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Johnson Industries (Shanghai) Co., Ltd

T3XM Console Service Manual

MATRIX
Strong • Smart • Beautiful

Approval	Review	Editor
Kyle Schweitzer		Jerry Zhu

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CHAPTER 1: SERIAL NUMBER LOCATION

1.1 Console Overview

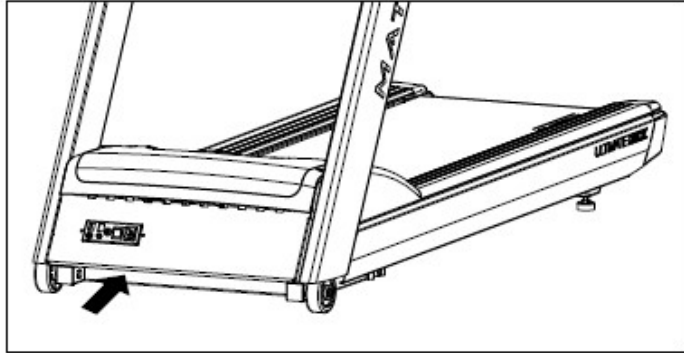
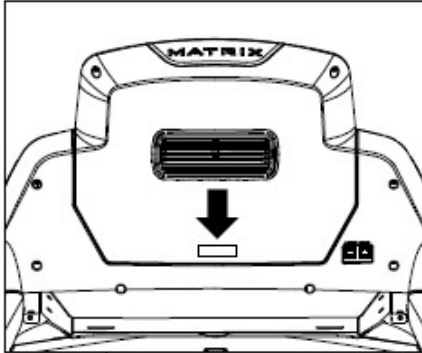


T3XM

1.2 Serial Location/Model Type Apply List

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

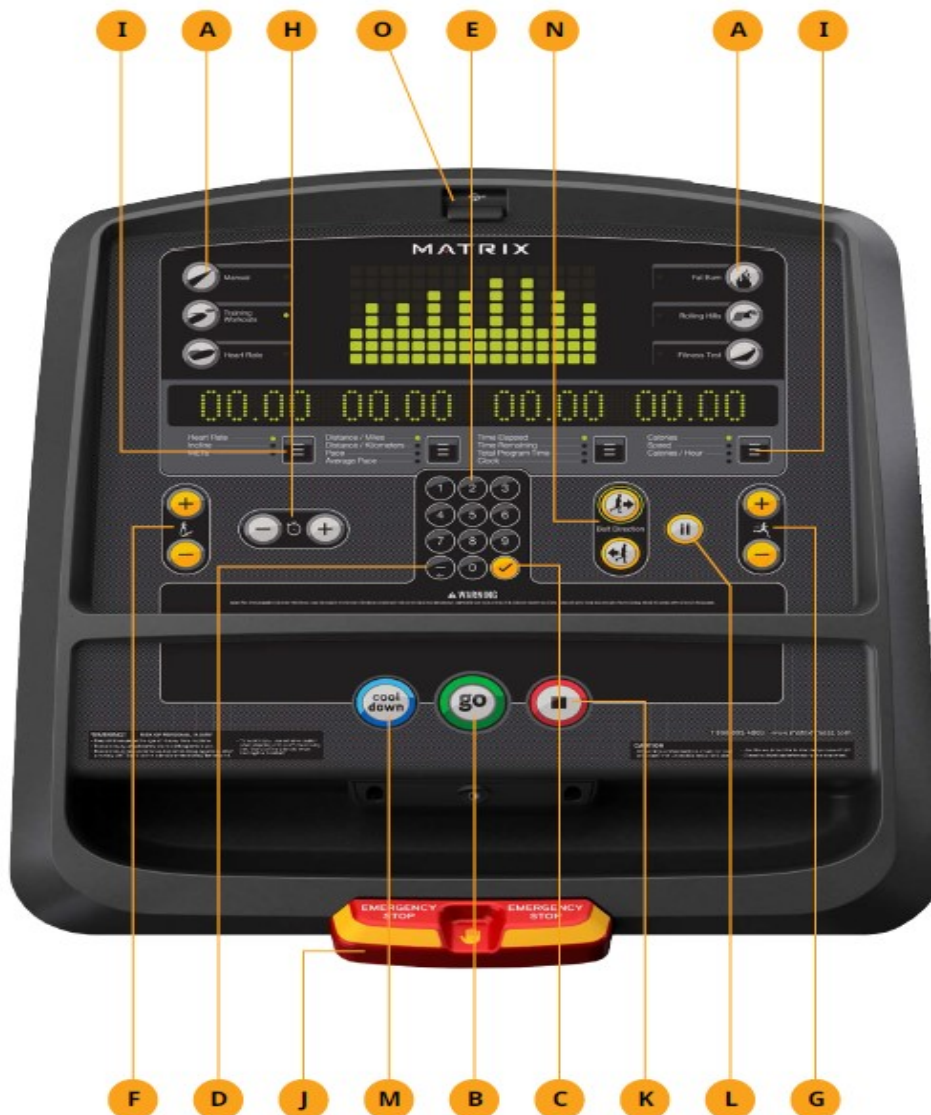
MODEL

☐ T1x	☐ T3x	☐ T1xe	☐ T3xe	☐ T3xm	☐ T3xh
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* Use the information above when calling for service.

CHAPTER 2: CONSOLE INSTRUCTION

2.1 T3XM Console Description



The Matrix machine is inspected before it is packaged. It is shipped in two pieces: the base and the console. Carefully unpack the unit and dispose of the box material. Note: There is a thin protective sheet of clear plastic on the overlay of the console that should be removed before use.

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

B) GO: One Touch Start.

C) ENTER: To confirm each program setting.

D) BACK: Go to previous program setting.

E) NUMBER KEYPAD: Allows for easy number inputs.

F) UP/DOWN INCLINE: Adjust incline and make program selections.

G) UP/DOWN SPEED: Adjust speed and make program selections.

H) UP/DOWN TIME: Adjust workout time.

I) TOGGLE DISPLAY: Cycles between 3 rows of workout information displayed in LED window. The console will automatically cycle between the workout information if the Toggle Display button is pushed and held down for 3 seconds.

J) 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.

K) STOP: Ends workout and shows workout summary data.

L) PAUSE: Pauses workout. Pause duration can be set in manager or engineering mode.

M) COOL DOWN: Puts treadmill into Cool Down mode. Cool Down time is dependent on the length of the workout.

CHAPTER 2: CONSOLE INSTRUCTION

N) BELT DIRECTION: Press to change belt direction from forward to reverse.

O) USB PORT: Used for software updates only.

CHAPTER 3: CONSOLE SPECIAL MODE

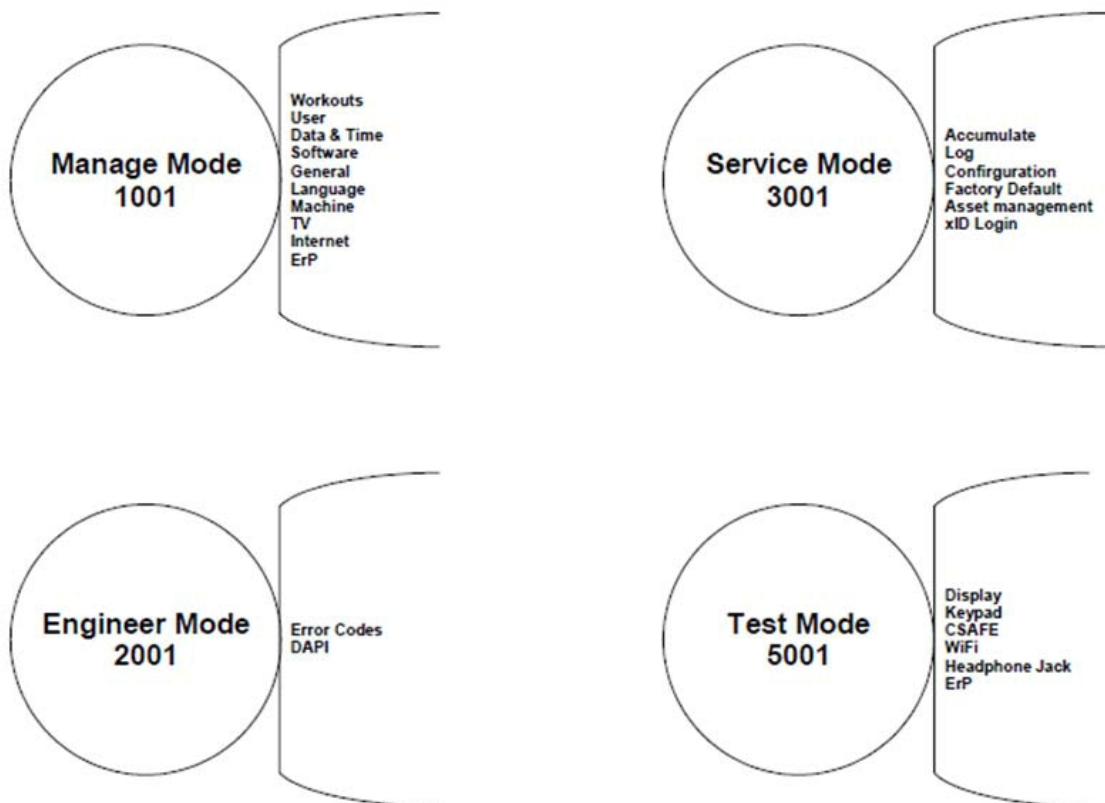
3.1 Special Mode Browse

	Mode Name	Method	Programmer List
Special Mode	Manage mode	"√" + "1001" + "√"	Refer to below picture
	Engineer mode	"√" + "2001" + "√"	
	Service mode	"√" + "3001" + "√"	
	Test mode	"√" + "5001" + "√"	

Notes: Press "+/-" to scroll menu.

Press "√" to refer more details about programs.

Press "←" to return.



3.2 Manage Mode

Category	Name	Default	Range
Workout	Maximum Time	60	4-99
	Default Time	20	4-max
	Default level	1	1-10
	Pause Time	5:00	00:30/1:00/2:00/3:00/4:00/5:00
User	Age	30	10-100
	Weight	150lb/68kg	50lb/23kg-400lb/182kg
	Default height	72/183(inch/cm, 1inch=2.54cm)	36/91-96/244
	Gender	male	Male/female
Date &Time	Date	30	10-100
	Time	150lb/68kg	50lb/23kg-400lb/182kg
	Time Zone	21	1-78
Speed	Unit	Standard	Standard/Metric
Software	Version	--	UCB/LCB/Language/Wi-Fi/boot loader
	Update	--	UCB/LCB/Language
	Auto Update		Disable/Enable/Time/Check update
General	Accumulate Distance	0	0-999999
	Accumulate Time	0	0-999999
Language	Default Language	English	12 language
	Erase EEPROM	--	Notes: Erase language data in EEPROM
Machine	Type	--	Select the right one
	Serial Number	Input the right serial number	Console/Frame
	--Console --Frame		
	Out of Order	off	On/off
	Beeper	on	On/off
	Headphone Jack	--enable	--Enable/Disable
	-- Notification	--30000	--1000~1000000
	USB Port	Enable	Enable/Disable
	--Protection		
	Keypad	-- Enable	-- Enable/Disable
	-- Stuck Check	-- Enable	-- Enable/Disable
	-- Notification		

Category	Name	Default	Range
Internet	Disable/Enable	--	Disable/Enable
	MAC ID	Shows the actual MAC address	--
	IP	Shows the actual IP address	--
	AP Mode	OFF	ON/OFF
	Export setting to USB	--	Export Wi-Fi setting to USB
	Import setting from USB	--	Import Wi-Fi setting to USB
	Signal strength		Disconnected/25%/50%/75%/100%
	Reset	--	Reset internet
ERP	--	OFF	OFF~30

3.3 Engineer Mode

Category	Name	Default	Range
Error Codes	--	Enable	Enable/Disable
DAPI	Server	Production	Dev/QA/Staging/Production
	SSL	ON	ON/OFF

3.4 Service Mode

Category	Name	Default	Range
Accumulate	Distance		0~999999 Mile/Km
	Time		0~999999 Hours
Log	Error	None	Error0~Error10/None
	--Display		
	--Reset	--	--0~999999 --Clear log in times
	Headphone Jack Sensor		
Configuration	Export to USB	--	--
	Import from USB	--	--
Factory Default	Reset		Notes: Factory default reset
Asset Management	Disable/Enable	Disable	Disable/Enable

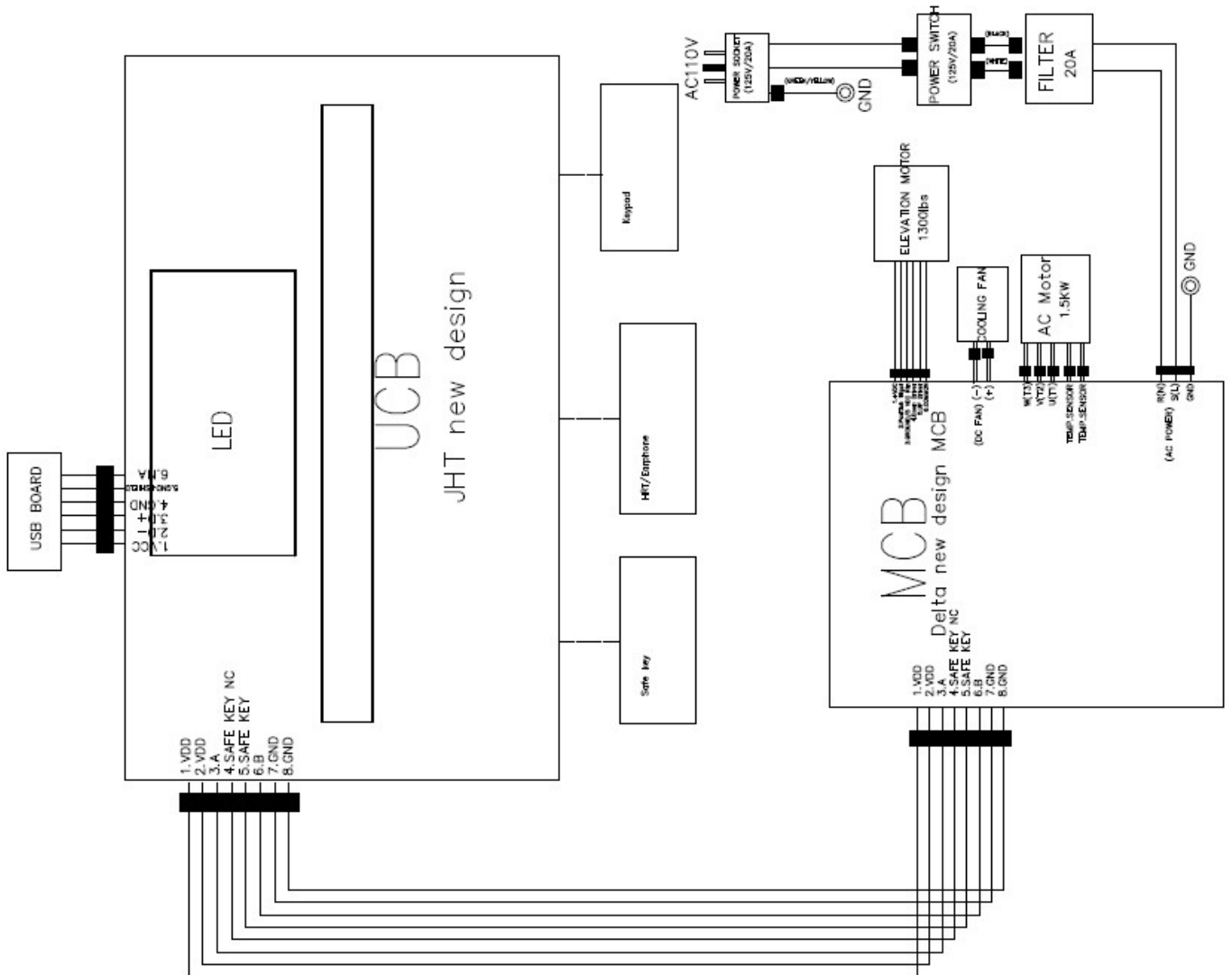
3.5 Test Mode

Category	Test Procedure
Display	Press "√" to test display, press"←" to back, press"+/-" to scroll menu
Keypad	Press "√" to test the keypad, press"←" to back, press"+/-" to scroll menu
CSAFE	1. Press "√"+"5 0 0 1"+"√" in turn to enter test mode. 2. Press "+/-" to select CSAFE. 3. Press "√" to start testing, display will show "CSAFE OK or FAIL"
Wi-Fi	1. Press "√"+"5 0 0 1"+"√" in turn to enter test mode. 2. Press "+/-" to select Wi-Fi. 3. Press "√" to test the Wi-Fi hardware.
Headphone Jack	Test Headphone Jack hardware.
ErP	Auto/5/10/30/60(seconds) ErP testing only works in Test Mode, it will not save and not work when the console out of Test Mode. Auto means the machine will enter ErP mode after press"√".

CHAPTER 4: TROUBLESHOOTING

4.1 Electrical Diagram

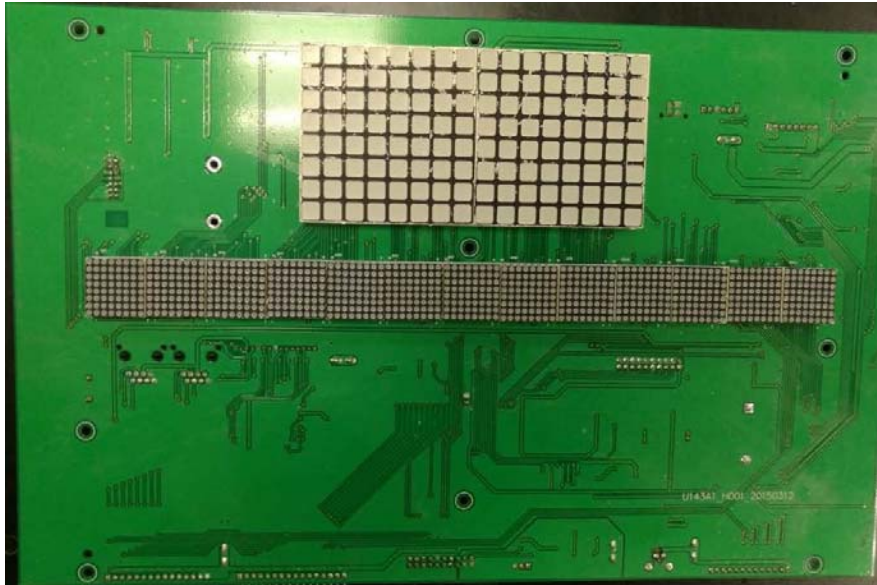
T3XM Electrical Diagram



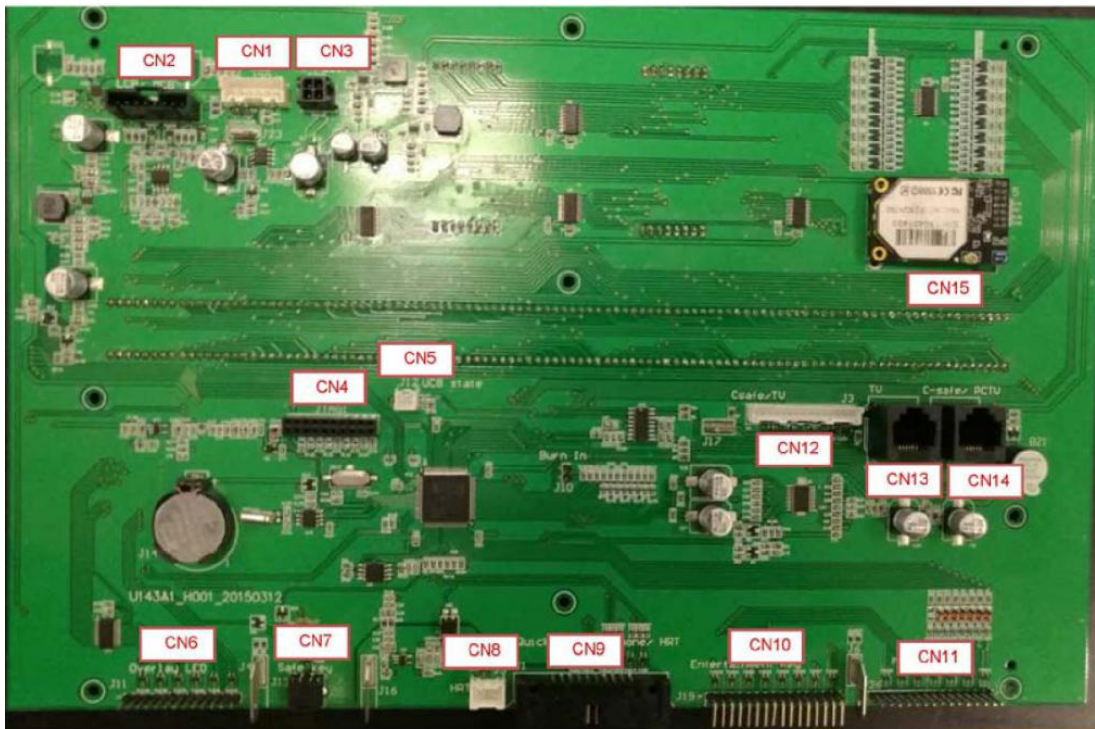
4.2 Ports Description

MCB introduction

T3XM UCB PORTS DESCRIPTION



UCB Front side



CN1	USB	CN8	Heart Rate
CN2	Interface digital	CN9	Quick Key/Earphone/HRT
CN3	TV power	CN10	TV Keypad
CN4	JTAG1	CN11	Main Key
CN5	UCB STATUS	CN12	C-SAFE/TV
CN6	Overlay LED	CN13	TV
CN7	SAFEKEY	CN14	C-SAFE/PCTV

4.3 Error Code List

4.3.1. Speed Errors

Error Code	Description	Class Level
0040	Roller RPM sensor - no speed response of roller.	B
0041	After setting speed on the console, speed cannot reach the target in 60 seconds. (Speed too low)	B
0042	After setting speed on console, speed cannot reach the target in 60 seconds. (Speed too high)	B
0043	RPM reading from RS232 mismatches with the RPM measured from the speed/RPM line – only used for AC motors	B
0044	Actual speed is higher than commanded speed by limit and is accelerating	B
0045	Automation speed up and speed down mode fail	B
00A0	Fail to rectify speeds	C
00A1	No response of motor speed sensor (keep time for LCB default)	C

4.3.2.MCB Errors

Error Code	Description	Class Level
0201	LCB battery low voltage (Battery voltage <11.2V)	A
0240	Low AC power input voltage	B
0241	Low DC bus voltage of motor driver	B
0242	LCB over temperature	B
0243	Soft start circuit of DC bus fail	B
0244	ECB sensor fail	B
0245	ECB calibration fail	B
0246	ECB over current	B
0247	LCB fail	B
0248	Battery disconnection or fail	B
0249	LCB Fan fail	B
024A	Change to 02C2.	B
024B	On step sensor error	B
024C	Temperature sensor abnormal.	B
024D	Touch the control zone over 60 seconds	B
024E	Touch frame IR sensor over 60 seconds	B
029F	An error that a generic class "B" error with the MCB	B
02A0	Encoder disconnection or fail	C
02A1	Over AC power input voltage	C

CHAPTER 4: TROUBLESHOOTING

Error Code	Description	Class Level
02A2	Over DC bus voltage	C
02A3	Over voltage limited in DC bus	C
02A4	U phase current sensor and circuit fail	C
02A5	V phase current sensor and circuit fail	C
02A6	W phase current sensor and circuit fail	C
02A7	Over Irms of phase current of motor	C
02A8	Inverter circuit of motor driver fail (MOSFET, IGBT)	C
02AA	Main motor has over limited current	C
02AB	LCB type setting fault	C
02AC	Main motor out of control (speed too high)	C
02AD	LCB over temperature	C
02B2	Safe key action response	C
02B3	Machine type error	C
02B4	Resistance type error	C
02B5	Inverter sensor the normal rated current over 150%, can hold 60 seconds.	C
02B6	Speed up has over current. (Software discover)	C
02B7	Speed down has over current. (Software discover)	C
02B8	Running status has over current. (Software discover)	C
02B9	The inner memory IC data write error	C
02BA	The inner memory IC data read error	C
02BB	Inverter inner line of communication error	C
02BC	Ground connection or fuse error	C
02BD	Inverter hardware interrupt error	C
02BE	DC brake error	C
02BF	DC brake has over current	C
02C0	DC brake into manual mode	C
02C1	Velocity error is too large.	C
02C2	LCB E-Stop sensor error	C
02C3	LCB IR sensor error	C

CHAPTER 4: TROUBLESHOOTING

4.3.3. UCB Error

Error code	Description	Class Level
0301	Memory block fail (Flash, EEPROM)	A
0302	UCB low battery voltage	A
0303	UCB low supply voltage	A
0304	Earphone board needs to replace	A
0305	USB Hardware OT or OC	A
0306	Keypad press keep 60 seconds	A
0307	Not enough free space on the console to apply the update	A
0308	Software package install failed	A
0309	Software package MD5 check failed	A
030A	Failed to download software package	A
0340	Keypad in extraordinary operation (Press keypad 5 seconds. while power ON)	B
0341	Fan has over current	B
0343	UCB has over supply voltage	B
0344	Timeout for receiving packet (Not recommended for re-use, make use of 04B0 code)	B
0345	Correct packet but LCB without the function	B
0347	VA load program fail.	B
0348	Motor not to run.	B
03A5	Failed to load program (The programs existed in the file system, this error could mean the file system is corrupt)	C
03A6	Failed to run program (The program read from the file system is invalid or has an invalid format, therefore it cannot be executed)	C
03A7	Change to 0347	C
03A8	Control settings on the machine does not match the shape and under control. (ex. Bike console connect TM MCB)	C
03A9	Change to 0348	

4.3.4. Communication Errors

Error code	Description	Class Level
0440	通訊接收逾時 (起始 byte 至結束 byte 之間逾時) Timeout for receiving communication packet	B
0441	通訊命令格式正常, 但無法執行該命令 Correct format of communication command but LCB could not execute the command	B
0442	The received command code from the console is correct and is supported, but it has less or more data arguments	B
0443	MCB read or write wrong.	B
04A0	LCB 無通訊回應 LCB has no communication response. LCB 逾 3 秒未收到 UCB 任何正確數位通訊命令封包 LCB has no communication command packet from UCB in 3 seconds EUP 喚醒機制下 : (EUP Wake up mode) EUP 喚醒(400ms 觸發訊號+0x7A 指令)至收到第 2 道(非 0x7A)指令前停止 Timeout 的計數動作, 直到第 2 道指令收到確認後才開始進行 Timeout 3 秒的計數動作。 When EUP Wake up (400ms trigger signal and 0x7A command) and before next command come in, LCB needs to stop the Timeout count, Until next command has been received, then LCB will restart the Timeout 3 seconds count.	C
04B0	UCB 無通訊回應 UCB has no communication response 逾 5 秒未收到 LCB 任何正確數位通訊命令封包(含 command) Which has no communication command packet from LCB in 5 seconds	C

4.4 Console Does Not Light Up

SYMPTOM:

When the power switch is ON, the console does not turn on. Which means the console is damaged or the console cable is not connected properly. The poor connection to the terminals on the lower control board. The lower control board is damaged. The generator is damaged.

SOLUTION:

The outlet the machine is plugged into is functional. Double check that the breaker has not tripped. The correct power cord is being used. Only use the power cord included or provided by Customer Tech Support. The power cord is not pinched or damaged and is properly plugged into the outlet and the machine. Check to see if the connection of adapter is well. Remove the console and check to see if the console wire has good connected with the console. Remove the console mast and check to see if the console upper cable and console lower is connected well. Remove the side cover and check to see if the wires are connected well. If the voltage through the console cable is 12VDC, the console is defective, replace it.

4.5 Speed Do Not Display

SYMPTOM:

The speed value does not display on console

SOLUTION:

Unplug power cord, remove the console and check that all connections to the console are secure and not damaged or pinched. Remove the side cover and check to see if the sensor wire is connected well. Check to see if one corner of the sensor is aligned with the magnet and the distance less than 5mm.

4.6 Keypad/Heart Rate

SYMPTOM:

The Keypad has no reaction /The Keypad function does not match screen display.

The screen cannot display heart rate pulse

SOLUTION:

1. The console cable is connected improperly.

Remove the console mast and check to see if the console upper cable and console lower cable are connected well.

2. The poor connection to the terminals on the lower control board and the upper control board.

Remove the side cover and plug in /plug out terminals to see if the terminals are connected well.

3. Check if Keypad and heart rate metal are connected by multimeter.

4.7 Safe Key Issue

SYMPTOM:

The Safe Key has been triggered but the machine does not STOP.

SOLUTION:

1. The poor connection to the terminals on the console control board.

Check if the safe key connection wire has broken by multimeter. If the connection wire has broken. The multimeter will read ∞ ohms. Replace the safe key connection wire.

2. Wrong safe key connection wire be used

Check if used correctly safe key connection wire.

3. Console board is damaged

Replace new console board and test again.

4. MCB board is damaged

Replace new MCB board and test again.

4.8 WIFI Issue

1. Use mobile phone or portable device search router SSID and login (Fig. 1)
2. Use the SPEEDTEST App. to measure upload and download speed. It is normally up to 64kB or higher, depends on local ISP (internet service provider) but 0kB means fail to connection. (Fig. 2)
3. Browse www.google.com or any other website.(Fig. 3)

If connection fail at step 1. It needs to login another router SSID and try again.

If connection fail at step 2 & 3. It is ISP problem. Please contact local ISP (internet service provider).



Fig. 1



Fig. 2

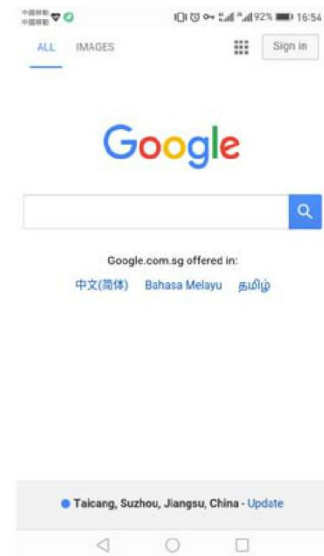


Fig. 3

CHAPTER 5: MAIN COMPONENT INSTALLATION

5.1 . Wi-Fi Module Install

5.1.1.Wi-Fi module Install

- 1) Prepare Wi-Fi Module : Wi-Fi module; HF-A11-0;(Fig. 1)
- 2) To loose 2 pcs of screws already in Wi-Fi Module socket (Fig. 2)
- 3) Take the Wi-Fi Module and Push Wi-Fi module into socket carefully (Fig. 3)
- 4) Fix the Wi-Fi Module with 2 pcs of screws (Fig. 3)
- 5) Install the UCB into consoles



Fig. 1

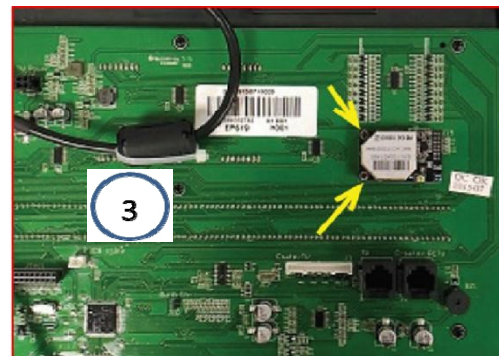


Fig. 3

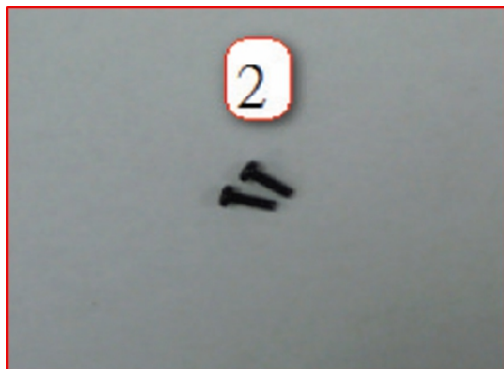


Fig. 2

5.1.2. Wi-Fi configuration file prepare and uploading

1. Prepare the Wi-Fi configuration file, and the filename is: "Wi-Fi_set.cfg"
2. Store the file to USB stick.
3. Insert USB stick in console USB port
4. Press "√" + "1001" + "√" enter Manage Mode and choose Internet/Import setting from USB
5. Upload the file to console.

5.1.3. Wi-Fi setup

- 1) Power on
- 2) Press “enter” key 3 seconds and display “CSAFE OK”. (Fig. 1)
- 3) Press“(-) ” key back to previous menu. (Fig. 2)
- 4) Press speed up “ + ” key and choice Wi-Fi” function (Fig. 3)
- 5) Press “enter” for auto search Wi-Fi (Fig. 4)
- 6) When you see “Wi-Fi OK”, Wi-Fi setup completed.
- 7) Press “-“ back to previous user menu. (Fig. 5)



Fig. 1



Fig. 2



Fig. 3

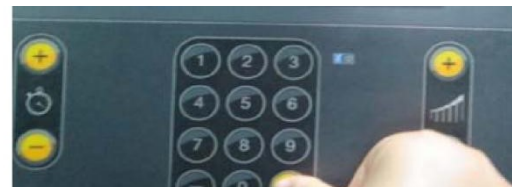


Fig. 4



Fig. 5