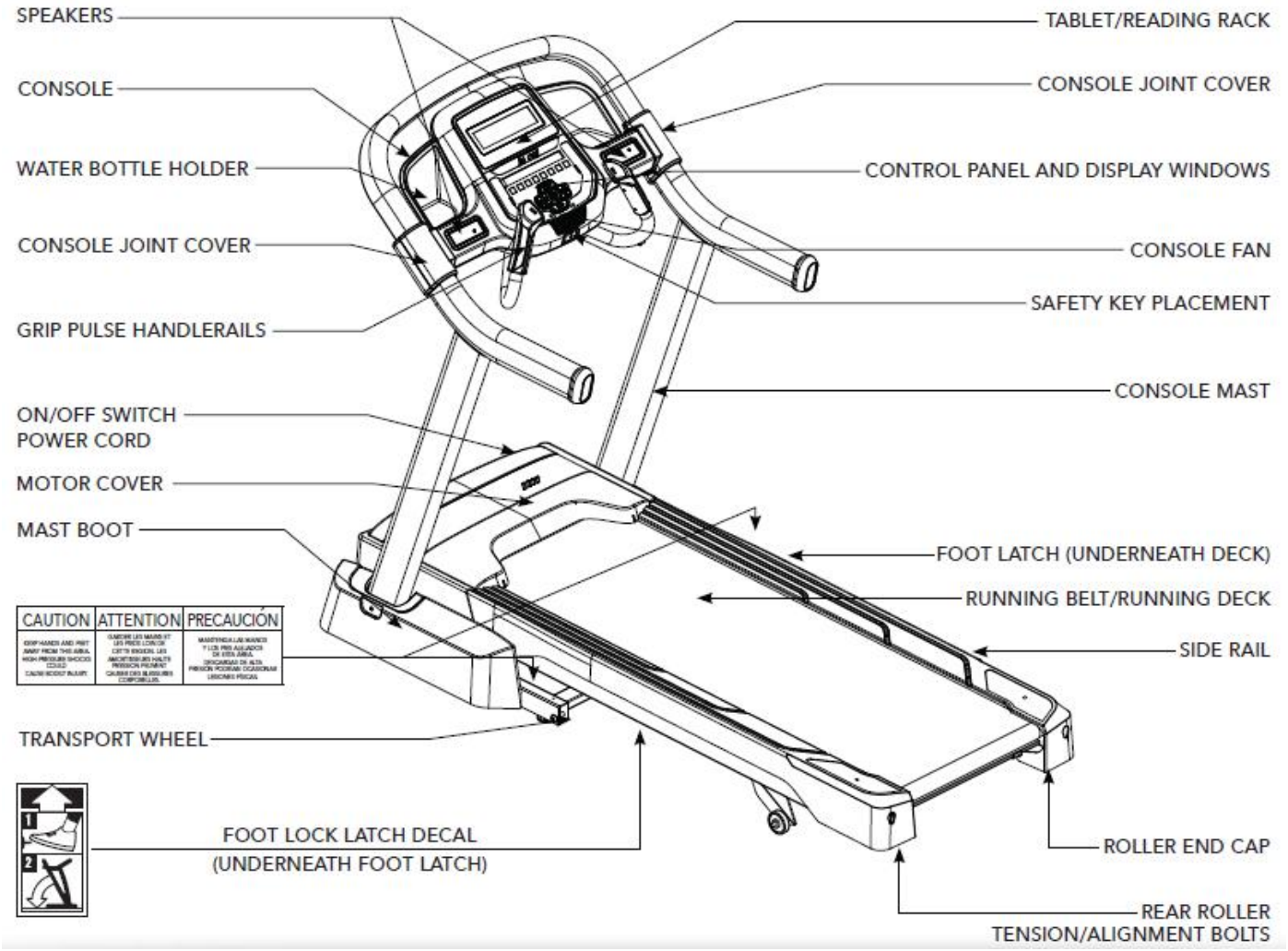
JOHNSON	Issue Date		Edition	01	Doc No.	
	Revision Date	5/5/2022	By	EM	Total Page	42

Johnson Industries (Shanghai) Co., Ltd

7.0AT (TM704)
Service Manual

Approval	Review	Editor
		Hans Kong

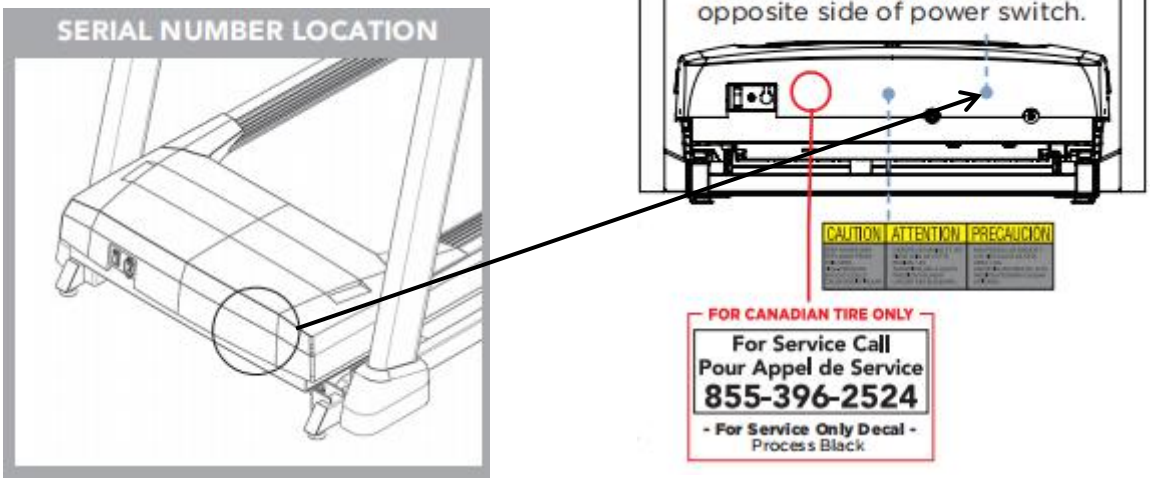
PRODUCT BROWSE



CONTENT

CHAPTER 1:SERIAL NUMBER INFORMATION

1.1 Serial Number Location



CHAPTER 2:PREVENTATIVE MAINTENANCE

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!

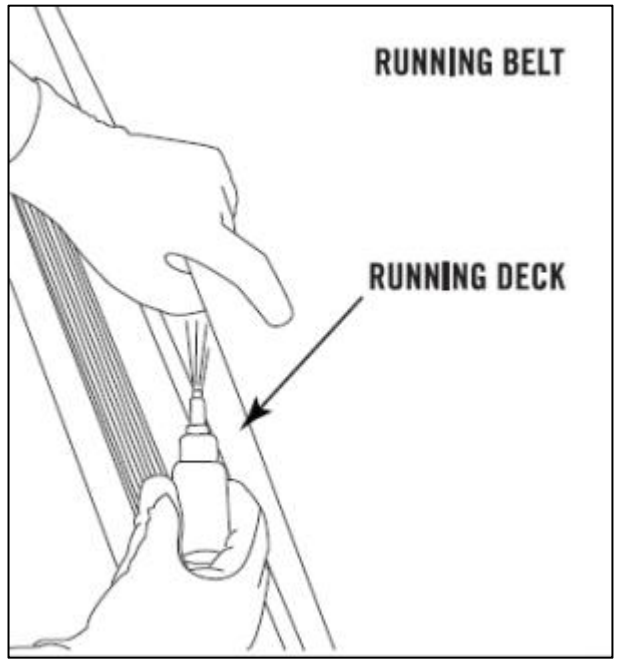
- Turn off the treadmill with the ON / OFF switch, then unplug the power cord at the wall outlet.
- Inspect all assembly bolts of the machine for proper tightness.
- Remove the motor cover. Wait for ALL display screens to be off.
- Clean the motor and lower board area to eliminate any lint or dust particles 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.

CHAPTER 2:PREVENTATIVE MAINTENANCE

Every 6 Months Or 150 Miles

It is necessary to lubricate your treadmill running deck every six months or 150 miles (240 kilometers) to maintain optimal performance. Once the treadmill reaches 150 miles (240 kilometers), the console will display the message “LUBE” or “LUBE BELT”. The treadmill will not operate while the message is showing. Hold ‘STOP’ for 5 seconds to suspend message for 5 miles.

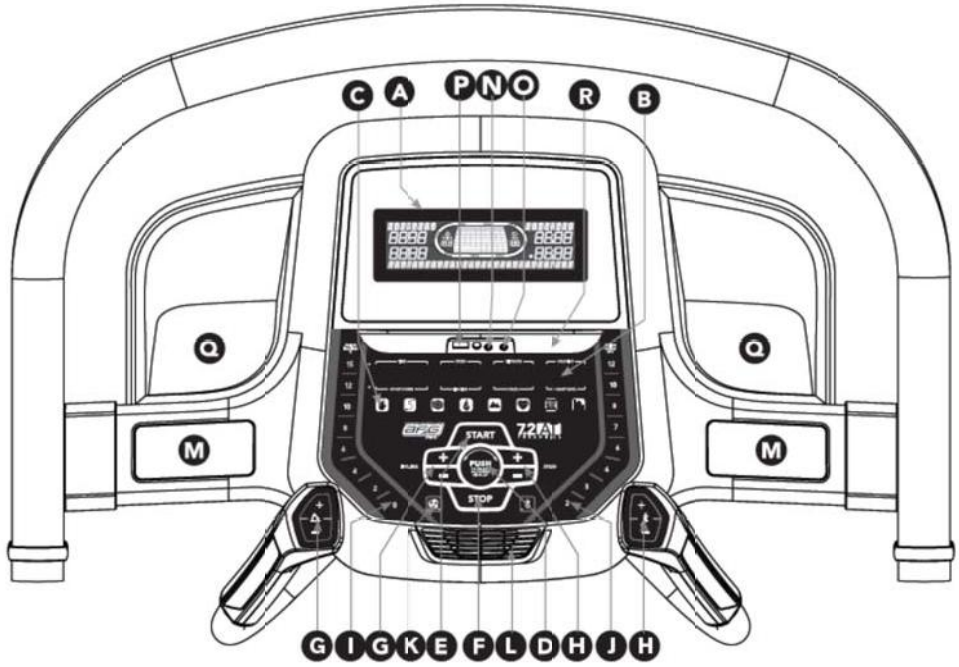
Your treadmill came with a bottle of lubricant which can be used for two applications.



- Turn off the treadmill with the on/off switch, then unplug the power cord at the wall outlet.
- Loosen both the rear roller bolts. (For best results, place two removable marks on both sides of the frame and note roller position). Once the belt is loosened, take the bottle of lubricant and apply it to the entire top surface of the
- running deck. Tighten both rear roller bolts (matching up the marks for proper position) to original position. After you have applied lubricant, plug in the power cord, insert the safety key, start the treadmill and walk on the belt for two minutes to spread the lubricant.
- Lubricate the air shocks with Teflon based spray.
- When lubrication is complete, hold the “speed up” (+) and “stop” keys for seconds. This will remove the message.

CHAPTER 3：CONSOLE INSTRUCTION

3.1 Console Operation



Note: There is a thin protective sheet of clear pl**a**stic on the overlay of the console that should be removed before use.

A) **LCD DISPLAY WINDOWS:** Watt , Pace, Calories/Hour, Heart Rate, Laps

B) **LED DISPLAY:** Time, Speed, Distance, Incline, Pace, Heart Rate, and Calories

C) **WORKOUT LED INDICATORS:** indicate what workout is set for the current program.

D) **SELECT TARGET/WORKOUT KNOB:** rotate/press to select your desired workout/target

E) **START:** press to begin exercising, start your workout, or resume exercising after pause.

F) **STOP:** press to pause/end your workout. Hold for 3 seconds to reset the console.

G) **INCLINE +/- KEYS:** used to adjust incline in small increments (0.5% increments).

H) **SPEED +/- KEYS:** used to adjust speed in small increments (0.1 mph increments**)**.

I) **INCLINE QUICK KEYS:** used to reach desired incline more quickly.

J) **SPEED QUICK KEYS:** used to reach desired speed more quickly.

K) **FAN KEY:** press to turn fan on and off.

L) **FAN:** personal workout fan.

M) **SPEAKERS:** music plays through speakers when your CD / MP3 player is connected to the console.

N) **AUDIO IN JACK:** plug your CD / MP3 player **i**nto the console using the included audio adaptor cable.

O)**AUDIO OUT / HEADPHONE JACK:** plug your headphones into this jack to listen to your music through the Headphones. **Note:** when headphones are plugged into the headphone jack the sou**n**d will no longer come out through the speakers.

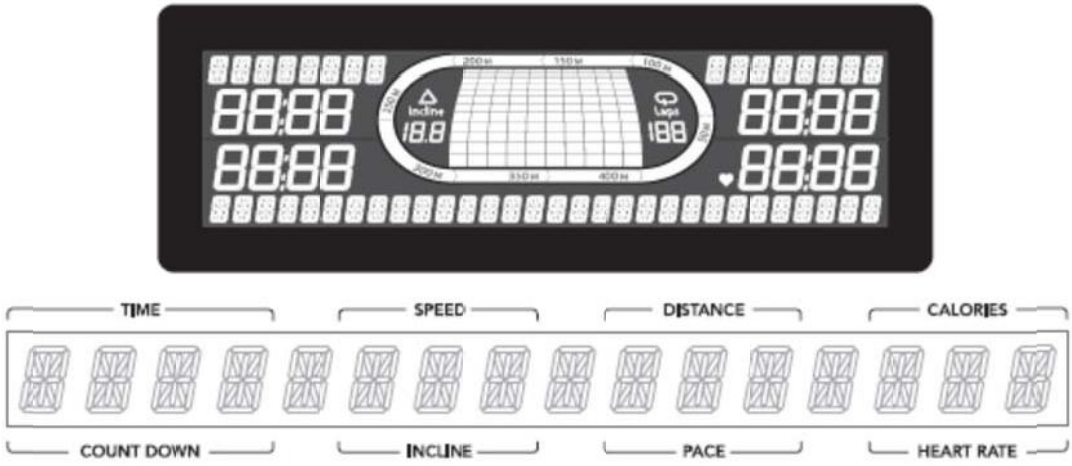
P) **USB INPUT:** 1A/5V USB output power.

Q) **WATER BOTTLE POCKETS:** holds personal workout equipment.

R) **TABLET/READING RACK:** holds tablet or re**a**ding material.

CHAPTER 3：CONSOLE INSTRUCTION

3.2 Display Window



- **TIME:** Shown as minutes : seconds. View the time remaining or the time elapsed in your workout.
- **DISTANCE:** Shown as miles. Indicates distance traveled during your workout.
- **SPEED:** Shown as MPH. Indicates how fast your walking or running surface is moving.
- **INCLINE:** Shown as percent. Indicates the incline of your walking or running surface.
- **CALORIES:** Total calories burned during your workout.
- **HEART RATE:** Shown as BPM (beats per minute). Used to monitor your heart rate (displayed when contact is made with both pulse grips).
- **PACE:** Indicates how many minutes it takes to complete a mile while running or walking at your current speed.
- **WATTS:** Indicates the power output at your current speed and incline.
- **CALORIES/ HOUR:** Indicates the number of calories you will burn in an hour at your current speed and incline
- **TRACK:** Follows progress around a simulated track. Segments light up with every 50 meters completed.
- **LAPS:** Shows how many 400 meter (¼ mile) laps have been completed.

3.3 Getting Started

1) Check to make sure no objects are placed on the belt that will hinder the movement of the treadmill.

2) Plug in the power cord and turn the treadmill ON. (The ON/OFF switch is next to the power cord.)

3) Stand on the side rails of the treadmill.

4) Attach the safety key clip to part of your clothing making sure that it is secure and will not become detached during operation.

5) Insert the safety key into the safety keyhole in the console.

6) You have two options to start your workout:

A) Quick Start Up

Simply press the START key to begin working out.

Time, distance, and calories will all count up from zero. OR...

B) Select a Workout or Target

1) Select your USER by turning the workout knob and then pressing when your desired USER is displayed.

2) Select your WEIGHT by turning the workout knob and then pressing when your desired WEIGHT is displayed.

3) Select your PROGRAM by turning the workout knob and then pressing when your desired PROGRAM is displayed.

4) Adjust the SETTING by turning the workout knob and then pressing when your desired SETTING is displayed.

5) Press START to begin.

Note: Time and/or distance settings are selected during workout setup (Step 4) and cannot be adjusted after the workout begins.

To Reset the Console: Hold STOP key for 3 seconds.

Finishing Your Workout : When your workout is complete, the monitor display will flash "FINISHED" and beep. Your workout information will stay displayed on the console for 30 seconds and then reset.

Clear Current Selection: To clear the current program selection or screen, hold the STOP button for 3 seconds.

Using Your CD / MP3 Player / Bluetooth Speakers:

1) Connect the included AUDIO ADAPTOR CABLE to the AUDIO IN JACK on the top right of the console and the headphone jack on your CD / MP3 player.

2) Use your CD / MP3 player buttons to adjust song settings.

3) Remove the AUDIO ADAPTOR CABLE when not in use.

4) If you don't want to use the SPEAKERS, you can plug your headphones into the AUDIO OUT JACK at the bottom of the console.

5) To connect to the Bluetooth speakers open your Bluetooth settings, turn on Bluetooth, scan for new devices, look for Horizon 7.0AE and select connect.

3.4 Program Information

 **1) Manual:** Control everything about your workout – from start to finish. This program is a basic workout with no pre-defined settings, allowing you to manually adjust the machine at any time. It begins with an incline at 0 and speed at 0.5 mph.

 **2) Distance:** Push yourself and go further during your workout with 13 distance workouts. Choose from 1 mile, 2 miles, 5k, 5 miles, 10k, 8 miles, 15k, 10 miles, 20k, half marathon, 15 miles, 20 miles, and marathon (26.2 miles) goals. You set your level.

Incline changes and all segments are 0.16Km.

Segment	Warm Up		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Distance	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km	0.16km
Level 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Level 2	0	0.5	1	3	2	3	2	3	2.5	3.5	2.5	3	2	3	2	3	1
Level 3	0.5	1	1.5	3.5	1.5	3.5	2.5	3.5	2.5	4	2.5	3.5	2.5	3.5	1.5	3.5	1.5
Level 4	0.5	1	1.5	3.5	2.5	3.5	2.5	3.5	3	4	3	3.5	2.5	3.5	2.5	3.5	1.5
Level 5	1	1.5	2	4	2	4	3	4	3	4.5	3	4	3	4	2	4	2
Level 6	1	1.5	2	4	3	4	3	4	3.5	4.5	3.5	4	3	4	3	4	2
Level 7	1.5	2	2.5	4.5	2.5	4.5	3.5	4.5	3.5	5	3.5	4.5	3.5	4.5	2.5	4.5	2.5
Level 8	1.5	2	2.5	4.5	3.5	4.5	3.5	4.5	4	5	4	4.5	3.5	4.5	3.5	4.5	2.5
Level 9	2	2.5	3	5	3	5	4	5	4	5.5	4	5	4	5	3	5	3
Level 10	2	2.5	3	5	4	5	4	5	4.5	5.5	4.5	5	4	5	4	5	3

CHAPTER 3：CONSOLE INSTRUCTION

3) Calories: Set goals for burning calories from 20 to 980 calories in 20 calorie increments. You set your level to keep you in your fat burning zone.

Incline changes and all segments are 20 calories.

Segment	Warm Up		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Distance	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal	20 cal
Level 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Level 2	0	0.5	1	3	2	3	2	3	2.5	3.5	2.5	3	2	3	2	3	1
Level 3	0.5	1	1.5	3.5	1.5	3.5	2.5	3.5	2.5	4	2.5	3.5	2.5	3.5	1.5	3.5	1.5
Level 4	0.5	1	1.5	3.5	2.5	3.5	2.5	3.5	3	4	3	3.5	2.5	3.5	2.5	3.5	1.5
Level 5	1	1.5	2	4	2	4	3	4	3	4.5	3	4	3	4	2	4	2
Level 6	1	1.5	2	4	3	4	3	4	3.5	4.5	3.5	4	3	4	3	4	2
Level 7	1.5	2	2.5	4.5	2.5	4.5	3.5	4.5	3.5	5	3.5	4.5	3.5	4.5	2.5	4.5	2.5
Level 8	1.5	2	2.5	4.5	3.5	4.5	3.5	4.5	4	5	4	4.5	3.5	4.5	3.5	4.5	2.5
Level 9	2	2.5	3	5	3	5	4	5	4	5.5	4	5	4	5	3	5	3
Level 10	2	2.5	3	5	4	5	4	5	4.5	5.5	4.5	5	4	5	4	5	3

4) Fat Burn: Relatively slow and steady is the name of the game to maximize your weight-loss goals. Promotes weight loss by increasing and decreasing the speed and incline, while keeping you in your fat burning zone.

Speed and Incline changes, segments repeat every 30 seconds.

Segment		Warm Up		1	2	3	4	5	6	7	8
Time		4:00 Mins		30 sec	30 sec	30 sec	30 sec	30 sec	30 sec	30 sec	30 sec
Level 1	Incline	0	0.5	1.5	1.5	1	0.5	0.5	0.5	1	1.5
	Speed	0.5	1.5	2	2.5	3	3.5	4	3.5	3	2.5
Level 2	Incline	0	0.5	1.5	1.5	1	0.5	1	0.5	1	1.5
	Speed	0.5	1.9	2.5	3	3.5	4	4.5	4	3.5	3
Level 3	Incline	0.5	1	2	2	1.5	1	1	1	1.5	2
	Speed	0.5	2.3	3	3.5	4	4.5	5	4.5	4	3.5
Level 4	Incline	0.5	1	2	2	1.5	1	1	1	1.5	2
	Speed	1	2.6	3.5	4	4.5	5	5.5	5	4.5	4
Level 5	Incline	1	1.5	2.5	2.5	2	1.5	1.5	1.5	2	2.5
	Speed	1	3	4	4.5	5	5.5	6	5.5	5	4.5
Level 6	Incline	1	1.5	2.5	2.5	2	1.5	1.5	1.5	2	2.5
	Speed	1	3.4	4.5	5	5.5	6	6.5	6	5.5	5
Level 7	Incline	1.5	2	3	3	2.5	2	2	2	2.5	3
	Speed	1.4	3.8	5	5.5	6	6.5	7	6.5	6	5.5
Level 8	Incline	1.5	2	3	3	2.5	2	2	2	2.5	3
	Speed	1.4	4.1	5.5	6	6.5	7	7.5	7	6.5	6
Level 9	Incline	2	2.5	3.5	3.5	3	2.5	2.5	2.5	3	3.5
	Speed	1.4	4.5	6	6.5	7	7.5	8	7.5	7	6.5
Level 10	Incline	2	2.5	3.5	3.5	3	2.5	2.5	2.5	3	3.5
	Speed	1.4	4.9	6.5	7	7.5	8	8.5	8	7.5	7

5) Hill Climb: Simulates a hill ascent and descent. This program helps tone muscle and improve cardiovascular ability. Incline changes and segments repeat every 30 seconds.

CHAPTER 3：CONSOLE INSTRUCTION

Incline changes and segments repeat every 30 seconds.

Segment	Warm Up		1	2	3	4	5	6	7	8	9	10
Time	4:00 Mins		30 sec	30 sec	30 sec	30 sec	30 sec	30 sec	30 sec	30 sec	30 sec	30 sec
Level 1	0	0	1	1.5	2	2.5	3	3	2.5	2	1.5	1
Level 2	0	0	1.5	2	2.5	3	3.5	3.5	3	2.5	2	1.5
Level 3	0	1	2	2.5	3	3.5	4	4	3.5	3	2.5	2
Level 4	0	1.5	2.5	3	3.5	4	4.5	4.5	4	3.5	3	2.5
Level 5	0	1.5	3	3.5	4	4.5	5	5	4.5	4	3.5	3
Level 6	0	1.5	3.5	4	4.5	5	5.5	5.5	5	4.5	4	3.5
Level 7	0	1.5	4	4.5	5	5.5	6	6	5.5	5	4.5	4
Level 8	0	2	4.5	5	5.5	6	6.5	6.5	6	5.5	5	4.5
Level 9	0	2	5	5.5	6	6.5	7	7	6.5	6	5.5	5
Level 10	0	2	5.5	6	6.5	7	7.5	7.5	7	6.5	6	5.5

6) Target Heart Rate: This program is designed for you to improve your overall cardiovascular fitness levels. You simply set your target heart rate. The program will then monitor and adjust the intensity level to maintain your heart rate within your targeted range while you exercise – a proven method to maximize your weight loss and fitness goals. A chest strap is required and must be worn during the duration of this program. See below for calculating your target heart rate:

Calculating Your Target Heart Rate

The first step in knowing the right intensity for your training is to find out your maximum heart rate (max HR = 220 – your age). The age-based method provides an average statistical prediction of your max HR and is a good method for the majority of people, especially those new to heart rate training.

The most precise and accurate way of determining your individual max HR is to have it clinically tested by a cardiologist or exercise physiologist through the use of a maximal stress test. If you are over the age of 40, overweight, have been sedentary for several years, or have a history of heart disease in your family, clinical testing is recommended.

This chart gives examples of the heart rate range for a 30 year old exercising at 5 different heart rate zones. For example, a 30-year-old's max HR is 220 – 30 = 190 bpm and 90% max HR is 190 × 0.9 = 171 bpm.

Target Heart Rate Zone	Workout Duration	Example THR (age 30)	Your THR	Recommend For
VERY HARD 90 - 100%	< 5 min	171-190 BPM		Fit persons for athletic training
HARD 80 - 90%	2-10 min	152-171 BPM		Shorter Workouts
MODERATE 70 - 80%	10-40 min	133-152 BPM		Moderately long Workouts
LIGHT 60 - 70%	40-80 min	114-133 BPM		Longer and frequently repeated shorter exercises
VERY LIGHT 50 - 60%	20-40 min	104-114BPM		Weight management and active recovery

7) My First 5K: This 9-week program is intended for inexperienced runners looking to run their first 5k or simply begin an exercise routine. It is designed specifically to keep you motivated and engaged, gradually building your strength, increasing your stamina and giving you the confidence it takes to complete your first 5k.

8) Custom: Allows you to create and reuse your perfect workout with a combination of a specific resistance, incline and time or distance. The ultimate in personal programming. This is a time or distance based goal program.

The Custom program has 16 segments and each segment can be set to run for up to 10 minutes; therefore, this program can be used to create a workout session that will last 160 minutes. This is the longest workout that can be created on the console.

Note: The other workout programs that allow you to choose the duration of the workout will allow a maximum time of 99 minutes.

CHAPTER 4：ENGINEERING MODE

4.1 Engineering Mode

To enter Engineering Mode, press and hold the incline up key and the speed down key for 3 to 5 seconds.

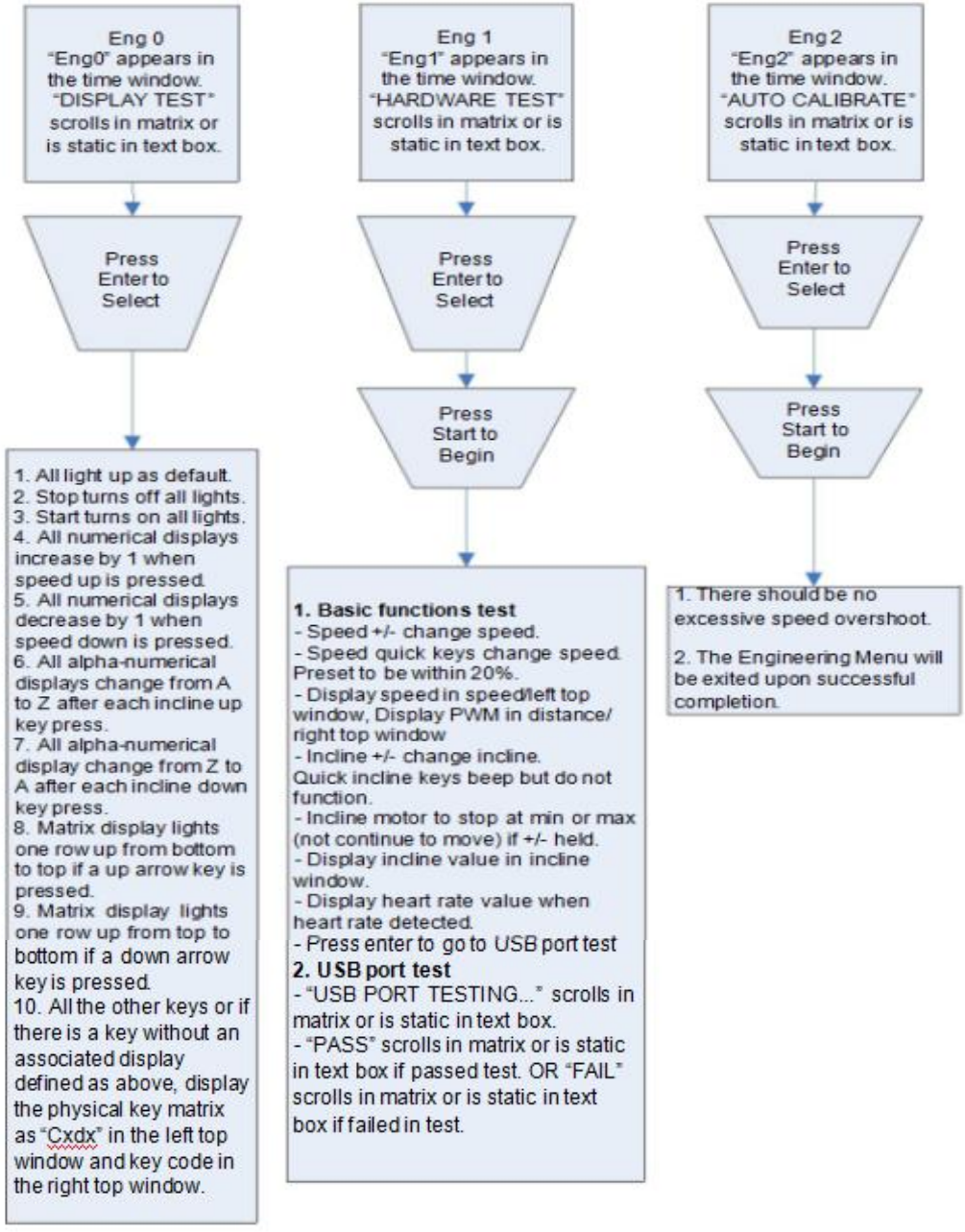
ENG No	Function	Sub Function		Operation	Display show as
0	Display Test	0	Ready	Press incline ↑ and speed "↓" in same time 3 sec .	
		1	all key light up	Press "push to select "	
		2	all key light off	Press "stop "	
		Escape	escpae present function	Press "stop" 3 seconds	
1	HARDWARE TEST	0	Ready	Clockwise rotate " push " to select " to enter ENG1;	
		2	MAC address	press"push to select" to enter	
		3	BT device	press"push to select" to enter	
		Escape	escpae present function	Press "stop" 3 seconds	
2	No defined function		Not function	Clockwise rotate " push to select" to enter press "stop" 3 seconds to escape present function	

CHAPTER 4：ENGINEERING MODE

ENG No	Function	Sub Function		Operation	Display show as
3	SWITCH FUNCTION	0	Ready	Clockwise rotate " push to select" to enter ENG3;	
		1	Eenergy save on	press"push to select" to enter	
		2	boot off (reset all Paramter)	press"push to select" to enter	
		3	unit change mile/Km(press "stop' 3 seconds to save)	press"push to select" to enter	
		Escape	escpae present function	Press “stop” 3 seconds	
4	INFORMATION	0	Ready	Clockwise rotate "push to select" to enter ENG4;	
		1	Accumulated information(distance &time)	press"push to select" to enter	
		2	MCB version	press"push to select" to enter	
		3	UCB version	press"push to select" to enter	
		Escape	escpae present function	Press “stop” 3 seconds	

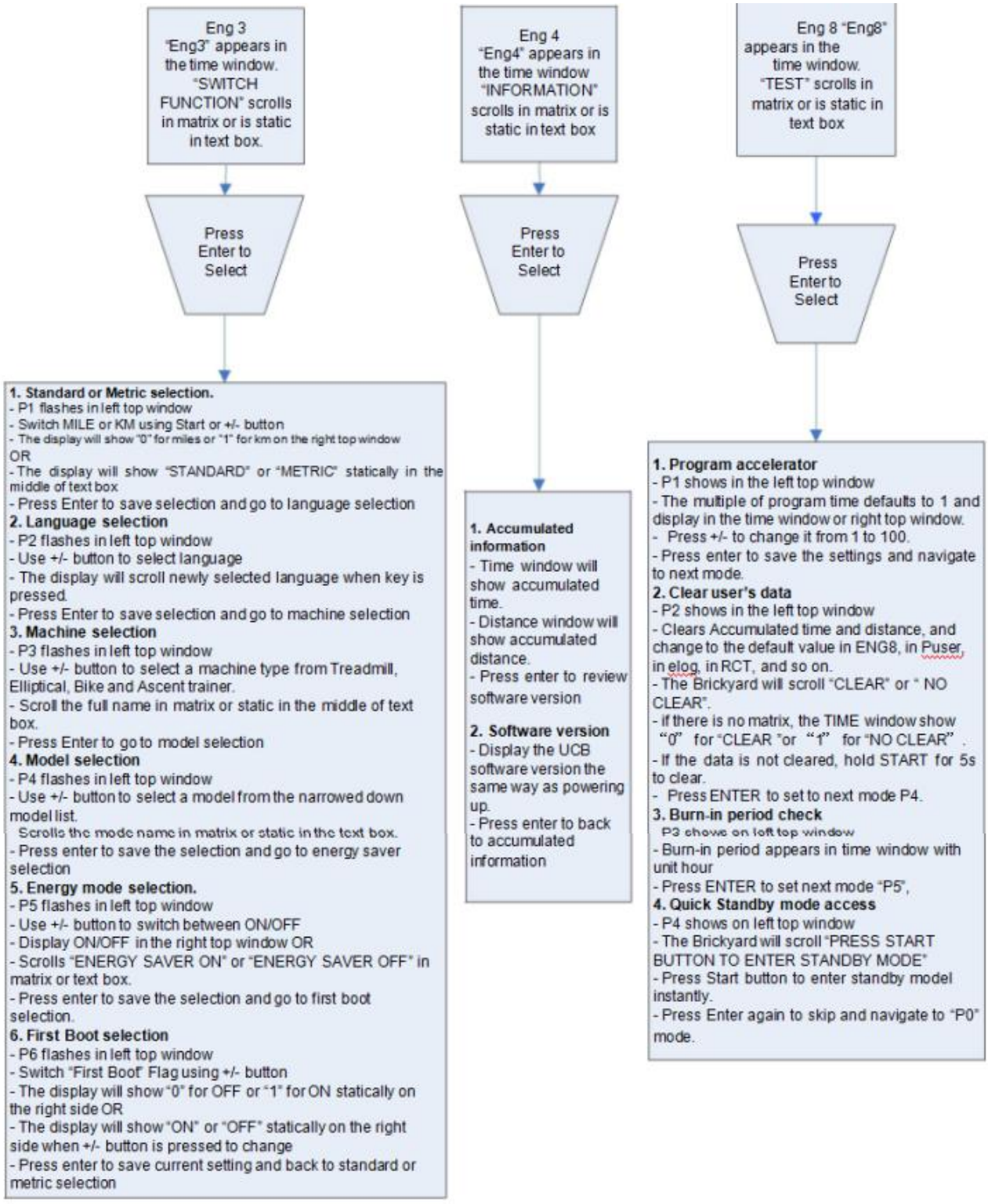
CHAPTER 4：ENGINEERING MODE

4.2 Engineering Mode Overview



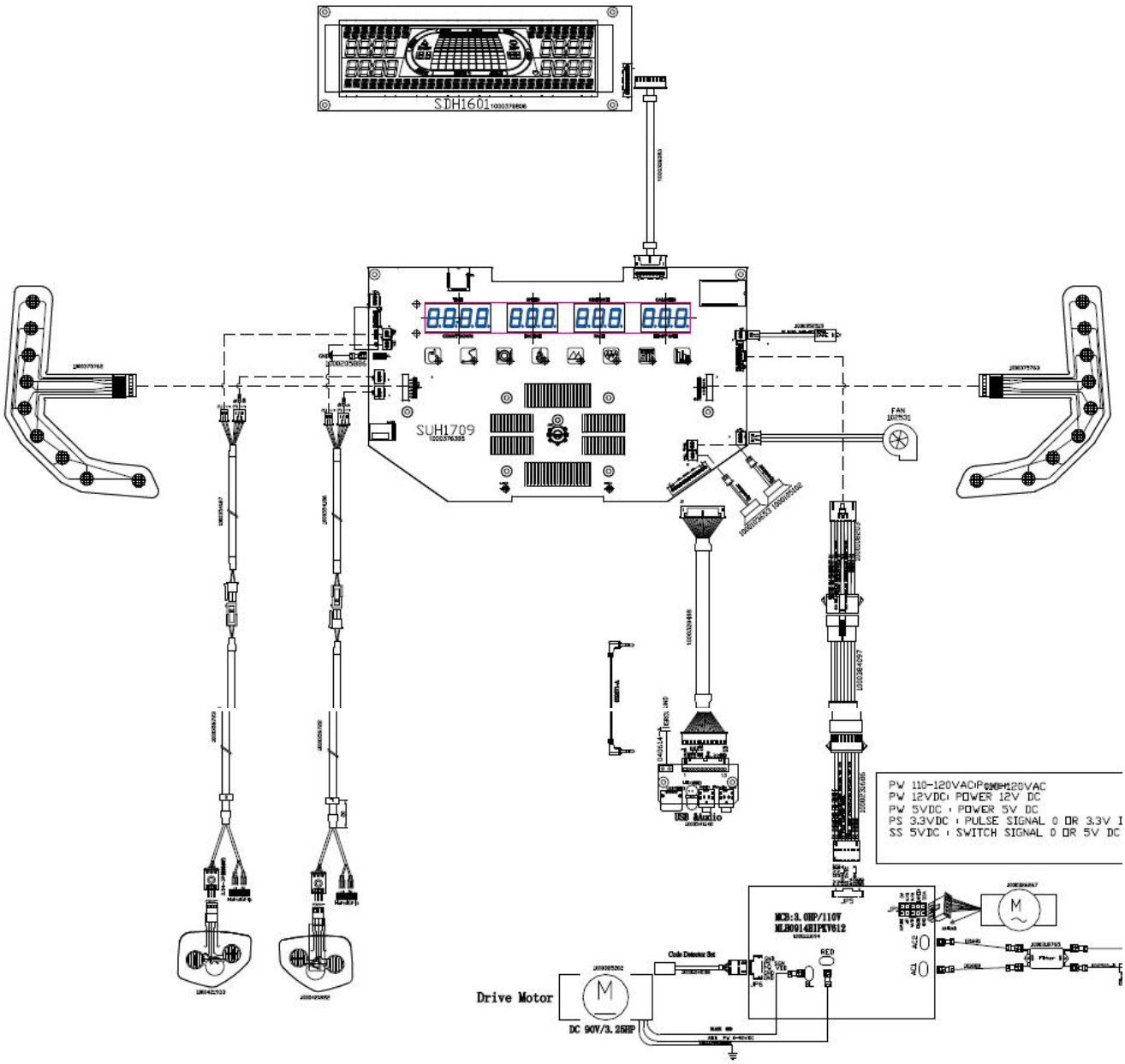
Note:
1. USB port testing is only for the consoles which have USB interface.
2. First Boot flag is only used for consoles which work for different machine and/or model types.
3. A text box must be implemented when multi language is available.
4. Console goes to model selection after cycling the power when First Boot flag is set to ON.
5. If there is confliction between process number "Px" and other display items, the process number will only display for 1 second and then display the real items.
6. Display items alternatively when a few items needs to be displayed in the same window. Light up the indictor if the indicator exists.
7. A text box or LED/LCD matrix is needed if the console work for different machine and/or model types.

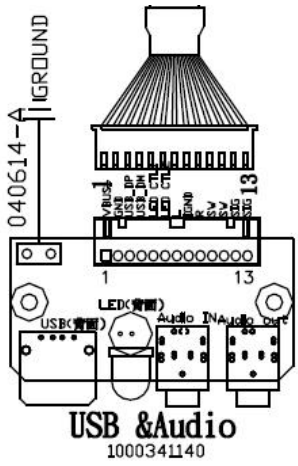
CHAPTER 4：ENGINEERING MODE



CHAPTER 5：TROUBLESHOOTING

5.1 Wiring Schematic





CHAPTER 5：TROUBLESHOOTING

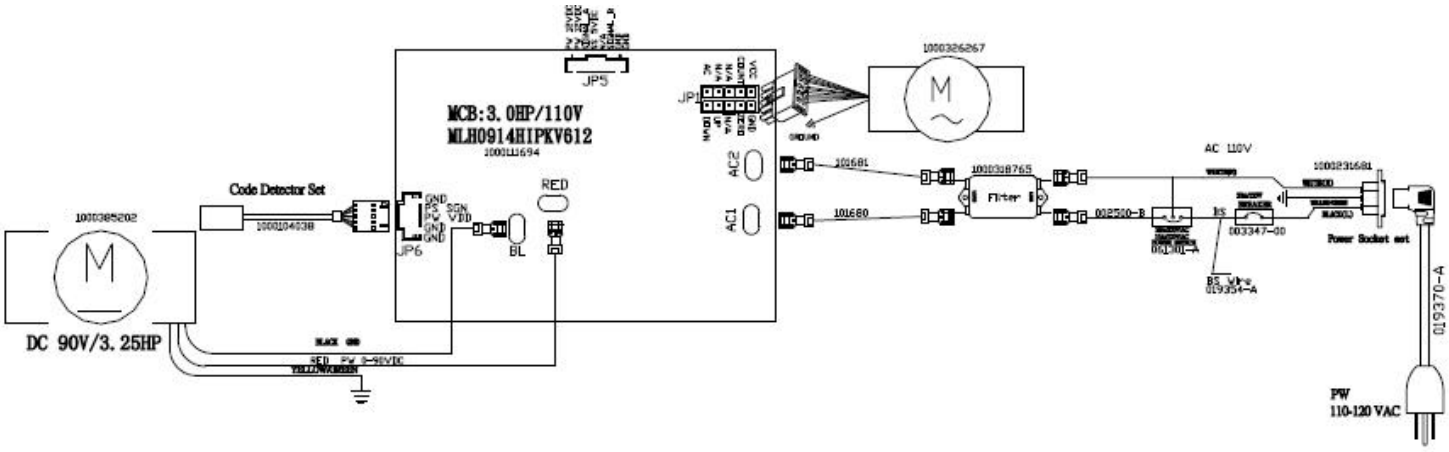
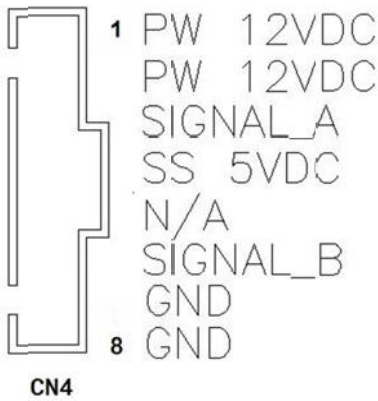


Fig-1 : The CN4 MCB TO Console Pin layout

Fig-2 The JP6 Speed sensor to MCB pinlayout



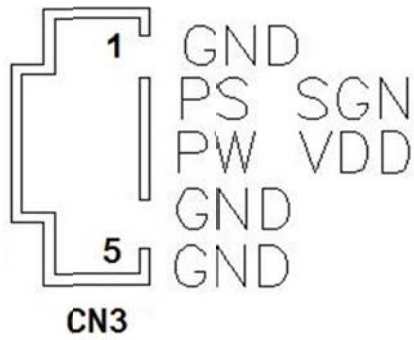
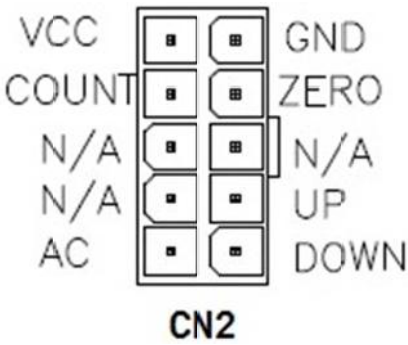


Fig-3 The JP1 MCB To Inline Pin location

Fig-4 The Voltage range instruction

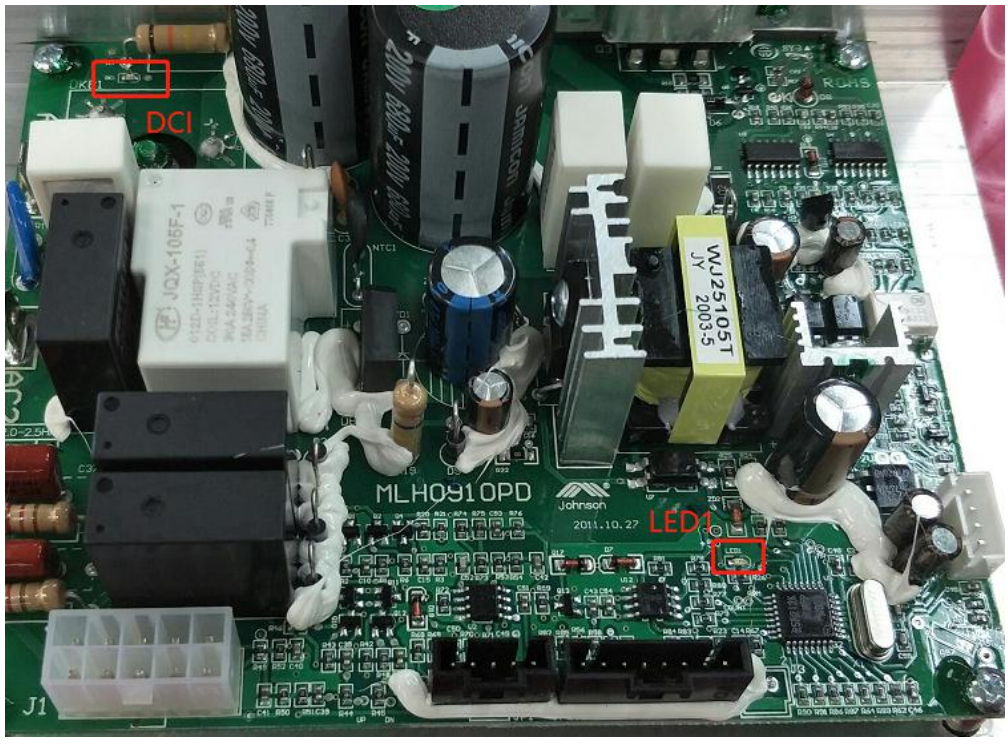


PW 110—120VAC:Power
PW 12VDC: POWER 12V DC
PW 5VDC : POWER 5V DC
PS 3.3VDC : PULSE SIGNAL 0 OR 3.3V DC
SS 5VDC : SWITCH SIGNAL 0 OR 5V DC

5.2 MCB Board Instructions

CN1	Power Line
CN2	Incline motor power cable
CN3	Speed sensor cable
CN4	Console set cable
CN5	Software burning cable
CN6	Drive motor cable

MCB LED Configuration



CHAPTER 5：TROUBLESHOOTING

Table 1

LED No	Color	Active	Inactive	Function	Symptom
DCI	Red	light on	light off	Driver Motor active	Not voltage to drive motor
LED1	Green	flash	------	MCU status see Table2	See Table2

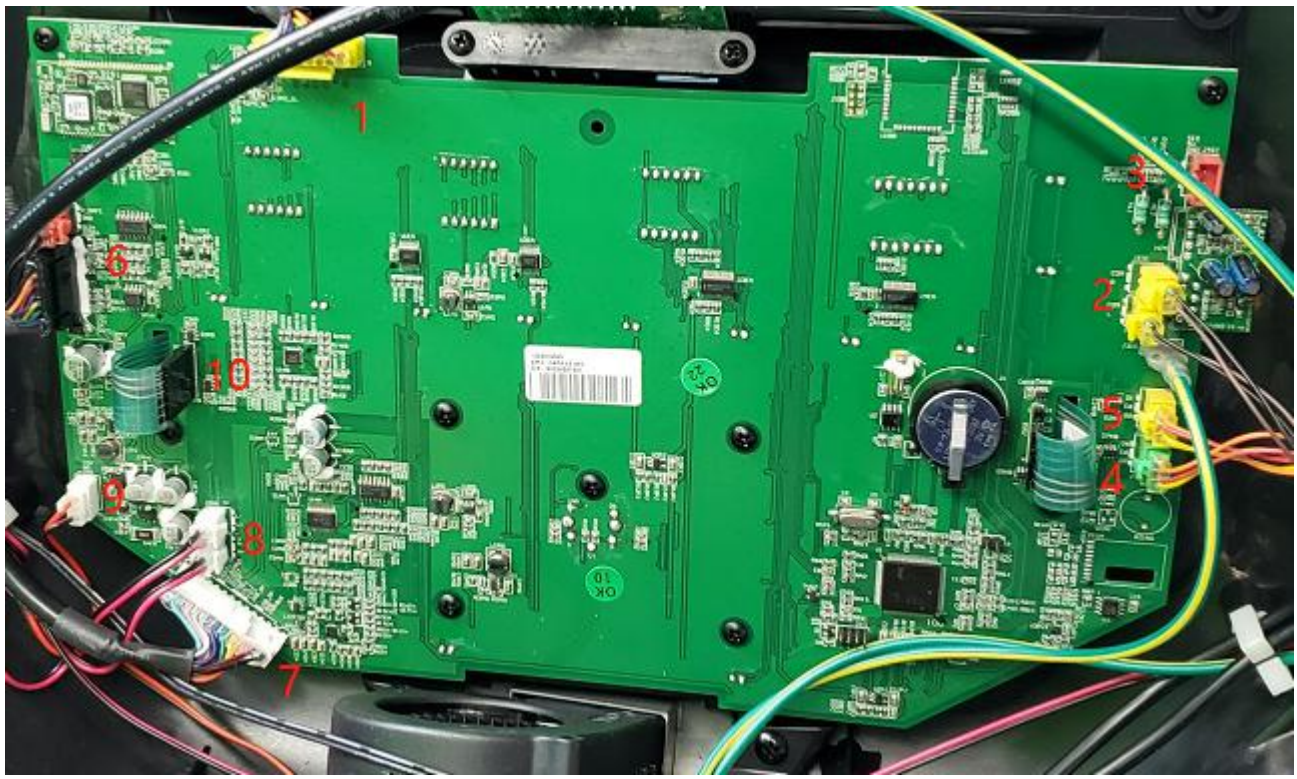
Table 2

LED Flash Times	Status	Action Condition	Failure Parts
1	Normal	Flashing 1 times per seconds regularly. The CPU works well.	
2	No Feedback from the optical encoder.	1) There is no optial encoder signal over 4 seconds on low speed(less than 4 miles). 2) There is no optical encoder signal over 1 seconds on high speed(more than 4 miles).	The encoder is failed or poor connecting.
3	overload/overcurrent	The DC motor current is over the rated current and keep for 4 seconds.	The motor is over loaded.
4	overspeed	The motor control device is failed, or the accelerated speed is too fast.	MOSFET(IGBT) is damaged.
5	Being rapidly stopped	The safekey is off.	
6	No incline action	Incline motor is block, there is no count signal feedback in the movement.	The incline motor control device(relay) is failed, or the incline motor is overheat protection.
7	Communcation abnormal by UART	No communication with console, or not obey the communication protocal.	The uart circuit is failed, or the connect line is damaged.
8	No incline motor	Can't find the ZERO signal of the incline motor.	There is no incline motor connected or the zero switch is damaged.

CHAPTER 5：TROUBLESHOOTING

Console Circuit Board Instruction

JP1	To LCD display
JP2	From heart rate grip
JP3	NC
JP4	From Quick key Left hand bar
JP5	From Quick key right hand bar
JP6	To MCB
JP7	To Audio In& Out interface
JP8	To Speaker
JP9	To FAN
JP10	To Keypad (Bluetooth & Resistance)



CHAPTER 5：TROUBLESHOOTING

5.3 Troubleshoot Summary

Code	Description	SYMPTOM:	Solution
1	NO POWER TO THE CONSOLE	Turn on the power switch, but the console will not light up.	See section 5.4
2	NO FUNCTION FOR SAFETY KEY	The safety key inserted in console, but display window still shows “safety key off”.	See section 5.5
3	NO RESPONSE FOR MACHINE (CONSOLE&MOTOR)	The power is on and the console lights up, but the treadmill does not run when keys are pressed.	See section 5.6
4	INCLINE MOTOR ISSUES	The incline motor does not lift up or down.	See section 5.7
5	NOISE ISSUES	See section 5.8	See section 5.8
6	SPEAKER / AUDIO ISSUES	1. No sound through the speakers but headphones works. 2 No sound through headphones but the speakers work. 3. No sound through speakers or headphones. 4. IPod not charging. 5. Speakers buzzing. 6. Sound from one speaker only. 7. Shock from headphones.	See section 5.9
7	HEART RATE FUNCTION ISSUE	1. The chest strap being used is not making good contact with the user's chest. 2. The chest strap is at a low battery status. 3. The chest strap is damaged. 4. The HR grips are damaged. 5. Heart rate board damaged 6. The UCB is damaged.	See section 5.10
8	BLUETOOTH ISSUE	1. Bluetooth light can not turn on 2. Bluetooth can not connect to extenal device.	See section 5.11

CHAPTER 5：TROUBLESHOOTING

5.4 Troubleshooting – No Power To The Console

Preliminary Solution:

A. Check circuit breaker, reset if necessary.(Fig-1)

B. Check if the outlet is well. - If no, please try another functional outlet.

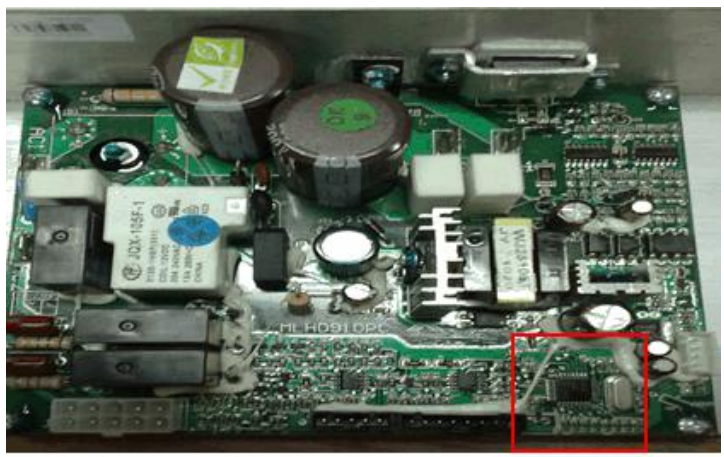
C. Check if the power cord connected well.

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

Fig-1

Further Solution:

A. Check if the MCB has power. There is a green LED in red area should flash.



B. 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 CN1 (AC1 & AC2) –see Page10 Fig-1, AC vol age shall be same as local's standard voltage (110V/120V)

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

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

-Remove the console cable CN4 from MCB (section 5.2), and use a multi-meter to measure the DC voltage between the "GND pin" (Pin 8) and the" + 12V Pin" (Pin1). 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 UCB.

5.5 Troubleshooting – No Function For Safety Key

SOLUTION:

A. Check if the safety key is totally inserted into the console.
   - If not, remove and insert again.

B. Check if the safety key is oxidized or its condition does not affect its function.
   - If yes, try cleaning it or replace it.

C. If the safety key is functional, check the safety key sensor wires in console.
   - Suggest to re-connect the wires or to change new wires.

CHAPTER 5：TROUBLESHOOTING

5.6 Troubleshooting – No Response For Machine (Console&Motor)

SOLUTION:

A. Check if the console beeps when all keys are pressed. If no, replace the keypads.

B. Enter Engineering Mode, and scroll to ENG 1 (Hardware Test).Press the key “ENTER” first and then the key ”START”.

- When press the key “SPEED + / -“, if the data on windows “TIME” & “DISTANCE” is changed, the console is ok. If not, replace the PCB.

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 still does not run after taking above actions.

5.7 Troubleshooting - Incline Motor Issues

SOLUTION:

A. Press the "INCLINE" keys, the console should beep and display incline change, if no, replace the key pad.

B. Enter Engineering Mode, and scroll to ENG 1 (Hardware Test). Press the “ENTER” key first and then the “START” key.

C. Press the “INCLINE ▲/▼” key.

- If can hear clicks from two relays at the MCB, the MCB is ok. Then check the connection of the elevation motor at the MCB first, try to unplug and re-plug. If this does not resolve the issue, replace the elevation motor.
- If there is no clicks from these two relays, MCB is defective and replace the MCB.

CHAPTER 5：TROUBLESHOOTING

5.8 Troubleshooting - Noise Issues

SOLUTION:

A. Humping noise twice per rotation on new machine. Sol. 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. High pitched “bell-like” sound from under the motor cover. Sol. 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. Rubbing / grinding noise.

Sol.. 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. Banging or clunking sound/5. Slapping / thinking / squeaking sound with Each footstep. Sol. 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.

-This sound is from the running deck / belt.

-Check that the running deck is tightly attached to the frame.

-Check the deck shocks for denigration or crumbling. Replace if needed.

-Check to see if the air shock is making this noise, lubricate or replace if needed.

E. Rubbing sound underneath the treadmill. Sol. This sound is likely due to the air shock.

-Lubricate or replace the air shock as needed.

F. Squeaking / grinding noise when using elevation. Sol. 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.

5.9 Troubleshooting - Speaker / Audio Issues

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.

CHAPTER 5：TROUBLESHOOTING

5.10 Troubleshooting- Heart Rate Function Issue

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. Wet the user's hand, and then re-establish contact with the HR grip.

D. Replace new HR grip if console can display proper HR rate.

With a multi-meter set for DC voltage, place one terminal on each of the HR grip plates. The HR Grip should give a voltage reading of between 0.5 and 2.0VDC. If the voltage is not between 0.5 and 2.0VDC, remove the screws holding the HR grip together and check the connection of the HR grip wiring.

E. Check a-d. If still cannot work, Suggest install new console.

CHAPTER 5：TROUBLESHOOTING

5.11 Troubleshooting – Bluetooth Pairing Issues

SOLUTION:

A. Press Bluetooth button see if blue light on.(Fig-1)

- If not the Bluetooth may damage. Replace console circuit board.

Fig-1

B. Unpaired the others device. Try to connect Bluetooth in external mobile device (Only for audio play)

- If cannot see the device name is your mobile screen" 7.2Ai SPEAKERS XXXX " (Fig-2), The Bluetooth may damage. Replace console circuit board.

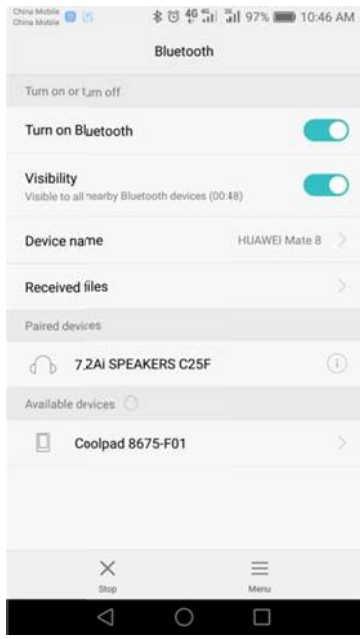


Fig-2

CHAPTER 6：PART REPLACEMENT

6.1 Motor Replacement

1) Disconnect power cord.
2) Remove the 2 screws holding the motor cover to the frame (Fig-1)
3) The cover is secured to the frame. So you will have to pull up with some force (Fig-2)

Fig-1

Fig-2

4) shows the motor area with the motor cover removed.(Fig-3)

Fig-3

5) Reverse Steps 1-3 to install a new motor cover.
6) Confirm drive belt tension is correct after replacing motor (see section 6.5)
7) Unplug the motor connector from LCB, speed sensor, cut any wire ties as needed.
8) Remove drive belt by walking belt off as moving running belt and pushing a side drive belt.
9) Remove the four motor bolts and remove motor.
10) To re-install motor, tilt motor towards front roller with motor base plate on front mounting studs. Place drive belt on front roller and motor pulley. With force, draw the motor back, firmly stabilizing the motor from slipping off mounting studs. Then fix mounting bolts.
11) Reverse steps 1-4 to complete. Replace any wire ties removed.
12) Test at various speeds.

6.2 Rear Roller Replacement

1) Remove the 4 screws from the rear end caps, remove rear end caps.(Fig-1)
2) Remove roller adjustments bolts on both sides, approximately 4-5 turns per side until bolts are removed. (Fig-2)

Fig-1

Fig-2

Fig-3

3) Remove the rear roller (Fig-3)
4) Reverse steps to install rear roller .

Note:

1. Be sure to set the correct running belt tension after replacing the roller.
2. Over or under tension will result in damage or injury.

For the adjusting the running belt reference section 6.6 note 2.

6.3 Side Rail Replacement

1) Remove the rear end cap (Fig-1). See section 6.2
2) Slide the rail off the treadmill (Fig-2).

Fig-1

Fig-2

3) Reverse Steps 1-2 to install a new side rail.

Note:

After re-installing 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 t op of the side rail.

6.4 Running Deck Replacement

1) Remove the motor cover as outlined in Section 6.1.
2) Remove rear roller as outlined in section 6.2
3) Remove the side rail as outline in Section 6.3.
4) Remove the running deck 8 bolts and ground strap.
5) Remove the running deck from the frame.(Fig-1)
6) Reverse steps 1-5 to install a new running deck.

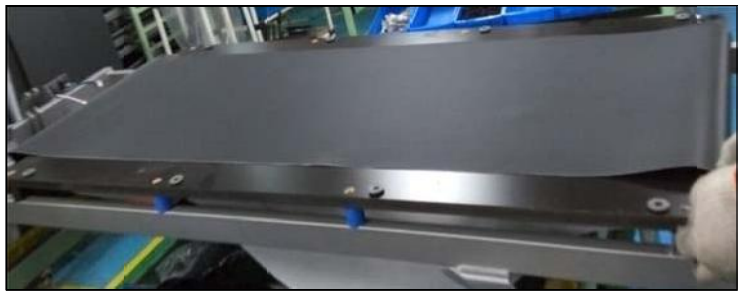


Fig-1

Note:

1.The running deck has silicon on one side. New deck surfaces must **ALWAYS** be matched to a new running

For the ADJUSTING THE RUNNING BELT reference section 6.6 note 2.

6.5 Front Roller Replacement

1) Remove the motor cover as outlined in Section 6.1.
2) Remove both of the rear roller screws to remove tension from the running belt.(Fig-1)

Fig-1

Fig-2

Fig-3

3) Remove the drive belt from the front roller and remove the roller from the running belt.(Fig-2)
4) Replace new Front roller and motor drive belt, and check belt alignment with alignment Jig (Fig-3) ,the specification is <1.5mm.
5) Check belt tension with equipment.(Fig-4)

Belt tension: 275~330Hz

Fig-4

6.6 Running Belt Replacement

1) Remove the motor cover as outlined in Section 6.1.
2) Remove the rear roller as outlined in Section 6.2.
3) Remove the running deck as outlined in Section 6.4.
4) Remove the front roller as outlined in Section 6.5.
5) Remove the running belt.

Fig-1

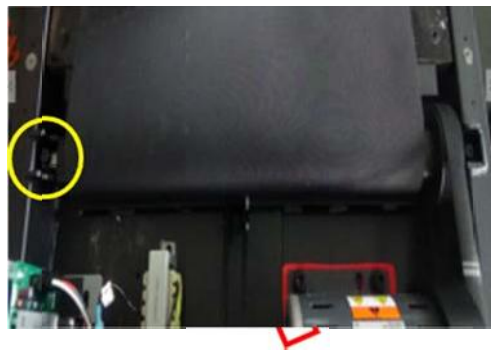


Fig-2

6) Reverse Steps 1-5 to install a running belt. (Fig-1 & Fig-2)

Note1:

1.Adjust running belt tension aft r replacement (Note2)

2.The running deck is silicon on one side . New deck surfaces must **ALWAYS** be matched to a new running belt.

Note2:

ADJUSTING THE RUNNING BELT

After placing the treadmill in the position it will be used, the belt must be checked for proper tension and centering. The belt may need to be adjusted after the first 2 hours of use. Temperature and 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 direction below.

Step1: Locate the two hex head bolt on the rear of the treadmill. The bolts are located at each end of the frame at the back of treadmill. These bolts adjust the rear roller. Do not adjust until the treadmill is on. This will prevent over tightening of one side.

Step2: The belt should have equal distance on either side between the frames. 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, observe the belt position. If it is moving to the right, tighten the Right bolt by turning it clockwise 1/4 turns, and loosen the left bolt 1/4 turn. If it is moving to the left, tighten the left tighten the left bolt by turning it clockwise 1/4 turn and loosen the right 1/4 turn. Repeat step 3 until the belt remains centered for several minutes.

Step4: Check the tension of the belt. The belt should be very snug. When a person walks or run on the belt, it should not hesitate or slip. If this occurs, tighten the belt by turning both bolts clockwise 1/4 turn, Repeat if necessary.

6.7 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. (Fig-1)
4) Remove the 2 screws holding each side of the MCB to the frame .

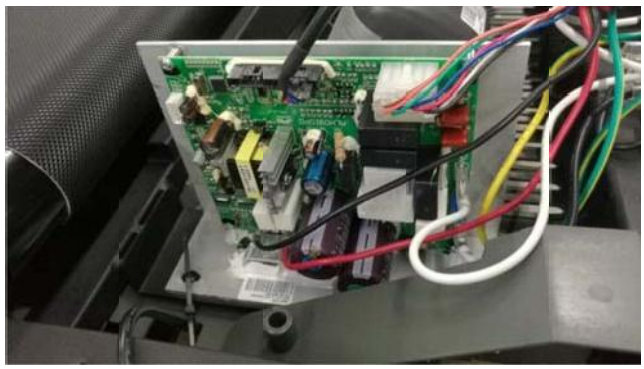


Fig-1

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.

Note:
Replace any wire ties removed.

6.8 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.
4) Remove the screws from the elevation rack (Fig-1&2)

Fig-1

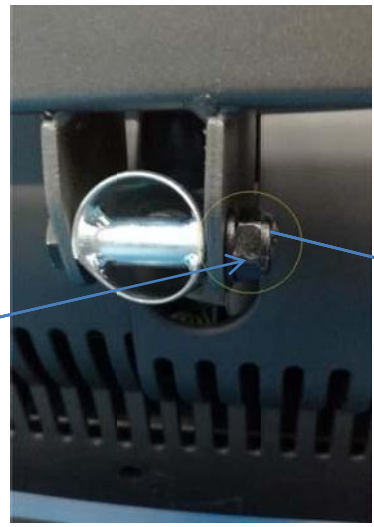


Fig-2

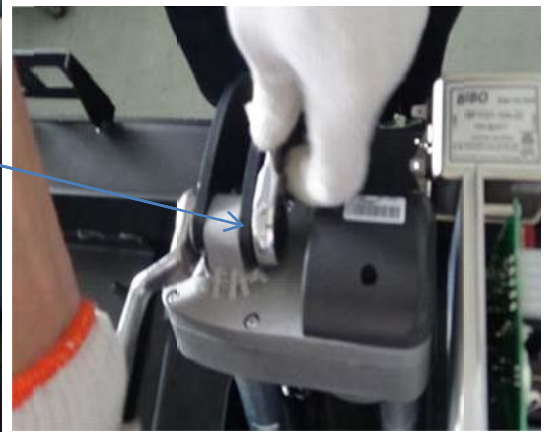


Fig-3

5) Disconnect the incline motor from the top mounting bracket. (Fig-3)
6) Reverse Steps 1-5 to install a new incline motor.
7) Test full range of elevation.

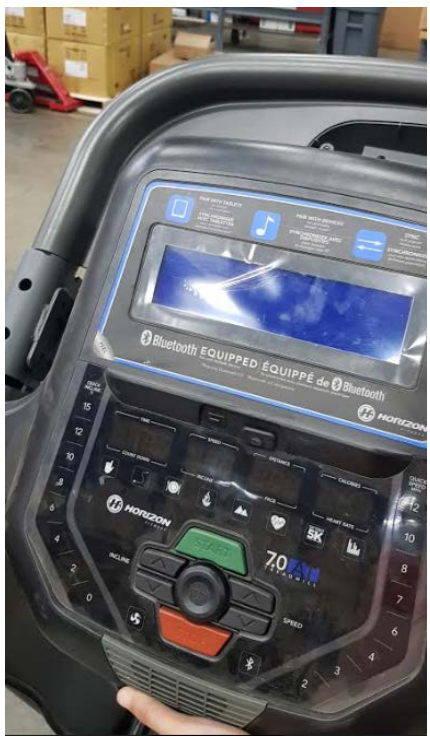
Note: When installing a new incline motor, make sure to replace the white nylon washers at the top and bottom connection points of the incline motor.

6.9 Console Overlay Set Replacement

1) Unplug the unit from the wall.

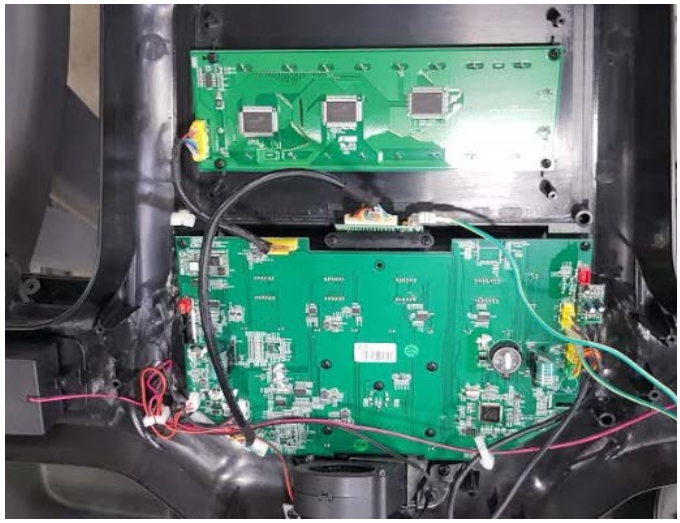
2) Remove the screws (circled in yellow) from the back of the console that hold the front window in place. Make sure to keep the screws.

3) Open the front of the console overlay.



6.9 Console Overlay Set Replacement - cont'd

4) Take photos of the UCB and wire connections so that you can reference them when you are plugging the wires into the new board.



5) Disconnect all of the wires from the board.

6) Remove the old console overlay set and put the new one in place. Refer to your photos to correctly reconnect the wires.

7) Plug the unit into the wall and check for proper function.

a. Check the Go button
b. Check elevation up & down
c. Verify speed up & down
d. Make sure heart rate works
e. Check the Stop button
f. Remove the safety key – the display should show that safety key is removed

8) If the unit is functioning properly, reinstall the screws in the back of the console to secure the front window.

6.10 Console Circuit Board Replacement

1) Confirm wearing good contact ESD wrist strap.
2) Remove console set as outlined in section 6.9.(Fig-1&Fig-2)
3) Replace the new circuit board.(Fig-3)
4) Reserve step 2-3.

Fig-1

Fig-2

Fig-3

Note:

If electrostatic discharge (ESD) occurs during circuit board replacement, it can cause damage to the board. You are required to wear an ESD wrist strap during this replacement process in order to prevent ESD.

CHAPTER 6：PART REPLACEMENT

6.11 Heart Rate Grip And Keypad Replacement

1) Remove all of 8 pcs bolts and connection wire (Fig-1)
2) Remove heart rate grip bars (Fig-2)

Fig-1

Fig-2

3) Remove 2 bolts on heat rate bar and open the housing (Fig-3)

Fig-3

Fig-4

Fig-5

4) Remove keypad or heart rate connection wire. (Fig-4)
5) Replace keypad and overlay or heart rate plated. (Fig-5)
6) Reserve step 1-4.
7) Turn on power and check keypad and heart rate function.