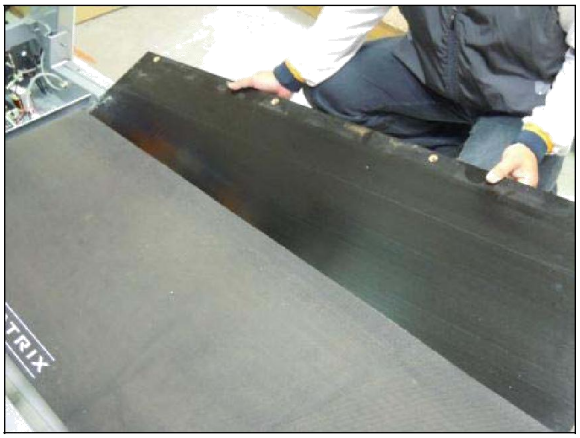


FIGURE C

5) Reverse Steps 1-4 to install a new running deck.

NOTE: The running deck is waxed on both sides so the opposite side surface may be usable. New deck surfaces must ALWAYS be matched to a new running belt.

4.5 Front Roller Replacement

1) Remove the motor cover as outlined in Section 6.1.

2) Loosen both of the rear roller screws using an 8mm T-Shaped wrench to remove tension from the running belt (FIGURE A).

3) Remove the front roller mounting screws using an 6 mm Allen wrench (FIGURE B & C).

FIGURE A

FIGURE B

FIGURE C

4) Use a hook or loop of wire to remove the spring from the drive belt tensioner. The tensioner should now pivot away from the drive belt (FIGURE D).

5) Remove the drive belt from the front roller and remove the roller from the running belt (FIGURE E).

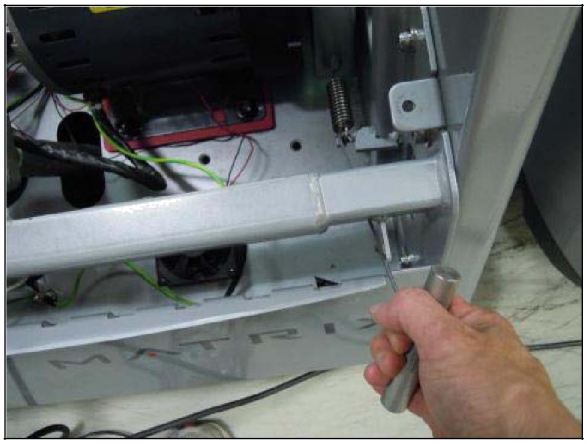


FIGURE D

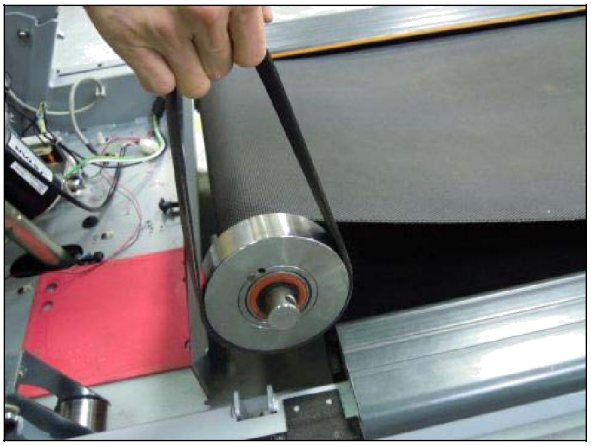


FIGURE E

6) Reverse Steps 1-5 to install a new roller.

4.6 Running Belt Replacement

1) Remove the motor cover as outlined in Section 6.1.
2) Remove the rear roller as outlined in Section6.2.
3) Remove the running deck as outlined in Section 6.4.
4) Remove the front roller as outlined in Section 9.5.
5) Remove the running belt (FIGURE A).

FIGURE A

6) Reverse Steps 1-5 to install a new running belt. ***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).

4.7 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 6.1.
3) Disconnect the wire connectors at the MCB.
4) Remove the 2 screws holding each side of the MCB to the frame (FIGURE A).

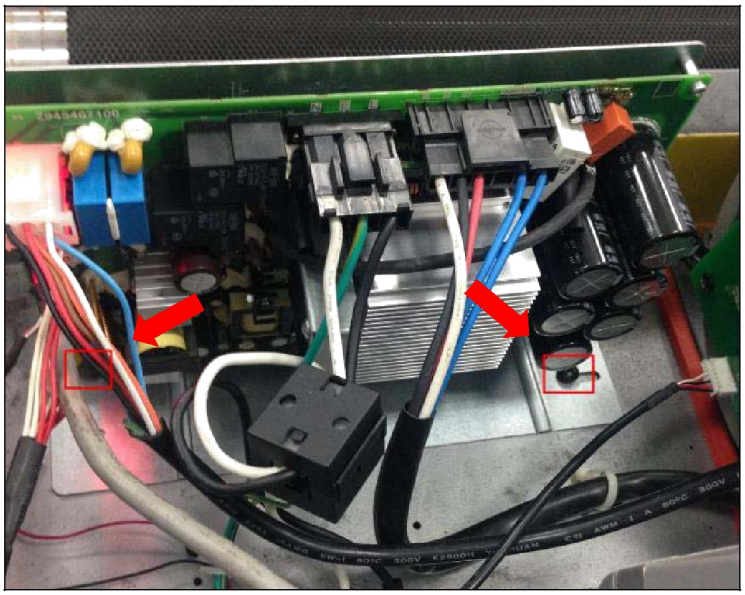


FIGURE A

5) Remove the MCB
6) Reverse Steps 1-5 to install a new MCB. Make sure that all wires removed during Step 3 are re-connected

4.8 Motor Replacement

1) Turn off power to the treadmill and disconnect the power cord.

2) Remove the motor cover as outlined in Section 6.1.

3) Use a hook or loop of wire to remove the spring from the drive belt tensioner.

4) Remove the drive belt tensioner

6) Disconnect the motor cable ground wire from the grounding post.

7) Disconnect the motor cable from the MCB.

8) Remove the 4 screws holding the motor to the frame (FIGURE A).

FIGURE A

9) Remove the motor from the treadmill.

10) Reverse Steps 1-9 to install a new motor.

NOTE: Be sure that the motor isolator pad is in place prior to mounting the new motor.

4.9 Drive Belt Replacement

1) Turn off power to the treadmill and disconnect the power cord.

2) Remove the motor cover as outlined in Section 6.1.

3) Use a hook or loop of wire to remove the spring from the drive belt tensioner (FIGURE A).

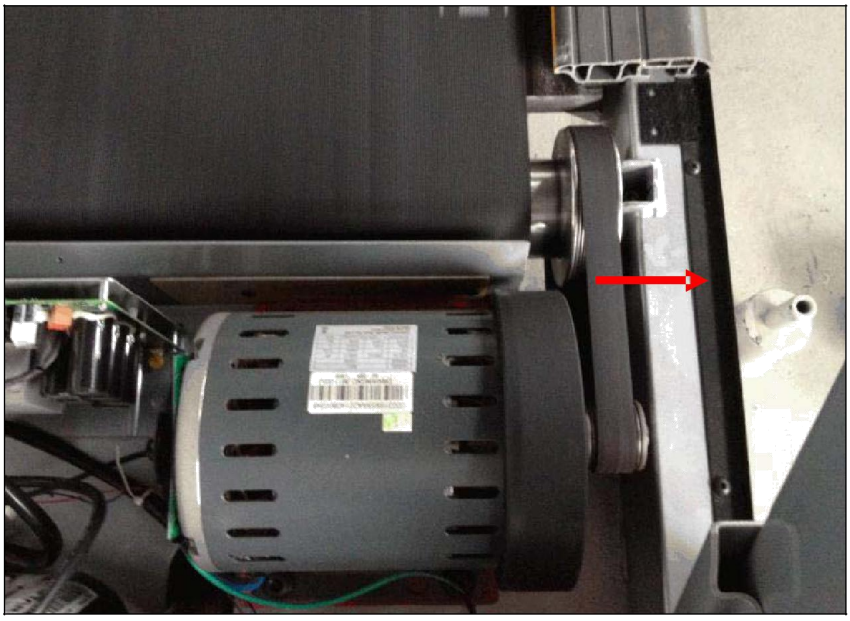


FIGURE A

4) The tensioner should now pivot away from the drive belt

5) With the tension on the drive belt relieved it can be walked off of the motor pulley

6) Loosen the rear roller screws to relieve tension on the running belt.

7) Remove the two 8 mm screws from front roller.

8) Lift the roller and remove the old drive belt

9) Reverse Steps 1-8 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.

4.10 Incline Motor Replacement

1) Turn off power to the treadmill and disconnect the power cord.

2) Remove the motor cover as outlined in Section 6.1.

3) 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

Figure B

5) Remove the elevation rack pin (Figure C).

6) Disconnect the incline motor power cable from the MCB (Figure D).

Figure C

Figure D

7) Remove the incline motor cable ground wire from the ground prong in the motor frame (Figure E).

8) Disconnect the incline motor from the top mounting bracket (Figure F).

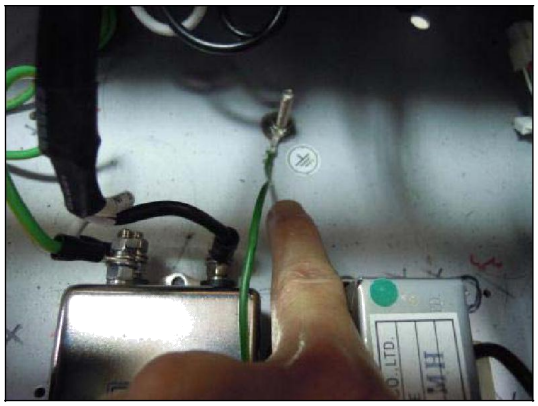


Figure E

Figure F

9) Lift the incline motor away from the treadmill (Figure G).

10) Reverse Steps 1-9 to install a new incline motor. When placing a new incline motor into position, spin the worm screw until the incline range is as short as possible, then turn 2 revolutions and attach to the treadmill frame.

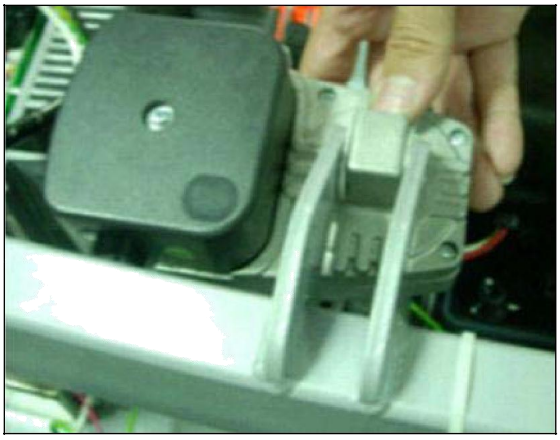


Figure G

Figure H

NOTE: When installing a new incline motor, make sure to replace the white nylon washers at the top and bottom connection points of the incline motor (Figure H).

4.11 Console Replacement

1) Turn off power to the treadmill and disconnect the power cord.

2) Remove the 2 screws holding the back cover onto the console (FIGURE A).

3) Remove the 4 screws holding the console onto the console frame (FIGURE B).

FIGURE A

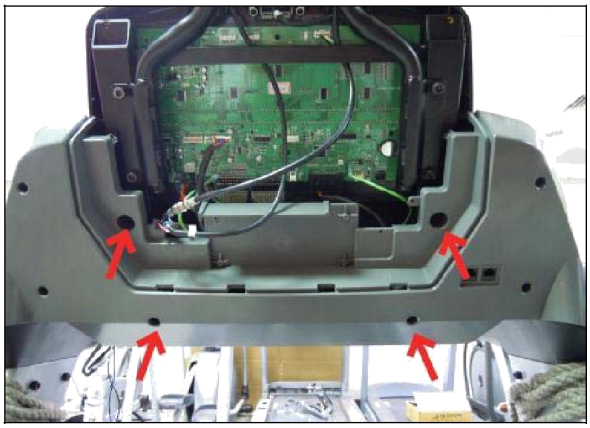


FIGURE B

4) Disconnect the 6 wire connections from the console (FIGURE C).

5) Remove the console (FIGURE D).

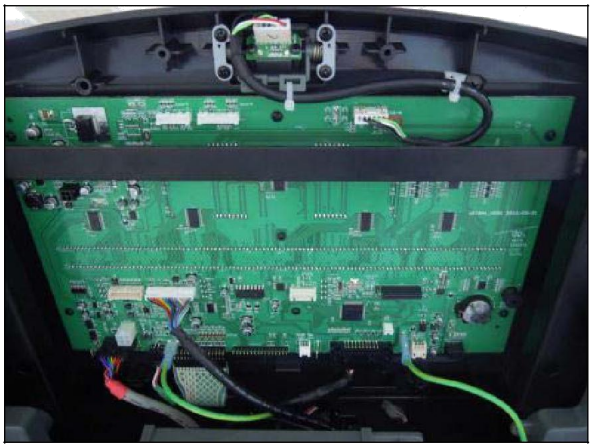


FIGURE C

FIGURE D

6) Reverse Steps 1-5 to install a new console.

4.12 Heart Rate Board 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).

1) Turn off power to the treadmill and remove the power cord.

2) Remove the console as outlined in Section 6.12.

3) Loose the screws which fix the heart rate sensor (FIGURE A).

FIGURE A

FIGURE B

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

4) Disconnect the wires connections that go to the heart rate board (FIGURE B).

FIGURE C.

5) Reverse Steps 1-4 to install new HR grips.