# LIVESTRONG

# LS15.0T and LS15.0E Service Manual

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# CHAPTER 1: SERIAL NUMBER LOCATION

**1.1 Serial Number Location – LS15.0T**



TM450-1US
Model:LS15.0T-01
S/N: TM4501103BD00357

DESIGNED IN U.S. MADE IN CHINA

**1.2 Serial Number Location – LS15.0E**



EP572-1US
Model:LS15.0E-01
S/N: EP5721103BD00365
DESIGNED IN U.S. MADE IN CHINA

# CHAPTER 2: ENGINEERING MODE

## 2.1 Engineering Mode Overview

To enter Engineering Mode, touch the four corners of the touch screen as shown from 1 to 4 or:

**LS15.0T: press and hold the INCLINE UP and SPEED DOWN keys at the same time for 3-5 seconds.**

**LS15.0E: press and hold the RESISTANCE UP and DOWN keys at the same time for 3-5 seconds.**



1) The Engineering Mode parameter list will be displayed on the screen.
2) Select the parameter by touching the parameter list.
3) Set all information by using the touch panel.
4) Press the Home key to save the change to the parameter and exit Engineering Mode.

## 2.2 Engineering Mode – About Tab

The About Tab displays the basic parameters of the console, such as Accumulated Info, Software Versions, etc.



| Engineer Mode - About | Function and Default | Descriptions | Modified |
|---|---|---|---|
| Accumulated Data | Accumulated Distance | Total distance displayed in native units (miles or kilometers), not editable | Cannot be modified |
| | Accumulated Time | Total time, not editable | Cannot be modified |
| GUI Board Information | UI Software Version | Application version, not editable | Cannot be modified |
| | IO version | Sub UCB software version, not editable | Cannot be modified |
| | OS Version | Operation system version, not editable | Cannot be modified |
| MCB Information | MCB Type | The frame MCB type, for example: 2.75HP digital MCB | Cannot be modified |
| | MCB Software Version | MCB Software Version | Cannot be modified |

# CHAPTER 2: ENGINEERING MODE

## 2.3 Engineering Mode – Settings Tab

The Settings Tab Is used to set the Machine and Model Types and to set the Energy Saver to on or off.



| Engineer Mode - Setting | Function and Default | Descriptions | Modified |
|---|---|---|---|
| Machine Type | Select Model | This option enables clubs to set the machine type. | Cannot be modified |
| Model Type | Select Model | This option enables clubs to set the model type. | Cannot be modified |
| Energy Saver | Standby mode | If on, the console will go into an Energy Saver mode after 15 minutes of no activity.   Press any key to bring the unit out of ES mode. | ON / OFF |
| Min Incline ADC | The minimum ADC data for the incline motor. | This is the minimum incline motor setting.   Do not edit as it can cause the incline motor to bind. | 26 |
| Max Incline ADC | The maximum ADC data for the incline motor. | This is the maximum incline motor setting.   Do not edit as it can cause the incline motor to bind. | 1150 |
| Current Incline ADC | Current ADC data for the incline motor. | This is the current incline motor setting. | Cannot be modified |
| FIRST BOOT | Selects whether the First Boot shows on power up. | This sets whether the First Boot shows up on power up.   Should be set for NO after customer first uses unit. | ON / OFF |
| PROGRAM SPEED | Running speed of the program | This is a factory setting that allows an engineer to quickly have the unit complete a program for testing.   Should always be set at 1. | Maximum:5  Minimum: 1 |

# CHAPTER 2: ENGINEERING MODE

## 2.4 Engineering Mode – Default Tab

The Default Tab displays information about the console, such as Workout Time, Weight, Age, etc.

Pressing the data that needs to be set will bring up a slider; adjust the corresponding information using the slider.
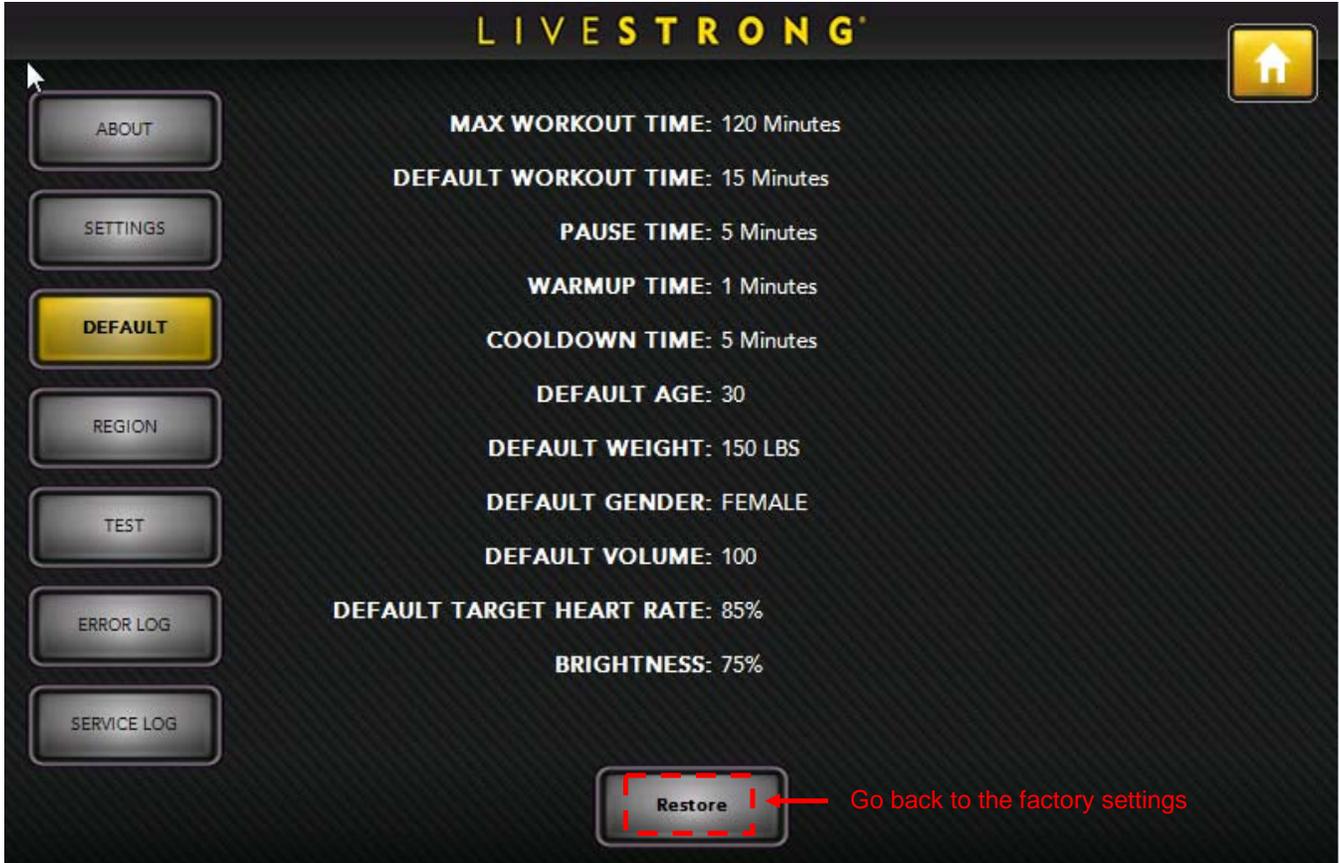


| Engineer Mode - Default | Function and Default | Descriptions | Modified |
|---|---|---|---|
| Time | Maximum Workout Time - Default: 120 Minutes | This option enables you to set the maximum workout duration limits. | Max: 120 Minutes Min: 30 Minutes |
| | Default Workout Time - Default:15 Min | This option enables you to set user default workout time. | Max: 120 Minutes Min: 5 Minutes |
| | Pause Time - Default: 5 Minutes | This option enables you to set workout pause time; the console will be reset beyond this time. | Max: 5 Minutes Min: 1 Minutes |
| | Warm Up Time - Default: 1 Minute | This option enables you to set user's warm up time. | Max: 5 Minutes Min: 1 Minutes |
| | Cool-Down Time - Default: 1 Minute | This option enables you to set user's cool-down time. | Max: 5 Minutes Min: 1 Minutes |
| Age | Default Age - Default: 30 | This option enables you to set user's age. | Max:120 Min: 13 |
| Weight | Default Weight Default:150LBS | This option enables you to set user's weight. | Max: 350LBS Min: 50LBS |

## 2.4 Engineering Mode – Default Tab – Continued

| Gender | Default Gender - Default: Male | This option enables you to set user's gender. | Male / Female |
|---|---|---|---|
| Volume | Default Volume - Default: 100 | This option enables you to set speaker or earphone volume. | Max: 100   Min: 0 |
| Heart Rate | Default Target Heart Rate<br><br>Default: 85% | This option enables you to set target heart rate for some heart<br><br>rate programs. | Max: 90%<br><br>Min: 50% |
| Brightness | Brightness - Default: 75% | This option enables you to set the LCD panel brightness | Max: 100% Min: 20% |

## 2.5 Engineering Mode – Region Tab

The Region Tab sets the Date, Time, and Clock Version that will be displayed to a user.
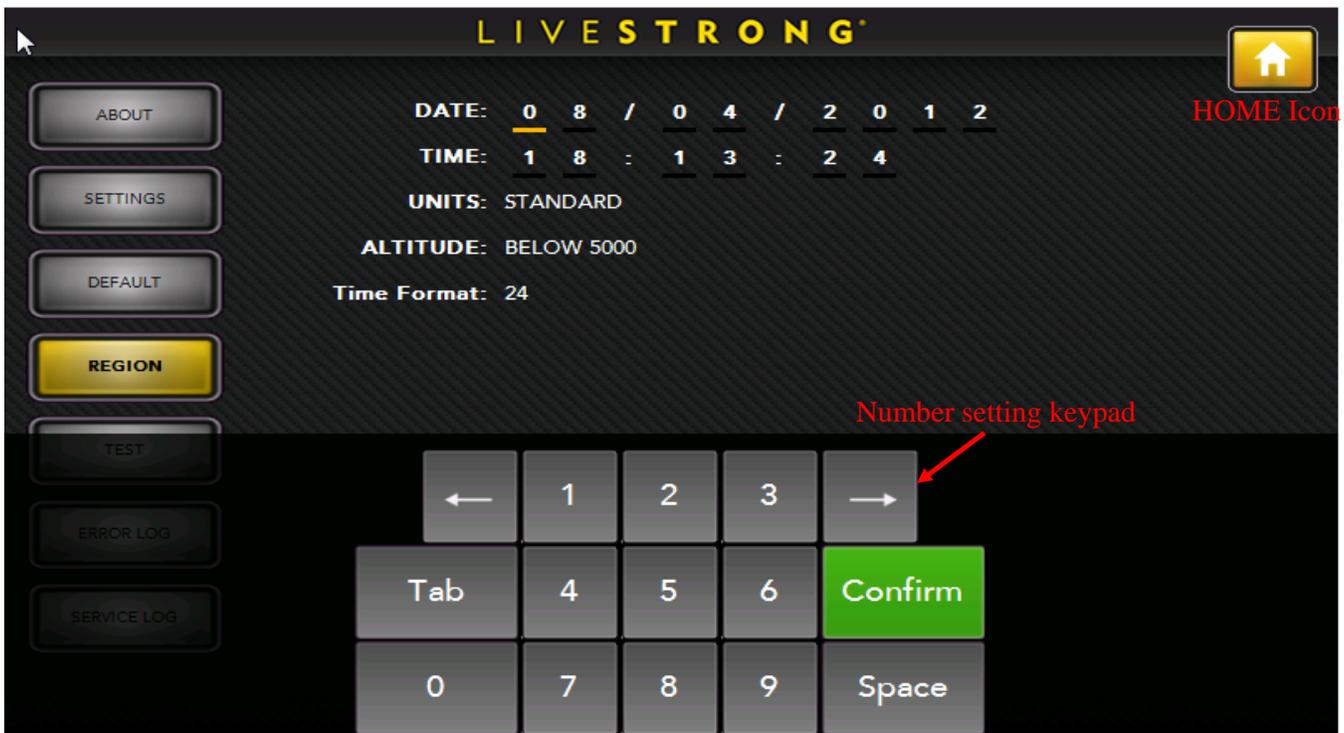


| Engineer Mode - Region | Function and Default | Descriptions | Modified |
|---|---|---|---|
| | Date | This is the current date setting. | |
| | Time | This is the current time setting. | |
| | Units | Sets the unit of measurement used. | Miles / Kilometers |
| | Altitude | Sets the altitude used. | Below 5000 / Above 5000 |
| | Time Format | Sets the time format used. | 24 / 12 |

# CHAPTER 2: ENGINEERING MODE

## 2.6 Engineering Mode – Test Tab

The Test Tab is used to test the various hardware on the unit.

Display Test: To test the reliability of the TFT LCD and Touch panel.

Key Test: To test the function of the keypads.

Audio Test: To test the audio output.

Hardware Test: To test the heart rate, drive and incline motors.
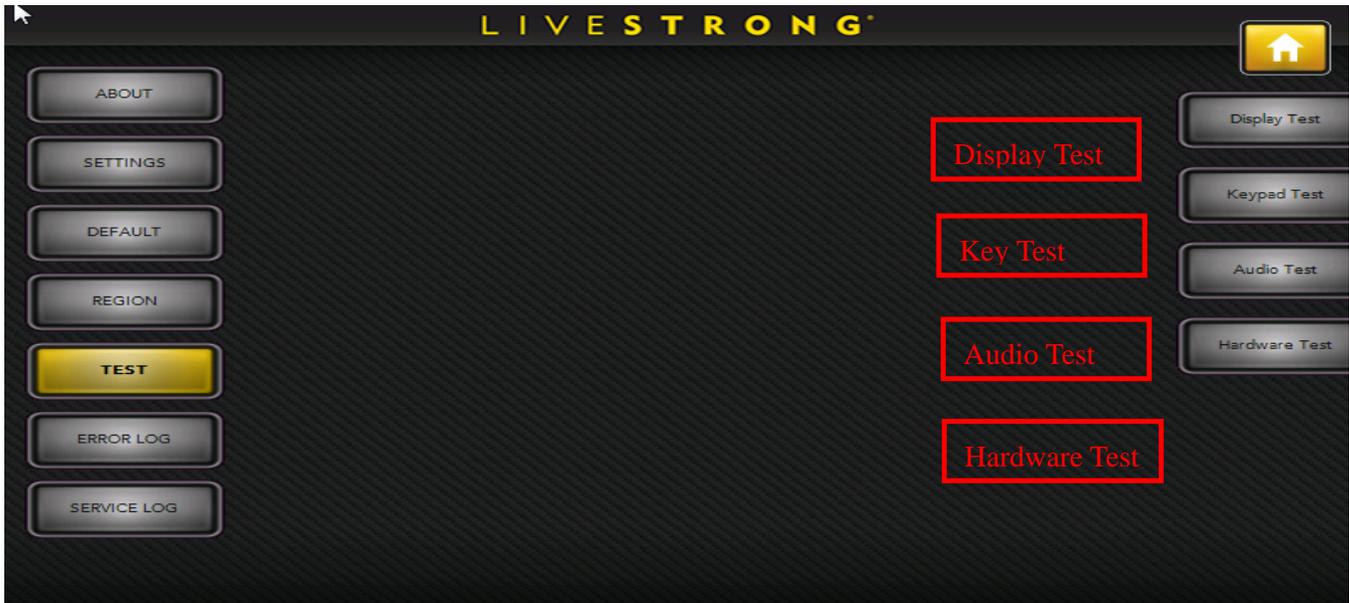


**Display Test –** Cycles between red, green, and blue as you touch the screen.

## 2.6 Engineering Mode – Test Tab – Continued

**Display Test -** Use your finger to draw a line following the instructions on the screen. If the test fails, press CONTINUE.

This brings you directly into the calibration screen.
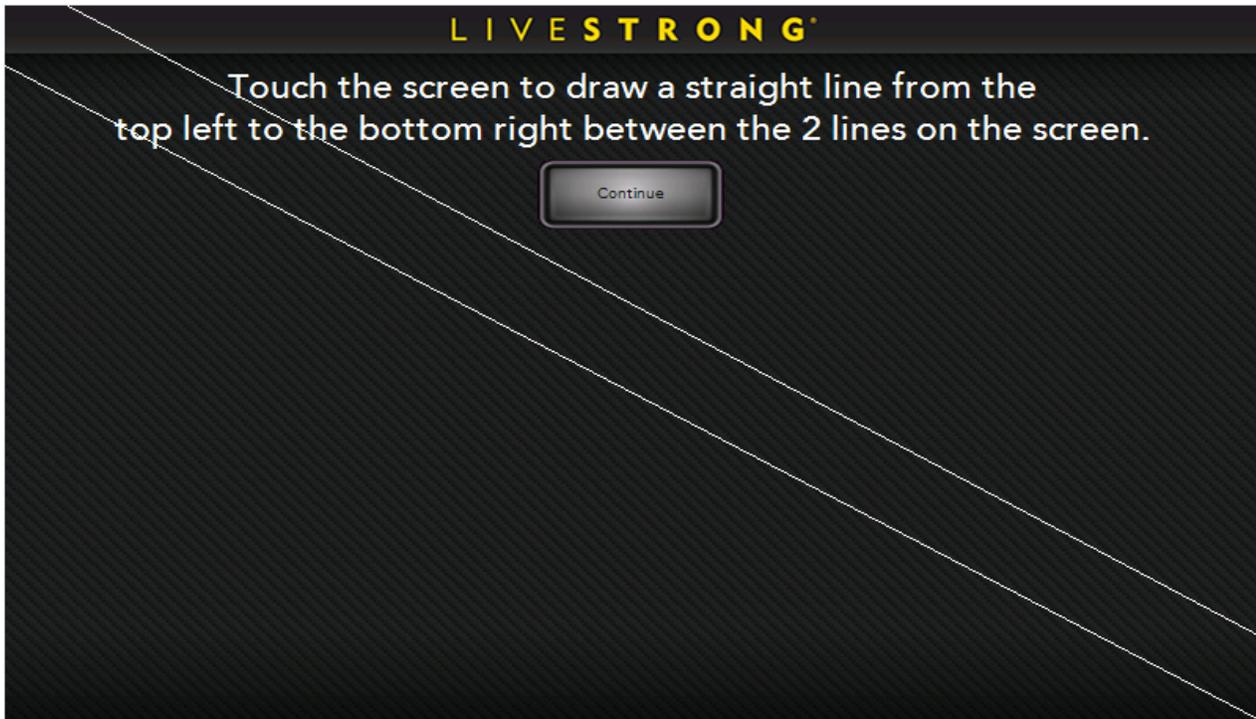


**Key Test -** Press any key and the display will show the definition, the function, and the code of the key.

## 2.6 Engineering Mode – Test Tab – Continued

**Hardware Test –** This tab allows a service technician to test the RPM sensor, the incline motor, and / or the heart rate.

Changing a setting should cause the belt, incline motor, or heart rate to operate.
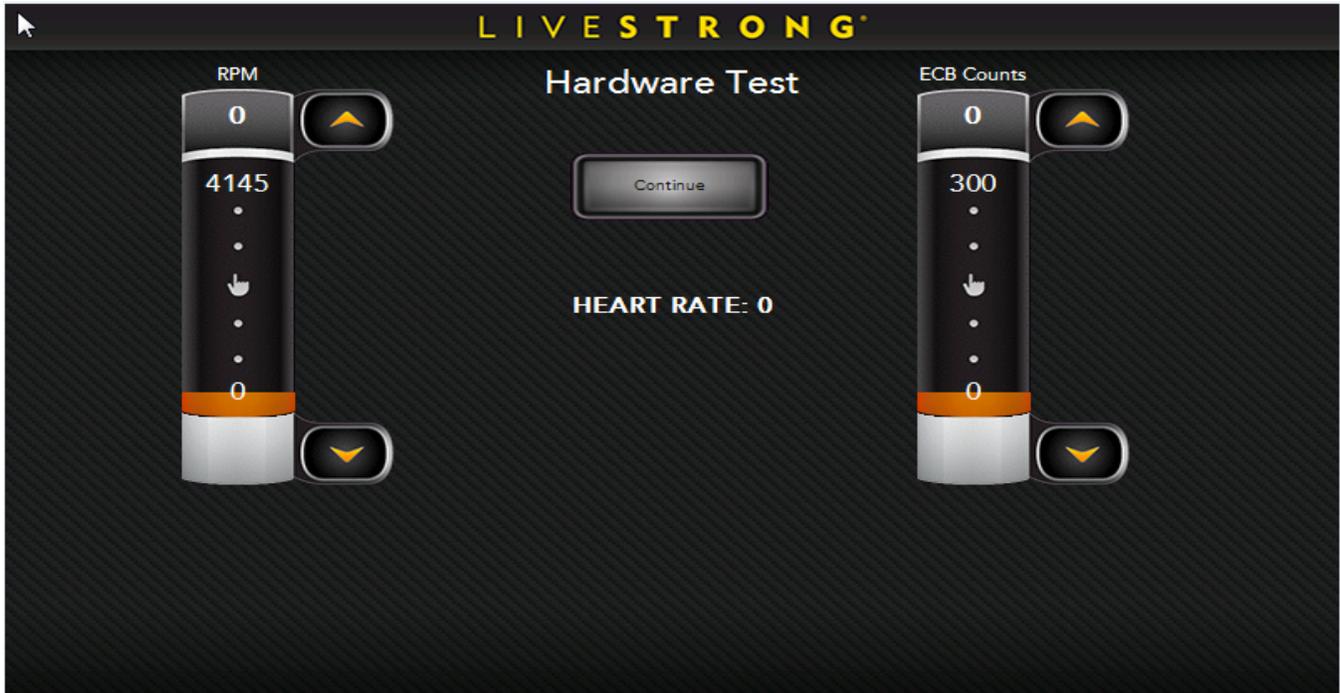


## 2.7 Engineering Mode – Error Log Tab

**Error Log –** The console will automatically display a history of errors on the unit.

## 2.8 Engineering Mode – Service Log Tab

**Service Log -** Allows the club / service provider to keep track of the service history

**3.1 Electrical Diagram – LS15.0T**

LS15.0T(TM450-1US)WIRING SCHEMATIC V1.0

## 3.2 Electrical Diagram - LS15.0E

機表內部走線
Factory Connect

SB Board

Customer
Connect-1

車架內部走線
Factory Connect
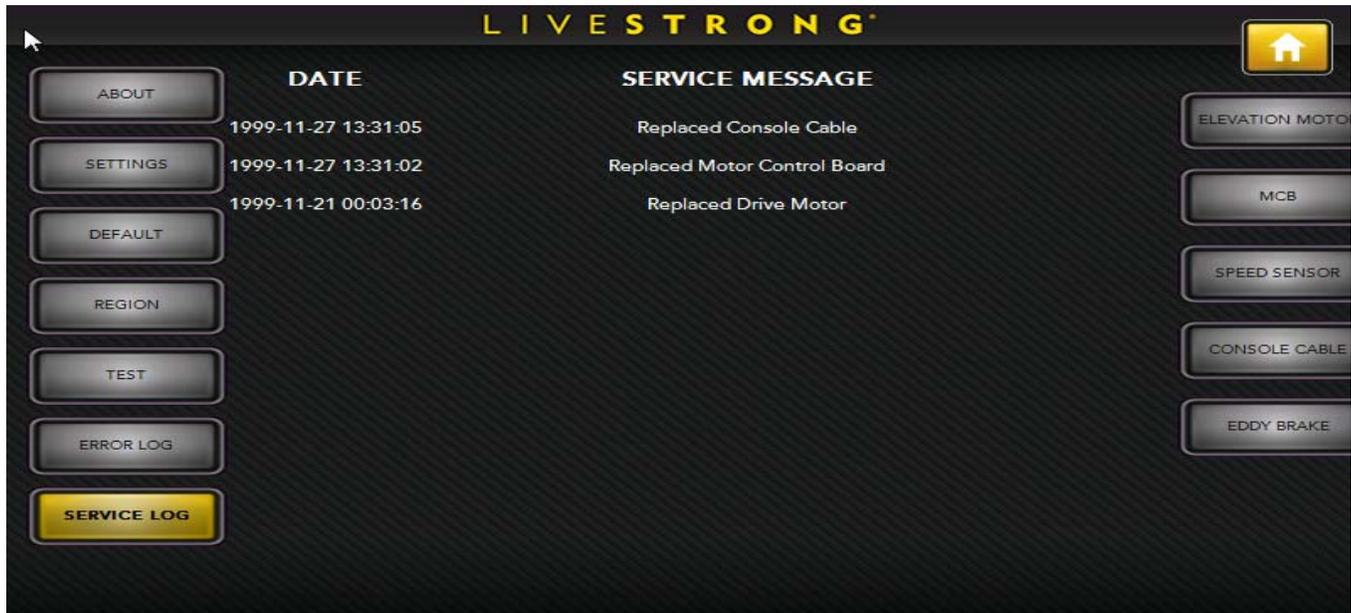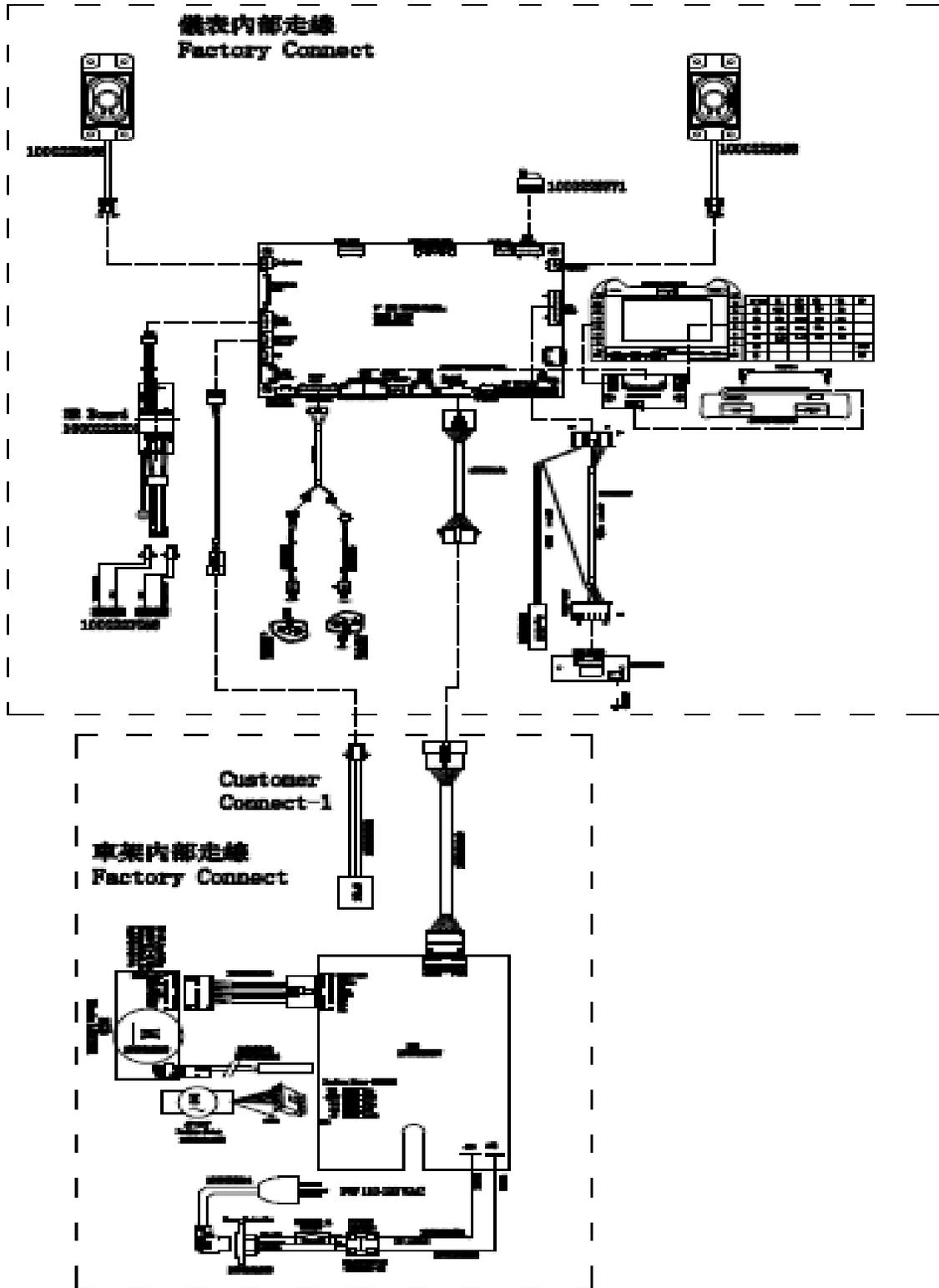
# CHAPTER 4: TROUBLESHOOTING

## 4.1 Troubleshooting – No Power to the Console

**Symptom**：The power switch is in the on position, but the console will not turn on.

**Reason**：

1. The outlet is not providing the correct power, or the power cord / switch is defective.
2. The power receptacle or power wiring to the MCB is defective.
3. The MCB is defective.
4. The console cable or console is defective.

**Solution**：

1. First check to see if the power switch is lit. If it is not, try a different outlet. If the power switch still does not light up with a known good outlet, replace the power switch.

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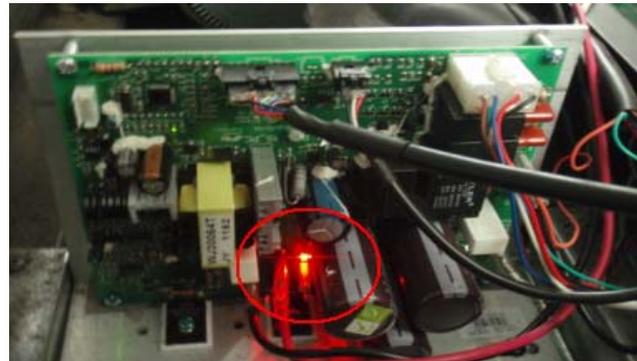


3. If the MCB does not have power, check the connection of the power wiring from the power receptacle to the MCB. Use a multi-meter to measure AC1 and AC2, AC voltage shall be same as local's standard voltage (110V-240V)

    a. If AC voltage value is standard, replace the MCB as it is defective.
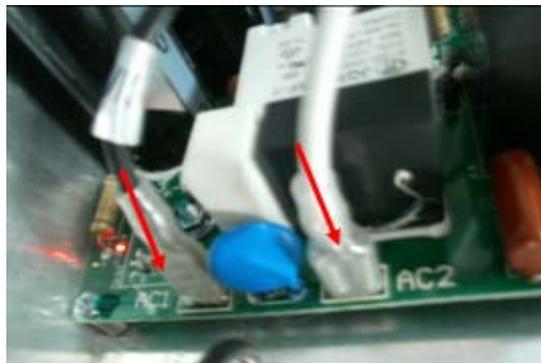


4. Make sure that the input to the console's power supply is a 12VDC, use a multi-meter to measure the voltage of the four pins in the figure below, pins 1 and 2 should be 12VDC and pins 7 and 8 should be ground.

## 4.1 Troubleshooting – No Power to the Console – Continued



LVDS 接口          GND     12VDC
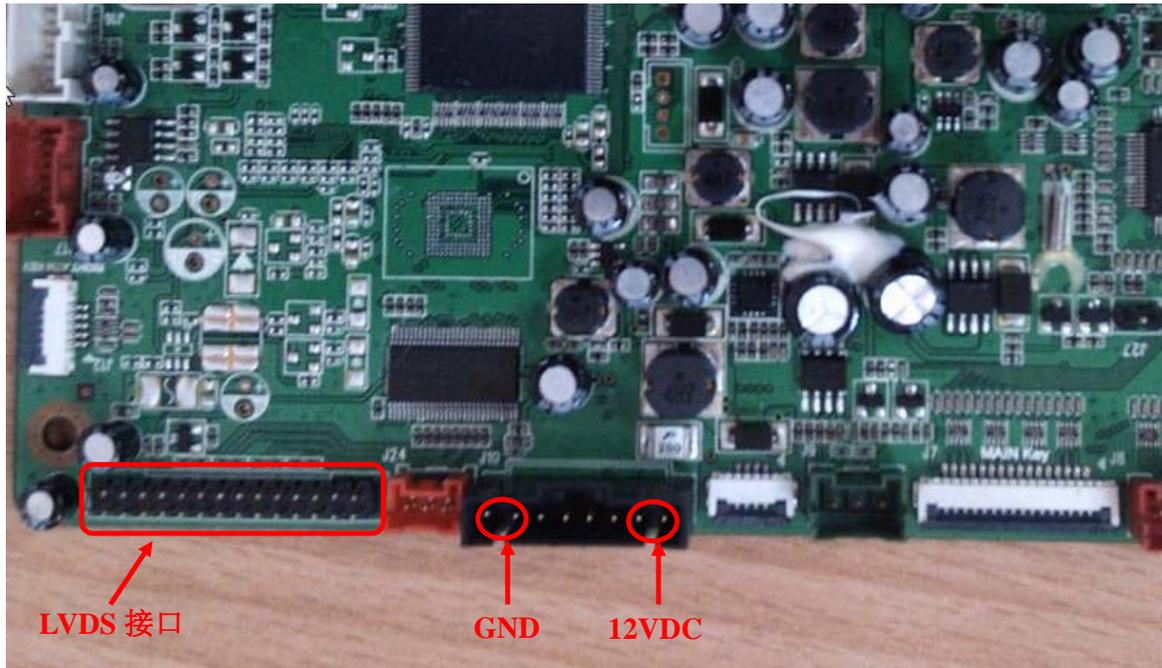
a. If there is not 12VDC power supplied, check if the console cable is in good condition (see some examples of bad connections below). If it is, check the output of the MCB. If it is not 12VDC, replace the MCB.



OK



UCB connection floating high



cable connection not inserted fully

b. If the 12VDC power supply is ok, check the connection of the LVDS interface wire to the display. Check the LVDS wire for any breaks or loose connections, if none found, replace the display.

## 4.2 Troubleshooting – System Will Not Boot

**Symptom**：The LCD has a back light, but the system does not boot up (does not display the LS logo).

**Reason**：

1. The system software has crashed.

**Solution**：

1. The system crashed, replace the UCB.

# CHAPTER 4: TROUBLESHOOTING

## 4.3 Troubleshooting – No Console Response

**Symptom:** The power is on and the console lights up, but the unit does not run when keys are pressed. .

### Reason:

1. There is a MCB error present.
2. The console does not have the correct software.
3. The console is defective.

### Solution:

1. Refer to the MCB error code chart below to troubleshoot.

| LED Blinks | Status | The description of action | Potential reason for this issue |
|---|---|---|---|
| 1 | Working normally | Working normally | Not MCB related. Replace console. |
| 2 | Optical Encoder Has No Feedback | There is no feedback from the speed sensor for 3 seconds. | Check the connection of the speed sensor (encoder) at the MCB, replace the speed sensor if needed. |
| 3 | Motor Overload | The motor current is over rated current for more than 4 seconds. | Motor power issue, replace the motor. |
| 4 | Rampage | The motor power components are damaged or speed up too fast. | Motor power issue, replace the motor. |
| 5 | Safety Key Not Connected | The safety key fell is not connected. | Re-attach or replace the safety key. |
| 6 | Incline is Stuck | There is no signal received during the working of incline motor. | Lift relay defective or the temperature of incline motor is too high, replace the incline motor. |
| 7 | Communication Abnormal | No communication or abnormal communication between the UCB and MCB. | Bad console cable connection, faulty UCB or MCB. |
| 8 | Bad Connection Between the Incline Motor and the MCB | The incline motor cannot go back to "0" degrees. | Check the connection of the incline motor, replace if needed. |

2. If the MCB is operating normally, updated the console software (see Section 5.1), and retest.

3. If the issue is still not resolved, replace the console.

## 4.4 Troubleshooting – Touch Panel Issues

**Symptom:** The touch screen is not accurate or invalid.

### Reason:

1. The screen needs to be calibrated.
2. The touch screen is damaged.
3. The FPC wire does not have a good connection to the GUI board.

### Solution:

1. If the touch screen is not accurate or has a deviation, press the ENTER and STOP keys together for 3-5 seconds to enter the screen calibration mode. Follow the prompts to calibrate the touch screen.
2. Check the touch screen for visible damage, indentation, or deformation. If any damage is found, replace the entire display.
3. Check the connection of the FPC wire at the GUI board. Even if well connected, disconnect and reconnect and re-calibrate (see Step 1). If calibration still fails, replace the entire display.



FPC connection on the GUI Board

FPC Wire
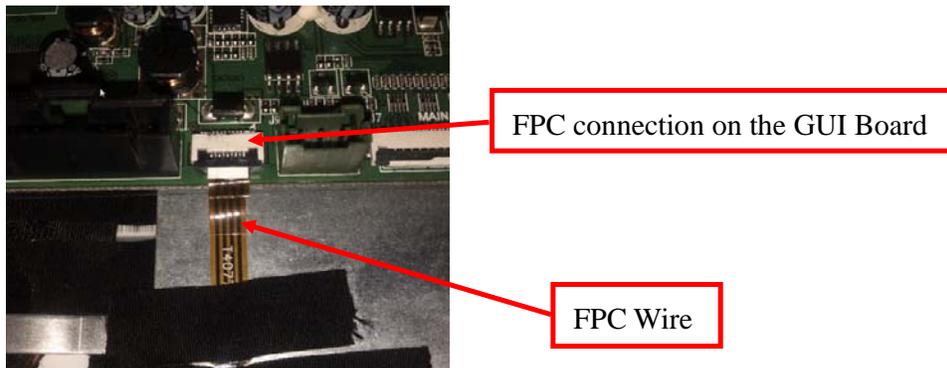
### 4.5 Troubleshooting – Heart Rate Issues

**Symptom:** The console does not display heart rate or it is consistently inaccurate.

## Reason:

1. The heart rate grips are not connected correctly.
2. The heart rate wiring is damaged.
3. The heart rate board does not have a good connection to the GUI board.
4. The heart rate board or console is defective.

## Solution:

1. Remove the 2 screws holding the 2 halves of the heart rate grip together and check to make sure it is well-connected, with no breaks.
2. Check continuity of the HR grip wiring.
   a. Place one terminal of a multi-meter set for resistance on the HR grip wiring at the HR grip, and the other terminal on the HR grip wiring at the console. An ohm reading of around 1 should be expected, if the reading is higher than 1, replace the HR grip wiring.
3. Confirm whether the heart rate board is well-connected with the GUI board.



Heart rate board connected to the GUI board
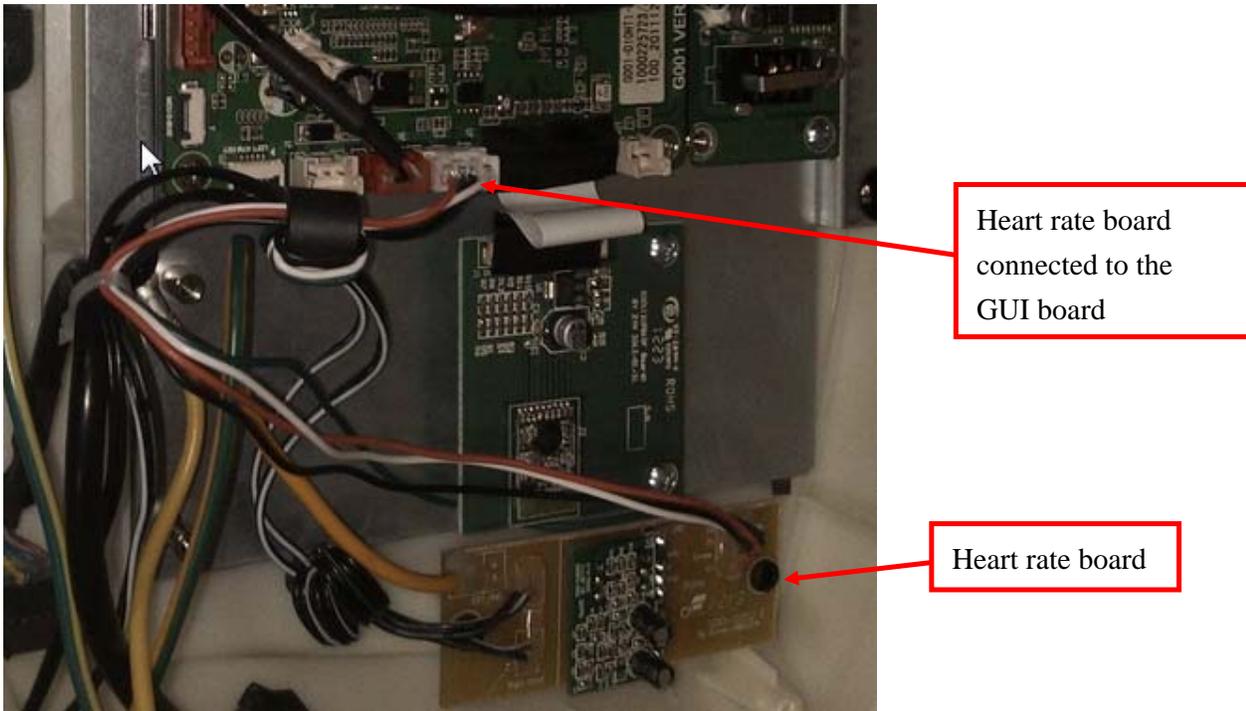
Heart rate board

4. If the heart rate board is well-connected, replace the heart rate board. If the heart rate is still not working correctly, replace the console.

# CHAPTER 4: TROUBLESHOOTING

## 4.6 Troubleshooting – Speaker / Audio Issues

**Symptom:** The speaker or headphones have no sound output.

## Reason:

1. The speaker wire is not well connected to the GUI board.
2. The audio short circuit terminal is missing.
3. The software is obsolete.
4. The head phone wire or board is defective.

## Solution:

1. Confirm whether the speaker wire is well-connected with the GUI board.
2. If well-connected, make sure that the audio output short-circuit terminal is present and tight.
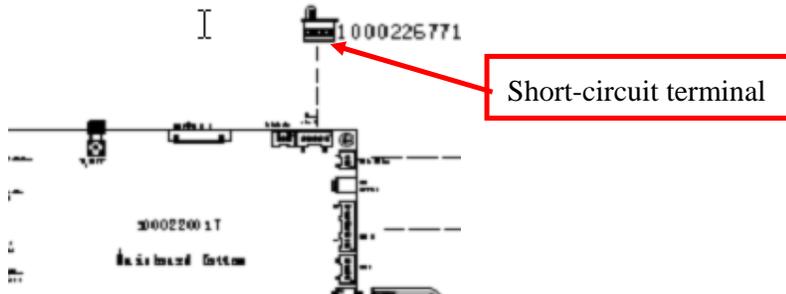


3. Update the console software (see Section 5.1).
4. If the speakers have sound output, but headphones have no sound output, replace the headphone wire. If problems persist, replace the headphone board.

## 5.1 Software Update Instructions

OS update file:NK.rom；

Software file: LivestrongDeploy.CAB;
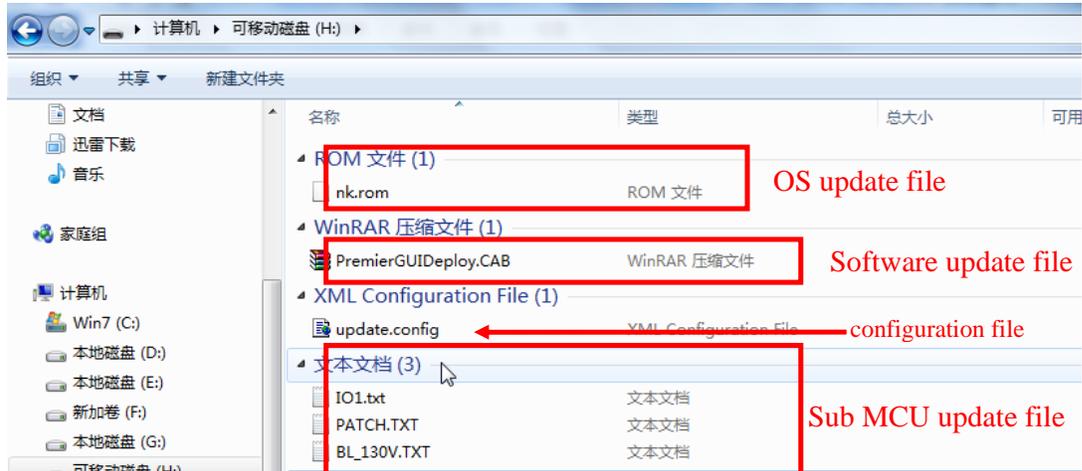


**NOTE:** update the software after the OS is updated.

## Update the OS and Software

* Note: OS files need to distinguish between 7 inch and 10 inch LCD screens. The OS file name is the same.

1.Choose the correct OS nk. rom file according to the LCD size, and place the file under this root in the USB.

2. Update the software accordingly, LS15.0E and LS15.0T use the sample software file "LivestrongDeploy.CAB". Place the corresponding file under this root in the USB.

3. Place the "update. config" file under this root in the USB.

4.Light up the console, and insert the USB.   The file will update automatically.

**5.1 Software Update Instructions – Continued**

## Update the IO

1. IO update file: BL_130.TXT,PATCH.TXT，IO1.TXT

2.Place the three files above under this root in the USB..

The name of the update file for LS15.0E and LS15.0T are the same, need to distinguish.

3. Also place the "Update. config" file under this root in the USB.

4.Light up the console, and insert the USB.   The IO will update automatically.

**Note:**

The file "update. config" should be under this root in the USB when updating.

The software file and the IO file need to distinguish between LS15.0E and LS15.0T, and cannot be placed into the USB together at the same time.

Placing the "NK. rom","software file"and "IO file" together into USB, can update the OS, Software and IO at the same time.