MX-T3x(TM94E)
AC SYSTEM
SERVICE MANUAL
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SERIAL NUMBER LOCATION
Matrix T3x(TM94E)
Serial Number Location
SECTION 2

MOVING THE UNIT
UNPACKING THE TREADMILL:
The MATRIX treadmill is inspected before it is packaged. It is shipped in two separate packages: the frame and the console. Carefully unpack the unit and dispose of the box material.

CAUTION:
This unit weighs 487 lbs / 221 kgs pounds. Be sure to have proper assistance to remove and move the unit, to avoid injury to the user and the unit.

Frame:
1. Treadmill Base
2. Console Supports
3. Hardware Fasteners and Washer Bag

Console:
1. Handle Bar Set
2. Console

OPTIONAL EQUIPMENT
Optional equipment may be available for the users of MATRIX product. Please visit our web site at www.Johnsonfitness.com for more information.
SECTION 3

IMPORTANT SAFETY INSTRUCTIONS
1.1 Before getting Started

It is the sole responsibility of the purchaser of Matrix Fitness Systems products to instruct all individuals, whether they are the end user or supervising personnel, on proper usage of the equipment. It is recommended that all users of Matrix Fitness Systems exercise equipment be informed of the following information prior to its use.

1.2 proper usage

1. 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.

2. Keep hands and feet clear of moving parts at all times to avoid injury.

3. Unsupervised children must be kept away from this equipment.

4. Do not wear loose clothing while on equipment.

5. When it is necessary to immobilize the treadmill, set the display to read “CHOOSE PROGRAM USING QUICK KEYS OR SPEED UP OR DOWN KEYS”, then hold down the RESET & ENTER keys. The treadmill will now display “IMMOBILIZED.” In this state the treadmill can not be operated; both the drive motor & elevation motor are disabled. The treadmill will remain in this state across power cycles, resets, etc. To return to normal operation mode repeat the same key sequence, hold down the RESET & ENTER keys. The display will now read “CHOOSE PROGRAM USING QUICK KEYS OR SPEED UP OR DOWN KEYS”
1.3 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.

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 lower case owner’s manual. Do not use other attachments that are not recommend by the manufacturer. Attachments may cause injury.

• To prevent electrical shock, never drop or insert any object into any opening

• Do not remove the console covers. Service should only be done by an authorized service technician.

• Never operate the 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 it’s supply cord or use the cord as a handle.

• Keep any power cord away from heated surfaces.

• Close supervision is necessary when 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.

**Caution:** If you experience chest pain, nausea, dizziness or shortness or breath, STOP exercising immediately and consult a physician before continuing.
1.4 Electrical Requirements

For your safety and 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 and requires a dedicated line according to the electric configurations listed in the chart below. Any alteration of this power cord could void all warranties of this product.

<table>
<thead>
<tr>
<th>Supply Voltage (VAC)</th>
<th>Frequency (Hz)</th>
<th>Rated Current (Amps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>50/60Hz</td>
<td>15A</td>
</tr>
<tr>
<td>120</td>
<td>50/60Hz</td>
<td>15A</td>
</tr>
<tr>
<td>200</td>
<td>50/60Hz</td>
<td>10A</td>
</tr>
<tr>
<td>220</td>
<td>50/60Hz</td>
<td>10A</td>
</tr>
<tr>
<td>230</td>
<td>50/60Hz</td>
<td>10A</td>
</tr>
<tr>
<td>240+</td>
<td>50/60Hz</td>
<td>10A</td>
</tr>
</tbody>
</table>

1.5 grounding instructions

The treadmill must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. The treadmill is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances. If the user does not follow these grounding Instructions, the user could void the Matrix limited warranty.

danger:

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if the user is in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product if it will not fit the outlet; have a proper outlet installed by a qualified technician.
SECTION 4

PREVENTATIVE MAINTENANCE
### 4.1 MAINTENANCE CHECKLIST

For best performance we recommend the following maintenance schedule:

<table>
<thead>
<tr>
<th>Item</th>
<th>Weekly</th>
<th>Monthly</th>
<th>BI-annually</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Console Bolts</td>
<td></td>
<td></td>
<td>Inspect</td>
<td></td>
</tr>
<tr>
<td>Frame</td>
<td></td>
<td>Clean</td>
<td></td>
<td>Inspect</td>
</tr>
<tr>
<td>Running Belt</td>
<td></td>
<td>Clean</td>
<td></td>
<td>Inspect</td>
</tr>
<tr>
<td>Power Code</td>
<td></td>
<td></td>
<td>Inspect</td>
<td></td>
</tr>
<tr>
<td>Console</td>
<td></td>
<td>Clean</td>
<td>Inspect</td>
<td></td>
</tr>
<tr>
<td>Bottle Holders</td>
<td></td>
<td>Clean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handlebars</td>
<td></td>
<td>Clean</td>
<td></td>
<td>Inspect</td>
</tr>
<tr>
<td>Handlebars Bolts</td>
<td></td>
<td></td>
<td></td>
<td>Inspect</td>
</tr>
<tr>
<td>Front / Rear Roller</td>
<td></td>
<td></td>
<td>Inspect</td>
<td></td>
</tr>
<tr>
<td>Stop Key</td>
<td></td>
<td></td>
<td>Inspect</td>
<td></td>
</tr>
<tr>
<td>Motor Drive Belt</td>
<td></td>
<td></td>
<td>Inspect</td>
<td></td>
</tr>
<tr>
<td>Deck Bolts</td>
<td></td>
<td></td>
<td>Tighten</td>
<td></td>
</tr>
<tr>
<td>Drive Belt</td>
<td></td>
<td></td>
<td>Tighten</td>
<td></td>
</tr>
<tr>
<td>Running Belt</td>
<td>Assure</td>
<td></td>
<td></td>
<td>Tighten</td>
</tr>
</tbody>
</table>
4.2 RECOMMENDED CLEANING TIPS

1. Use a soft, clean cotton cloth. DO NOT use paper towels to clean surfaces on the treadmill. Paper towels are abrasive and can damage surfaces.

2. Use a mild soap and damp cloth. DO NOT use ammonia based cleaner. This will cause discoloring of the aluminum and plastics it comes into contact with.

3. Do not pour water or cleaning solutions on any surface. This could cause electrocution.

4. Wipe the console and side rails after every use.

5. Brush away any wax deposits from the deck and belt area. This is a common occurrence until the wax is worked into the belt material.

6. Be sure to remove any obstructions from the path of the elevation wheels including power cords.

7. Monthly, unplug the treadmill and remove the motor cover. Check for debris and clean with a dry cloth or small vacuum nozzle.

WARNING:

Do not plug the treadmill in until the motor cover has been reinstalled.

CAUTION:

T5x-02 Weighs 450 lbs / 204 kg. Be sure to have proper assistance to install and move the unit in order to avoid injury to you or the unit.
4.3 DECK AND BELT REPLACEMENT

One of the most common wear and tear items on a treadmill is the Deck and Belt combination. If these two items are not properly maintained they can cause damage to other components. This product has been provided with the most advanced maintenance free lubricating system on the market.

**WARNING:**

Do not run the treadmill while cleaning the belt and deck. This can cause serious injury and can damage the machine.

Maintain the belt and deck by wiping the sides of the belt and deck with a clean cloth. The user can also wipe under the belt 2 inches / 5 centimeters on both sides removing any dust or debris.

The deck can be flipped and reinstalled or replaced by an authorized service technician. Please contact Matrix Fitness Systems or authorized dealers for more information.
4.4 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 local service window for a replacement.

MAINTAIN ALL EQUIPMENT:

Preventative maintenance is the key to smooth operating equipment, as well as keeping the users 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 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.
4.5 ADJUSTING THE 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 two 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 belt 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.

**STEP3 :**
While the treadmill is running at 3 mph / 4.8 kph, observe the belt position. If it is moving to the right, tighten the right bolt by turning it clockwise ?turn, and loosen the left bolt turn. If it is moving to the left, tighten the left bolt by turning it clockwise ?turn and loosen the right ?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 ?turn. Repeat if necessary.
4.6 CLEAN THE GROOVES PROCEDURE

Frequency: Every 3 months

Caution:
If dirty grooves in the drive belt, motor and roller pulley, there will be noises while running.

Procedure:

1. Remove the drive belt and check the grooves in belt for dirt or dust and clean it.

2. Check the grooves in motor pulley for dirt or dust and clean it.

3. Check the grooves in roller pulley for dirt or dust and clean it.
SECTION 5
MANAGER MODE
ENGINEERING MODE

Engineering screens allow the viewing and editing of variables that would be necessary for a club operator/manager to customize. Unless otherwise noted, engineering screens consist of the initial screen, the editing or action screen, and the saving screen. The initial screen displays the variable type, and in most cases, the current value. Edit or action screens are where the editing of the variable take place. The saving screen indicates the variable is being saved.

To access the Engineering screens press and hold the ELEVATION UP and SPEED DOWN buttons for three seconds. The display will now display 'Engineering Mode'.

Use the ELEVATION UP or DOWN arrows to scroll through the different engineering screens.

Press SELECT to edit the selected engineering screen.

Use the SPEED UP or DOWN arrows to set the variable.

Press START to save the selected variable.
KEY BEHACLE FUNCTION

<table>
<thead>
<tr>
<th>key name</th>
<th>function</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td>Arrows to scroll through the different screens</td>
</tr>
<tr>
<td>DOWN</td>
<td>Arrows to scroll through the different screens</td>
</tr>
<tr>
<td>FAST</td>
<td>Arrow to set the variable</td>
</tr>
<tr>
<td>SLOW</td>
<td>Arrow to set the variable</td>
</tr>
<tr>
<td>START</td>
<td>To save the selected variable</td>
</tr>
<tr>
<td>SELECT</td>
<td>To edit the selected screen</td>
</tr>
</tbody>
</table>

The list manager’s custom setting

<table>
<thead>
<tr>
<th>CUSTOM SETTING</th>
<th>DEFAULT</th>
<th>MIN</th>
<th>MAX</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0 LOW SPEED</td>
<td>77</td>
<td></td>
<td></td>
<td>This variable controls the low for limit for the speed of the TM</td>
</tr>
<tr>
<td>P1 MIDDLE SPEE</td>
<td>300</td>
<td></td>
<td></td>
<td>This variable controls the middle for limit for the speed of the TM</td>
</tr>
<tr>
<td>P2 HIGH SPEED</td>
<td>600</td>
<td></td>
<td></td>
<td>This variable controls the high for limit for the speed of the TM</td>
</tr>
<tr>
<td>P4 LOW ELEVATION</td>
<td>55</td>
<td></td>
<td></td>
<td>This variable controls the low for limit for the elevation of the TM</td>
</tr>
<tr>
<td>P5 HIGH ELEVATION</td>
<td>200</td>
<td></td>
<td></td>
<td>This variable controls the high for limit for the elevation of the TM</td>
</tr>
<tr>
<td>P6 UNIT</td>
<td>MPH</td>
<td></td>
<td></td>
<td>Change the standard KM or Mile</td>
</tr>
<tr>
<td>P7 LIMIT TIME</td>
<td>90:00</td>
<td>5:00</td>
<td>95:00</td>
<td>This variable controls the program max time</td>
</tr>
<tr>
<td></td>
<td>P8</td>
<td>SET WEIGHT</td>
<td>KPH80 / MPH150</td>
<td>KRH2 2 / MPH 50</td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>-----------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>P9</td>
<td>TOTAL TIME</td>
<td>Display total accumulated time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P10</td>
<td>TOTAL DISTANCE</td>
<td>Display total accumulated distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P11</td>
<td>VERSION</td>
<td>Display the product’s software version</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P12</td>
<td>LANGUAGE</td>
<td>Language in which information is display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P13</td>
<td>USER SPEED</td>
<td>This variable controls the default program speed</td>
<td>0.5MPH / 0.8KPH</td>
<td>0.5 MPH / 0.8 KPH</td>
</tr>
<tr>
<td>P14</td>
<td>USER TIME</td>
<td>This variable controls the default program time</td>
<td>20:00</td>
<td>5:00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PRODUCT TEST</th>
<th>Only for factory test mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AUTO CHECK</td>
<td>The console will do the auto calibration including speed and incline</td>
</tr>
<tr>
<td></td>
<td>DISPLAY TEST</td>
<td>LED test mode</td>
</tr>
<tr>
<td></td>
<td>KEYPAD TEST</td>
<td>Test the keypad</td>
</tr>
<tr>
<td></td>
<td>OUT OF ORDER</td>
<td>Error information</td>
</tr>
</tbody>
</table>

**Remarks:**

If you want to clean accumulate time and distance, please enter engineer mode select “P9 or P10” and Hole the “Down & Slow” key for 3’s, to clean accumulate time and distance.
SECTION 6
TROUBLE SHOOTINGS
6.1 Electrical block diagram
6.2 Wire pin definition

P01-- Console Wire
P04 -- Inverter Wire

<table>
<thead>
<tr>
<th>A: HOLE</th>
<th>B: HOLE (對應號)</th>
<th>COLOR</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RB</td>
<td>Black</td>
<td>N/C</td>
</tr>
<tr>
<td>2</td>
<td>RC</td>
<td>Red</td>
<td>COM</td>
</tr>
<tr>
<td>3</td>
<td>AVI</td>
<td>AVI</td>
<td>AVI</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>Orange</td>
<td>AVI COM</td>
</tr>
<tr>
<td>5</td>
<td>M1</td>
<td>Yellow</td>
<td>Reverse</td>
</tr>
<tr>
<td>6</td>
<td>GND</td>
<td>Green</td>
<td>Chiral</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
<td>White</td>
<td>COM</td>
</tr>
</tbody>
</table>

N24 -- Pulse Board Wire

<table>
<thead>
<tr>
<th>A: HOLE</th>
<th>B: HOLE</th>
<th>COLOR</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>White</td>
<td>SIG</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Red</td>
<td>VCC</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Black</td>
<td>GND</td>
</tr>
</tbody>
</table>
P11 -- CTRL Overlay Wire ; Left

<table>
<thead>
<tr>
<th>PIN</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DOWN</td>
</tr>
<tr>
<td>2</td>
<td>UP</td>
</tr>
<tr>
<td>3</td>
<td>SELECT</td>
</tr>
<tr>
<td>4</td>
<td>STOP</td>
</tr>
<tr>
<td>5</td>
<td>NC</td>
</tr>
<tr>
<td>6</td>
<td>TOWER HR</td>
</tr>
<tr>
<td>7</td>
<td>FAT HUM</td>
</tr>
<tr>
<td>8</td>
<td>INTER VRL</td>
</tr>
<tr>
<td>9</td>
<td>NC</td>
</tr>
<tr>
<td>10</td>
<td>SK RUN</td>
</tr>
<tr>
<td>11</td>
<td>WEIGHT LOSS</td>
</tr>
<tr>
<td>12</td>
<td>MANUAL</td>
</tr>
<tr>
<td>13</td>
<td>CNE</td>
</tr>
</tbody>
</table>

P12 -- CTRL Overlay Wire ; Right

<table>
<thead>
<tr>
<th>PIN</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STOP</td>
</tr>
<tr>
<td>2</td>
<td>START</td>
</tr>
<tr>
<td>3</td>
<td>FAST</td>
</tr>
<tr>
<td>4</td>
<td>SLOW</td>
</tr>
<tr>
<td>5</td>
<td>ENTER</td>
</tr>
<tr>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>16</td>
<td>RESET</td>
</tr>
<tr>
<td>17</td>
<td>17 OME</td>
</tr>
</tbody>
</table>
### 6.3 MCB LED instructions

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+12(A)</td>
<td>Indicates is incline power board have provide the +12V power for console.</td>
</tr>
<tr>
<td>+12(B)</td>
<td>Indicates is incline power board have provide the +12V power for PUMP.</td>
</tr>
<tr>
<td>SPEED</td>
<td>Indicates the motor is moving via the encoder's feedback by blinking.</td>
</tr>
<tr>
<td>PWM</td>
<td>Indicates if Console is commanding speed.</td>
</tr>
<tr>
<td>FAIL</td>
<td>Inverter is damage</td>
</tr>
<tr>
<td>UP</td>
<td>Indicates if the upper console is commanding Elevation UP.</td>
</tr>
<tr>
<td>DOWN</td>
<td>Indicates if the upper console is commanding Elevation DOWN.</td>
</tr>
<tr>
<td>AC</td>
<td>Indicates if the AC Buss is Energized (Voltage Present).</td>
</tr>
<tr>
<td>RUN</td>
<td>Indicates if inverter is commanding speed.</td>
</tr>
<tr>
<td>+18V</td>
<td>Indicates the presence of the unregulated 18 volt for MCB</td>
</tr>
</tbody>
</table>
6.4 Error Messages on the Console

<table>
<thead>
<tr>
<th>Error</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Treadmill will not start</td>
</tr>
<tr>
<td>E2</td>
<td>Panel control board the MCU not answer</td>
</tr>
<tr>
<td>E3</td>
<td>Incline motor not to movement</td>
</tr>
<tr>
<td>E6</td>
<td>Incline motor the signal not answer</td>
</tr>
<tr>
<td>Inverter error</td>
<td>Inverter problem</td>
</tr>
</tbody>
</table>

Error message 1 troubleshooting (1)

[Symptom 1 of treadmill will have start ]
Press start and after 10 sec. the LED display will show “Error 1”

[Cause]
The speed sensor can’t sense the speed

[Solution]
1. Check the connector condition of the speed sensor cable.
2. Replace the speed sensor.
3. Check the magnet on the front roller if it’s too far away from the speed sensor
Error message 1 troubleshooting (2)

[Symptom 2 of treadmill will not start ]
Press start and after 10 sec. the LED display will show “Error 1”

[Cause]
1. 20-pin console cable is damaged.
2. PCB is damaged.
3. Motor is damaged.

[Solution]
1. Open MCB cover, connect all cable to Inverter again turn on the power, verify the LED indicator of PWM is to glitter.
   (If that PWM is not glitter, replace console cable)
2. If PWM LED also do not glitter, replace PCB.
3. Verify wire connection Motor wire and inverter cable on the Inverter, then plug in the power cord and turn on the power switch.
   (Then press “START“ button, if motor do not to run, replace the motor.)
Error message 2 troubleshooting

[Symptom]
Press “Start” key then the console display show ”Error 2”

[Cause]
Panel control board cause by static destroy, make the panel control board inside parts MCU damage.

[Solution]
1. Turn on power again, if console still show “Error 2”, replace PCB.
2. Please check the console ground wire whether connect to PCB.
   (Please refer the below photo and check the machine ground between the console and incline power board whether connect.)

Check the machine ground whether have connect.

Console back screw

Incline power board ground
[Symptom]
Press start then the console display show “Error 3 or 6“

[Cause]
1. The 20-pin console cable is damaged.
2. Incline motor is damaged.
3. PCB is damaged.
4. Incline power board is damaged.
5. The incline setting is not correct.

[Solution]
1. Enter the “Engineer mode” select P4:LOW ELEVATION console display will show incline motor parameter (Please refer the below photo), if display not show right parameter, please check the between Incline power board and incline motor whether connect is OK, if it is OK, please replace new console cable to test again.

2. If display still show “Error 3 or 6“, please replace the incline motor.

3. If display still show “Error 3 or 6“, please replace the PCB.

4. If display still show “Error 3 or 6“, please replace the incline power board.

5. Enter Engineering Mode to Auto-calibration place to renew the Auto-calibration elevation parameter (Please refer the page 22).
Error message 4 troubleshooting

[Symptom]
Running the “Auto check “ can’t finish.

[Cause]
1. Check the connector condition of the speed sensor cable.
2. Replace the speed sensor.
3. Check the magnet on the front roller if it’s too far away from the speed sensor.

[Solution]

1. Check the connector MCB and Speed sensor cable.
2. Speed sensor.
3. Magnet.
**Error message Inverter error**

[Symptom]
Press start then the console display show “INVERTER ERROR“

[Cause]
1. Connector condition of the console cable.
2. Connector condition of the inverter wire.
3. Inverter damage.

[Solution]
1. Check the connector condition of the console cable.
2. Check the connector condition of the inverter wire.
3. Check the inverter display show the which error code and refer the 35 page Faults displayed list to find the root cause.
4. Replace the inverter.
# Faults - Causes - Remedies

## Starter does not start, no fault displayed

- Check that the run command input(s) have been actuated in accordance with the chosen control mode.
- When the drive is switched on, at a manual fault reset, or after a stop command, the motor can only be powered once the "forward" and "reverse" commands have been reset. If they have not been reset, the drive will display "rdY" or "nSt" but will not start.

## Faults displayed

The cause of the fault must be removed before resetting. Faults SOF, OHF, OLF, OSF, ObF, and PHF can be reset via a logic input if this function has been configured. Faults OHF, OLF, OSF, ObF, and PHF can be reset via the automatic restart function, if this function has been configured. All faults can be reset by switching the drive off then on again.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OCE</strong> overcurrent</td>
<td>- Ramp too short, check the settings.</td>
</tr>
<tr>
<td></td>
<td>- Inertia or load too high, check the size of the motor/drive/load.</td>
</tr>
<tr>
<td></td>
<td>- Mechanical locking, check the state of the mechanism.</td>
</tr>
<tr>
<td><strong>SCF</strong> motor short-circuit, insulation fault</td>
<td>- Check the cables connecting the drive to the motor, and the insulation of the motor.</td>
</tr>
<tr>
<td><strong>INF</strong> internal fault</td>
<td>- Check the environment (electromagnetic compatibility).</td>
</tr>
<tr>
<td></td>
<td>- Replace the drive.</td>
</tr>
<tr>
<td><strong>CFG</strong> configuration fault</td>
<td>- Return to factory settings or call up the backup configuration, if it is valid. See parameter FCS in the FUn menu.</td>
</tr>
<tr>
<td><strong>SOE</strong> overspeed</td>
<td>- Instability, check the motor, gain and stability parameters.</td>
</tr>
<tr>
<td></td>
<td>- Driving load too high, add a module and a braking resistor and check the size of the motor / drive / load.</td>
</tr>
<tr>
<td><strong>OHF</strong> drive overload</td>
<td>- Check the motor load, the drive ventilation and the environment. Wait for the drive to cool before restarting.</td>
</tr>
<tr>
<td><strong>OLF</strong> motor overload</td>
<td>- Check the setting of the motor thermal protection, check the motor load. Wait for the drive to cool before restarting.</td>
</tr>
<tr>
<td><strong>OSF</strong> overvoltage</td>
<td>- Check the line voltage.</td>
</tr>
<tr>
<td><strong>ObF</strong> overvoltage during deceleration</td>
<td>- Braking too harsh or driving load. Increase the deceleration time, add a braking resistor if necessary and activate the brA function if it is compatible with the application.</td>
</tr>
<tr>
<td><strong>PHF</strong> line phase failure</td>
<td>This protection only operates with the drive on load.</td>
</tr>
<tr>
<td></td>
<td>- Check the power connection and the fuses.</td>
</tr>
<tr>
<td></td>
<td>- Reset.</td>
</tr>
<tr>
<td></td>
<td>- Check the line supply / drive compatibility.</td>
</tr>
<tr>
<td></td>
<td>- If there is an unbalanced load, inhibit the fault via IPL = nO (FUn menu).</td>
</tr>
<tr>
<td><strong>USF</strong> undervoltage</td>
<td>- Check the voltage and the voltage parameter.</td>
</tr>
<tr>
<td><strong>CFE</strong> charging circuit</td>
<td>- Replace the drive.</td>
</tr>
</tbody>
</table>

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6.5 Hand pulse can not work

1. Please make sure then user hold the hand pulse whether windows show picture.

![Image of a hand pulse monitor with a heart rate reading of 66.]

**Remark:** Heart rate figure show up on the screen about in 5~10 sec.

2. If the heart rate figure still doesn't show up on the screen, Please inspect according to the step as below.

**Step 1:** Please make use of tools to confirm line have conduct.
Step 2: Please check the connection.

Check whether the heart rate cable is touching hand pulse metal (both of left hand and right hand).

Besides the other side of the heart rate cable should be connected with HR board.

Step 3: If you can't find any problem with above step, and the heart rate figure still can't show up, Please replace the heart rate board.
6.6 MX-T3x maintenance lamp

1. When the distance accumulate to 5000KM the lamp will be lighted in blue.

2. There has to do some maintenance
   2.1 Test the running belt if loose or not?
   2.2 Lubricate the running belt
   2.3 Remove the motor cover and clean the dust inside
   2.4 Clean the frame
   2.5 Check the running belt is in the center or not.

3. There can hold "Elevation Down" & "Speed Slow" for 3 seconds to turn off the light
SECTION 7
PARTS REPLACEMENT
7.1 Plastic shroud removal

1. Remove the front shroud using 4 screws. (Figure A)
2. Front covers are removed (Figure B)
7.2 Rear roller removal

1. Turn off power and disconnect the cord from the machine
2. Remove one of the end caps using a screwdriver (Figure A)
3. Remove both roller adjustment screws using an 8mm hex-tip tools (Figure B and C)
4. Remove roller from running belt (Figure D and E)
7.3 Side rail removal

1. Remove the end cap as outlined in section 8.2
2. Loosen the two screws under the end cap reinforce set using a 5mm hex-tip tools (Figure A)
3. Slide the rail off the back of the treadmill (Figure B)
4. After reinstalling the side rail, make sure end cap is on first before.
7.4 Deck removal

1. Remove the front shroud as outlined in section 8.1 and 8.3 side rail removal.
2. Remove eight deck screws using a 5mm hex-tip tools (Figure A)
3. Remove deck from the running belt (Figure B and C)
4. Be careful not to pinch fingers during removal/installation of deck board
5. *New deck surfaces must ALWAYS be matched to a new running belt*
7.5 Deck cushion replacement

1. Remove the deck as outlined in section 8.3
2. Holding the cushion and remove the 13mm nut.
   (Figure A and B)
7.6 Front roller removal

1. Remove shrouds as outlined in section 8.1
2. Using a 5mm hex-tip tools, remove the tension set. (Figure A and B)
3. Remove the front roller mounting screws using 8mm hex-tip tools (Figure C and D)
4. Remove the drive belt from the front roller and remove the roller from the running belt (Figure E)
7.7 Running belt removal

1. Remove shrouds as outlined in section 8.1
2. Remove rear roller as outlined in section 8.2
3. Remove side rail as outlined in section 8.3
4. Remove deck as outlined in section 8.4
5. Remove front roller as outlined in section 8.5
6. Remove the running belt and replace with new belt (Figure A)
7. *New running belts must ALWAYS be installed to a new deck surface*
7.8 Incline power board removal (MCB)

1. Remove shroud as outlined in section 8.1
2. Disconnect connect wires from the MCB seven connections total (Figure A), not include the two inverter power wire.
3. Remove two MCB mounting screws using screwdriver (Figure B)
4. Disconnect the inverter power wire from MCB two connections (Figure C)
7.9 Inverter removal

1. Remove shroud as outlined in section 8.1
2. Disconnect connect wires from the inverter connections total (Figure A)
3. Remove two inverter mounting screws using screwdriver and 6mm hex-tip tools (Figure B)
7.10 Motor removal

1. Remove the front shroud as outlined in section 8.1
2. Release drive belt tensioner as described in section 8.5
3. Cut any wire ties (Figure A)
3. Disconnect the motor power cable from the inverter (Figure B)
4. Using the 8mm Allen wrench, remove 4 motor mounting screws (Figure C)
5. Lift the motor away from the treadmill (Figure D)
6. When reinstalling the motor, make sure the red vibration pad is in place.
7.11 Drive belt replacement

1. Remove plastic shroud from machine as outlined in section 8.1
2. Release belt tensioner from drive belt as outlined in section 8.5
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
7.12 Incline motor removal

1. Lift the treadmill and support it so that the wheels are off the floor, or the unit may be tipped onto it’s side (Figure A)

2. Remove the clip from the pin attaching motor shaft to the rack (Figure B and C)

3. Disconnect the incline motor power cable from the motor control board (Figure D)

4. Disconnect the pin from the incline motor (Figure E)

5. Lift the incline motor away from the treadmill (Figure F)

6. When installing the incline motor, make sure to replace the white washers at the top and bottom (Figure G)
7.13 PCB replacement

1. Remove the two screws from underneath the console. (Figure A)
2. Disconnect the wires from the PCB (Figure B)
3. Remove the seven screw from PCB (Figure C and D)
A. Service Tools & Accessories:

1. MSP-FET430 (Please refer the bulletin NB-0506002)
2. Parts NO: MT00L-039
3. Software
Please refer the above photo to set the parameter.

Press the **File Name** to find out the software version file in the computer and then actuate/open the file.
Install the MSP430 Tools
Press the **Load Image**, Installation software to MSP430 Tools.
Installing the MSP430 cable to console.
1. Press the MSP430 “START” key, the “MODE” light will to glitter about 10 sec, If installing pass, the OK LET light.

2. Drive the machine to provide power for console and then enter into the engineering mode to confirm if the software had been installed/upgraded
SECTION 8
UPGRADES