



7.0AT-03 TREADMILLS

TM1002C



SERVICE MANUAL

ISSUED 2022-06-07
JOHNSON HEALTH INDUSTRY (VIETNAM)
V1

TABLE OF CONTENTS

Contents

SERIAL NUMBER INFORMATION	4
SERIAL NUMBER LOCATION	4
PRODUCT RECORD.....	5
PREVENTATIVE MAINTENANCE	6
PREVENTATIVE MAINTENANCE.....	6
<i>Every Day (Daily)</i>	6
<i>Every Week (Weekly)</i>	6
<i>Every Month – Important!</i>	6
<i>Every 3 Months or 150 Miles</i>	7
TENSIONING & CENTERING THE RUNNING BELT	7
CONSOLE INSTRUCTION.....	9
CONSOLE OPERATION	9
DISPLAY WINDOWS	10
GETTING STARTED	11
PROGRAM INFORMATION	14
TARGET PROFILES	16
ENGINEERING MODE	18
ENGINEERING MENU OVERVIEW	18
ENGINEERING MODE OVERVIEW	19
TROUBLESHOOTING	21
GENERAL TROUBLESHOOTING	21
ELECTRICAL DIAGRAM	22
MCB WIRING INSTRUCTIONS	23
TROUBLESHOOTING SUMMARY	25
NO POWER TO THE CONSOLE	25
NO FUNCTION FOR SAFETY KEY	26
NO RESPONSE FOR MACHINE (CONSOLE & MOTOR)	26
INCLINE MOTOR ISSUE	27
NOISE ISSUES	27
SPEAKER/AUDIO ISSUES	28
HEART RATE FUNCTION ISSUE.....	29
BLUETOOTH PAIRING ISSUE	29
PART REPLACEMENT.....	31
MOTOR COVER REPLACEMENT	32
REAR ROLLER REPLACEMENT	33
SIDE RAIL REPLACEMENT	34
RUNNING DECK REPLACEMENT	35
FRONT ROLLER REPLACEMENT	36
RUNNING BELT REPLACEMENT	37

TABLE OF CONTENTS

MOTOR CONTROL BOARD (MCB) REPLACEMENT	39
MOTOR REPLACEMENT	40
DRIVE BELT REPLACEMENT.....	41
INCLINE MOTOR REPLACEMENT	42
CONSOLE OVERLAY SET REPLACEMENT.....	44
CONSOLE CIRCUIT BOARD REPLACEMENT.....	45
HEART RATE GRIP AND KEYPAD REPLACEMENT.....	47
CHANGE LOG	48

Serial Number Information

Serial Number Location



Product Record

ENTER YOUR SERIAL NUMBER AND MODEL NAME IN THE BOXES BELOW:

SERIAL NUMBER:		
TM		
<hr/>		
MODEL NAME:	HORIZON	
		TREADMILL

Refer to the SERIAL NUMBER and MODEL NAME when calling for service.

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!

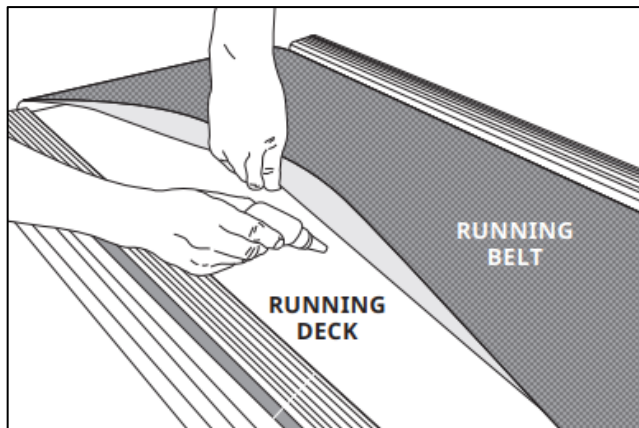
- Turn off the treadmill with the ON / OFF switch, then unplug the power cord at the wall outlet.
- Inspect all assembly bolts of the machine for proper tightness.
- Remove the motor cover. Wait for ALL display screens to be off.
- Clean the motor and lower board area to eliminate any lint or dust particles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

Every 3 Months or 150 Miles

It is necessary to lubricate your treadmill running deck every three months or 150 miles (241 kilometers) to maintain optimal performance.

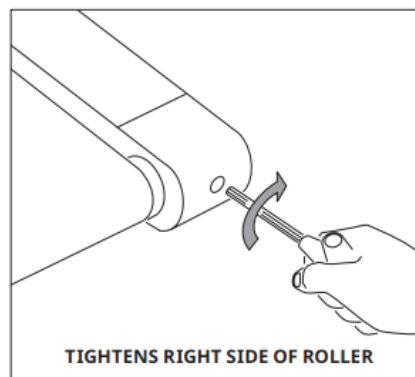
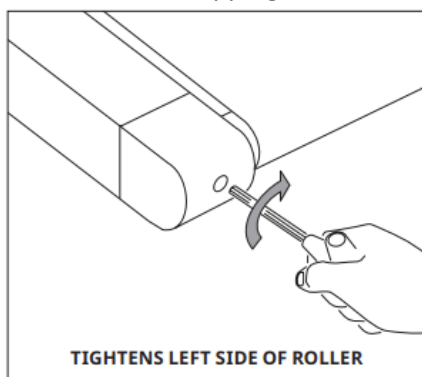
Your treadmill came with a bottle of lubricant which can be used for two applications.

- 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 or 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.



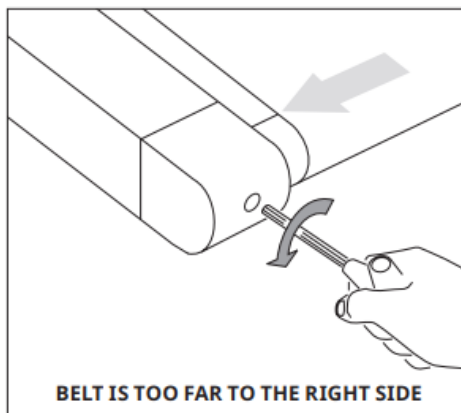
Tensioning & Centering the Running Belt

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

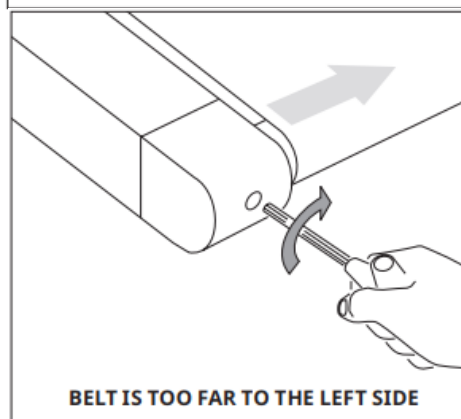


The running belt has been properly adjusted at the factory before it was shipped. At times the belt can move off-center during shipment. Before operating the treadmill, make sure the belt is centered and remains centered to maintain smooth operation.

If the running belt is too far to the right side: With the treadmill running at 1 mph, turn the left adjustment bolt counter-clockwise $\frac{1}{4}$ turn at a time (using the supplied Allen wrench). Check the belt alignment. Allow belt to run a full cycle to gauge if more adjustment is needed. Repeat if necessary, until the belt remains centered during use.

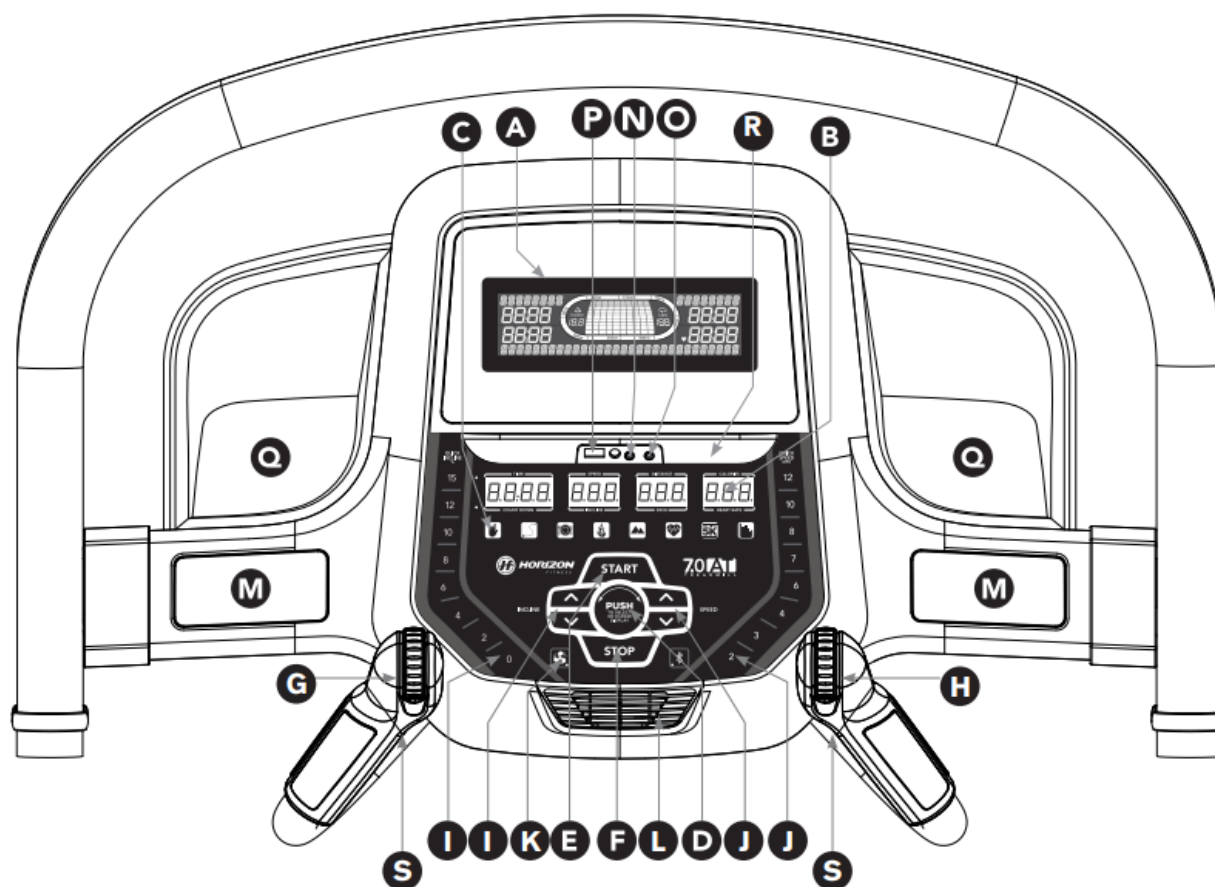


If the running belt is too far to the left side: With the treadmill running at 1mph, turn the left adjustment bolt clockwise $\frac{1}{4}$ turn at a time (using the supplied Allen wrench). Check the belt alignment. Allow belt to run a full cycle to gauge if more adjustment is needed. Repeat if necessary, until the belt remains centered during use.



Console Instruction

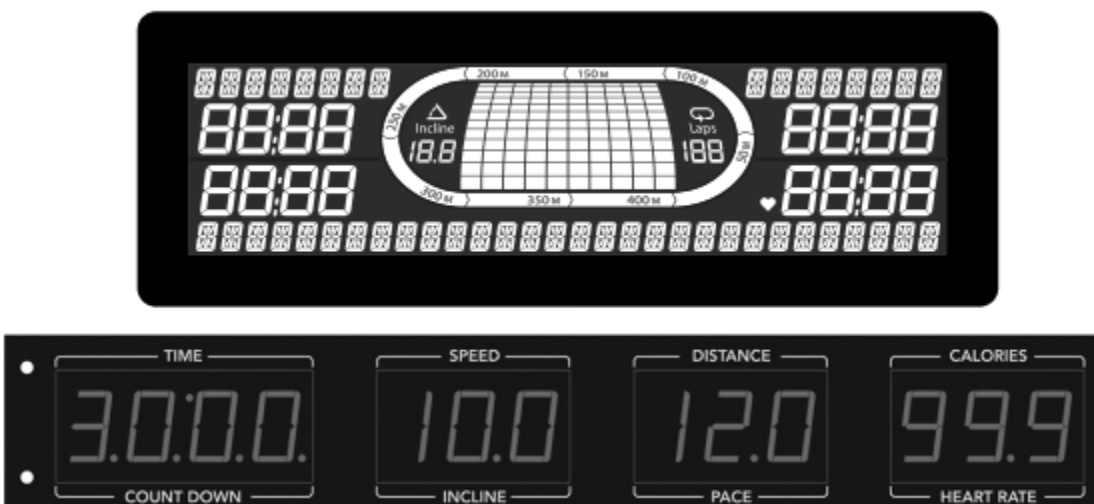
Console Operation



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

- A) LCD DISPLAY WINDOWS: Watts, 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 SCROLL WHEEL: used to adjust incline in small increments (.5%).
- H) SPEED SCROLL WHEEL: used to adjust speed in small increments (.1 MPH).
- 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 into 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 sound 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 reading material.
- S) INTERVAL KEYS: these are programmable keys. When an user is selected, they can be programmed to a desired speed and incline setting.)



Display Windows

- 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.

Getting Started

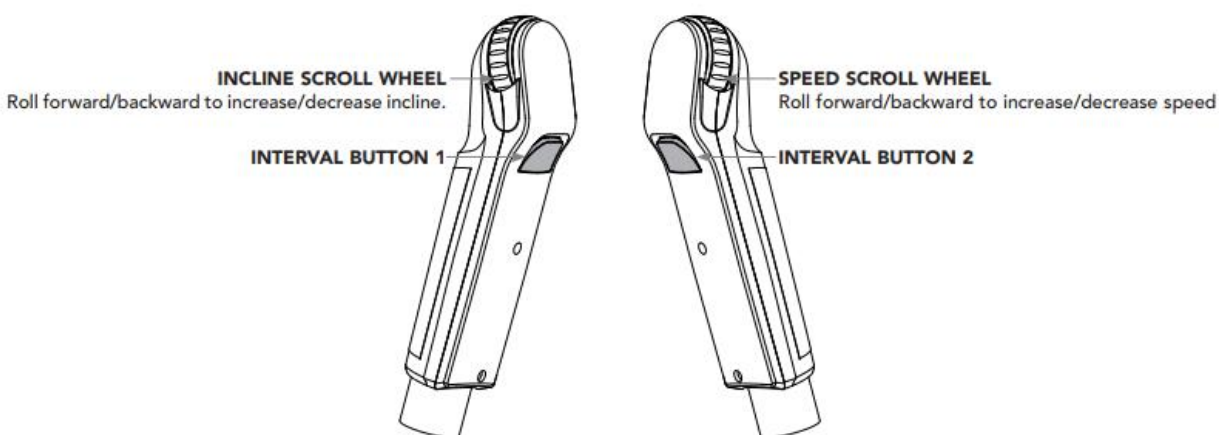
- 1) Check to make sure no objects are placed on the belt that will hinder the movement of the treadmill.
- 2) Plug in the power cord and turn the treadmill ON. (The ON/OFF switch is next to the power cord.)
- 3) Stand on the side rails of the treadmill.
- 4) Attach the safety key clip to part of your 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

1. Simply press the START key to begin working out.
2. 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. Note: Time and/or distance settings are selected during this step and cannot be changed after the workout begins.
- 5) Press START to begin.



HOW TO PROGRAM AND USE CUSTOM INTERVAL BUTTONS

The programmable interval buttons located on the pulse rate grips are designed to help you customize this machine to match whatever workout you like to do the most.

The LEFT and RIGHT INTERVAL BUTTONS are programmable for speed and incline.

To program the INTERVAL button, you must select a user, start the machine, set the desired speed and

incline, press and hold the desired INTERVAL button for three seconds until the treadmill beeps. Now the INTERVAL button is programmed to your settings. After programming the INTERVAL button, it will remember the setting for that user until reprogrammed.

Now when the INTERVAL button is pressed, the treadmill speed and incline will change to the settings you programmed for that button.

The most common type of workout these keys will help with is interval training. We suggest programming one of the INTERVAL buttons to your high intensity segments and the other to your recovery segments. Another common use is to set one INTERVAL button to your warm up and cool down settings and the other to your desired workout settings.

These buttons should allow you to customize the settings of your treadmill to quickly fit the type of workout you enjoy most.

TO RESET THE CONSOLE

Hold STOP key for 3 seconds.

FINISHING YOUR WORKOUT

When your workout is complete, the unit will beep. Your workout information will stay displayed on the console for 30 seconds and then reset.

BLUETOOTH HEART RATE MONITORING

The 7.0AT is equipped with multi-channel Bluetooth which enables you to wirelessly connect compatible Bluetooth heart rate monitoring devices to this treadmill. You will need to ensure that your wireless heart rate monitoring device is Bluetooth 4.0 compatible and is also “open” to sharing data. Non-“open” or “closed” devices typically only share data with their proprietary apps. The 7.0AT needs an “open” device to receive data from the device. You may need to consult with your device’s owner’s manual or the manufacturer to confirm if it is an open device.

Pair the receiver to the app and the console will receive the information from the tablet. To use the Bluetooth chest strap without a tablet, press and hold the Bluetooth button to enable the console to communicate with the receiver. When paired with the chest strap the console will not pair with a tablet. To enable tablet communication press and hold the Bluetooth button for 5 seconds or reset power.

USING YOUR MUSIC DEVICE

The 7.0AT treadmill will connect and stream music from your compatible music device. This includes many smart phones and traditional mp3 players.

Your 7.0AT comes equipped with Bluetooth speakers. Bluetooth compatible devices can stream music wirelessly from your device to the speakers. You can also connect your music device via an audio cable and stream music through the speakers. Instructions for both types of audio connection are detailed below.

CONNECTING VIA BLUETOOTH 4.0LE

- 1) Check to ensure that your music device is Bluetooth 4.0 compatible
- 2) Go into your device’s Bluetooth settings and scan for devices.

3) On your music device, locate the Bluetooth device list. Select your treadmill or elliptical unit that appears on this list.

Wait for your music device to finish pairing with the unit.

4) You will know when pairing is successful when your music device shows the treadmill or elliptical unit as now being a paired device.

WHEN UNIT IS POWERED OFF THEN BACK ON

If you turn your treadmill or elliptical unit off, or if it goes into sleep mode, the next time it is powered on the unit will look to pair with the last music device with which it was paired. It will automatically pair at this time.

RE-PAIRING MUSIC DEVICES

In the event that the unit cannot find the last paired music device (for example, the music device is off or not being used) then the unit will stop looking to pair with the music device. If this happens, and if you wish to use your music device again, then you will need to go through the pairing process listed above and re-pair through your music device's settings.

USING MULTIPLE MUSIC DEVICES

If multiple devices are being paired with the unit (i.e.: multiple users are using the treadmill or elliptical unit and pairing their music devices with it) then the unit will look to pair with the last device used and "forget" other devices. If you wish to re-pair a "forgotten" music device, then you will need to un-pair the current paired device and then re-pair your device through the pairing procedure noted above.

CONNECTING VIA AN AUDIO CABLE

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 music device.

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. This ensures that if you accidentally catch the headphone line while running, you won't drop your device to the ground.

AFG CONNECTED FITNESS SYSTEM

Your Horizon machine is Bluetooth ready, allowing you to use Bluetooth 4.0 technology to wirelessly connect your device to your Horizon treadmill. Using the free downloadable AFG Fitness app will enable you to control your treadmill's operating functions via your device. The app will also allow you to monitor your workout, track your progress and view your workout history. The AFG Fitness app can be downloaded from either the iTunes store for iOS devices or from the Google store for Android devices.

For information about connecting your device to your Horizon treadmill, setting up the AFG Fitness App and controlling and monitoring your workout with your device, see the AFG Connected Fitness Manual included with your treadmill.

ZWIFT APP CONNECTION

To pair your Horizon treadmill to Zwift:

1. Turn on the treadmill.
2. Open the Zwift app on a tablet or phone.
3. Go to the pairing screen in the Zwift app. (Make sure you are in the RUN section, not RIDE.)
4. Click on the treadmill image to pair and select your Horizon treadmill from the list.

Program Information

P1) 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

P2) 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

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

P3) 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.

Warmup and cooldown speeds 1.0 mph or 75% of walk speed, whichever is greater

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

P5) CUSTOM: Allows you to create and reuse your perfect workout with a combination of a specific speed, incline and time or distance. The ultimate in personal programming. This is a time or distance based goal program.

This 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.

TARGET PROFILES

1. **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 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

2. **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

3. **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 $190 \times 0.9 = 171$ 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

Additional target heart rate notes:

- 1). The treadmill incline will automatically adjust to bring you near your specified heart rate.
- 2). If there is no heart rate detected, the unit will not change the incline.
- 3). If your heart rate is 25 beats over your target zone the program will shut down.

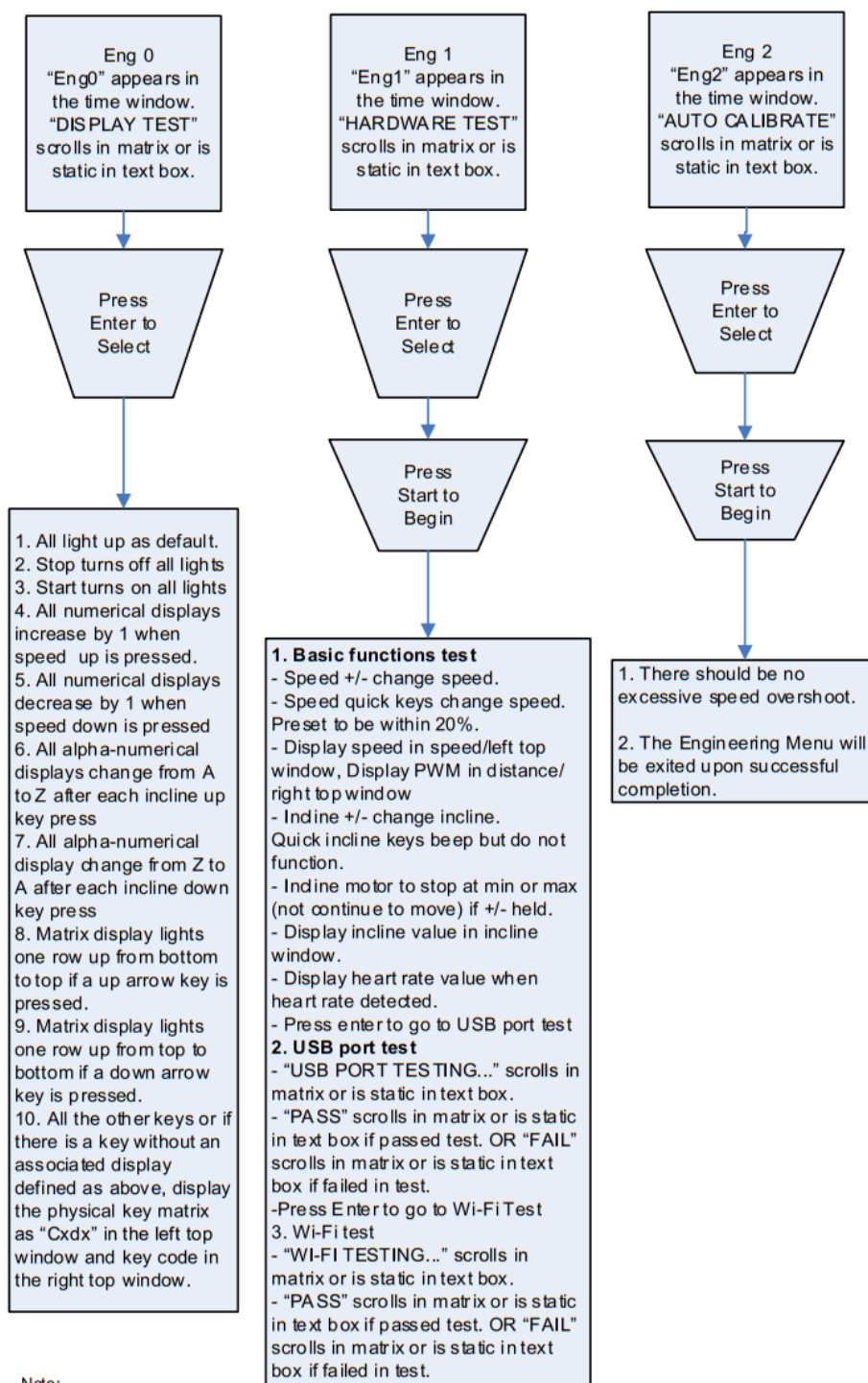
Engineering Mode

Engineering Menu Overview

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

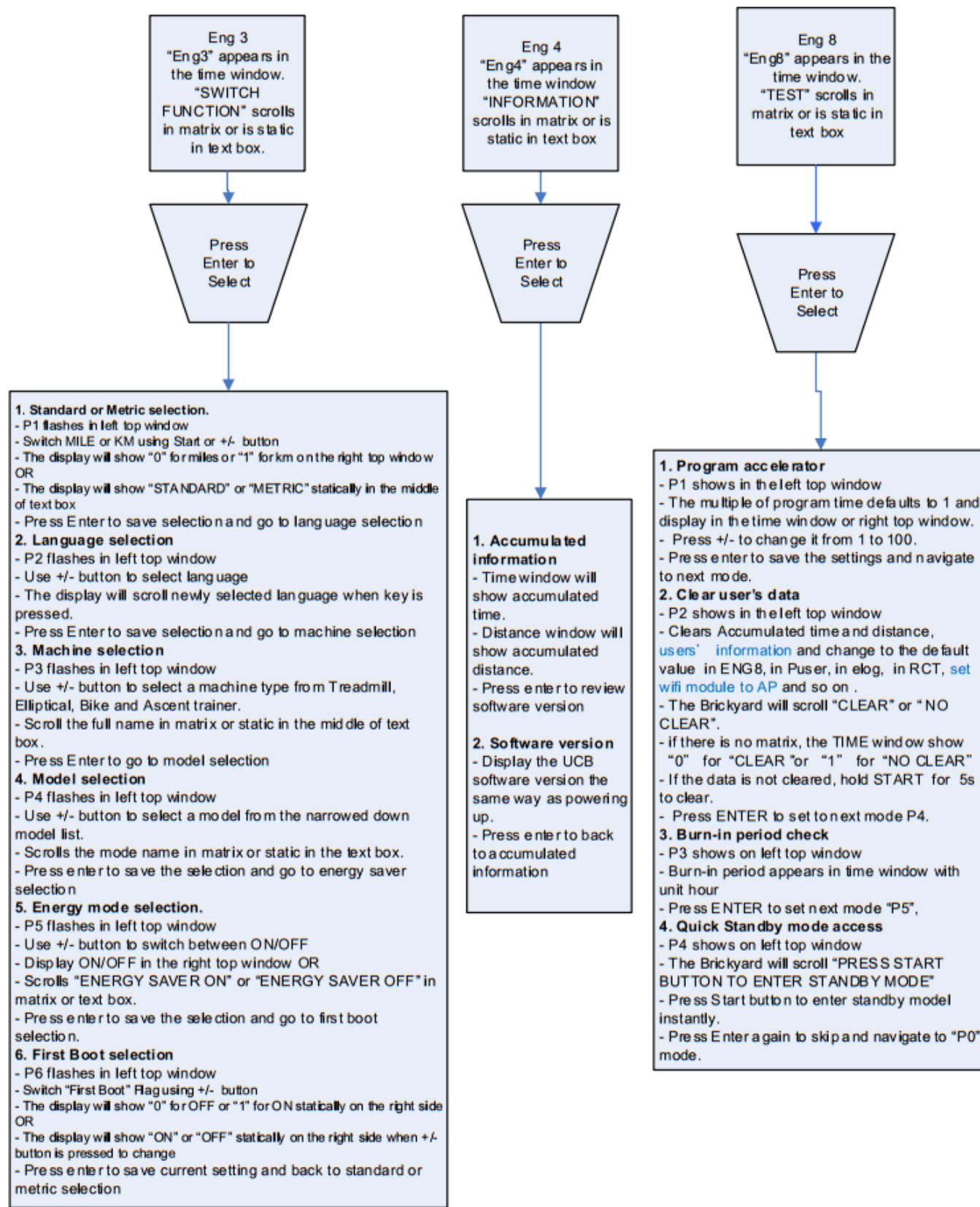
ENG No	Function	Sub Function		Operation
0	Display test	0	Ready	Press incline 15 and speed 12 at the same time for 3 seconds
		1	All key light up	Press "push to select"
		2	All key light off	Press "stop"
		Escape	Escape present function	Press "stop" 3 seconds
1	Hardware test	0	Ready	Clockwise rotate "push to select" to enter ENG1
		2	MAC address	Press "push to select" to enter
		3	BT device	Press "push to select" to enter
		Escape	Escape 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
3	Switch function	0	Ready	Clockwise rotate "push to select" to enter ENG3
		1	Energy save on	Press "push to select" to enter
		2	Boot off (reset all Parameter)	Press "push to select" to enter
		3	Unit change mile/Km (press "stop" 3 seconds to save)	Press "push to select" to enter
		Escape	Escape present function	Press "stop" 3 seconds
4	Information	0	Ready	Clockwise rotate "push to select" to enter ENG4
		1	Accumulated information (distance and time)	Press "push to select" to enter
		2	UCB version	Press "push to select" to enter
		3	MCB version	Press "push to select" to enter
		Escape	Escape present function	Press "stop" 3 seconds

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 conflict 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 indicator 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.
8. The console will automatically connect to SSID: "JIS FQC TEST" with password "quality".



Troubleshooting

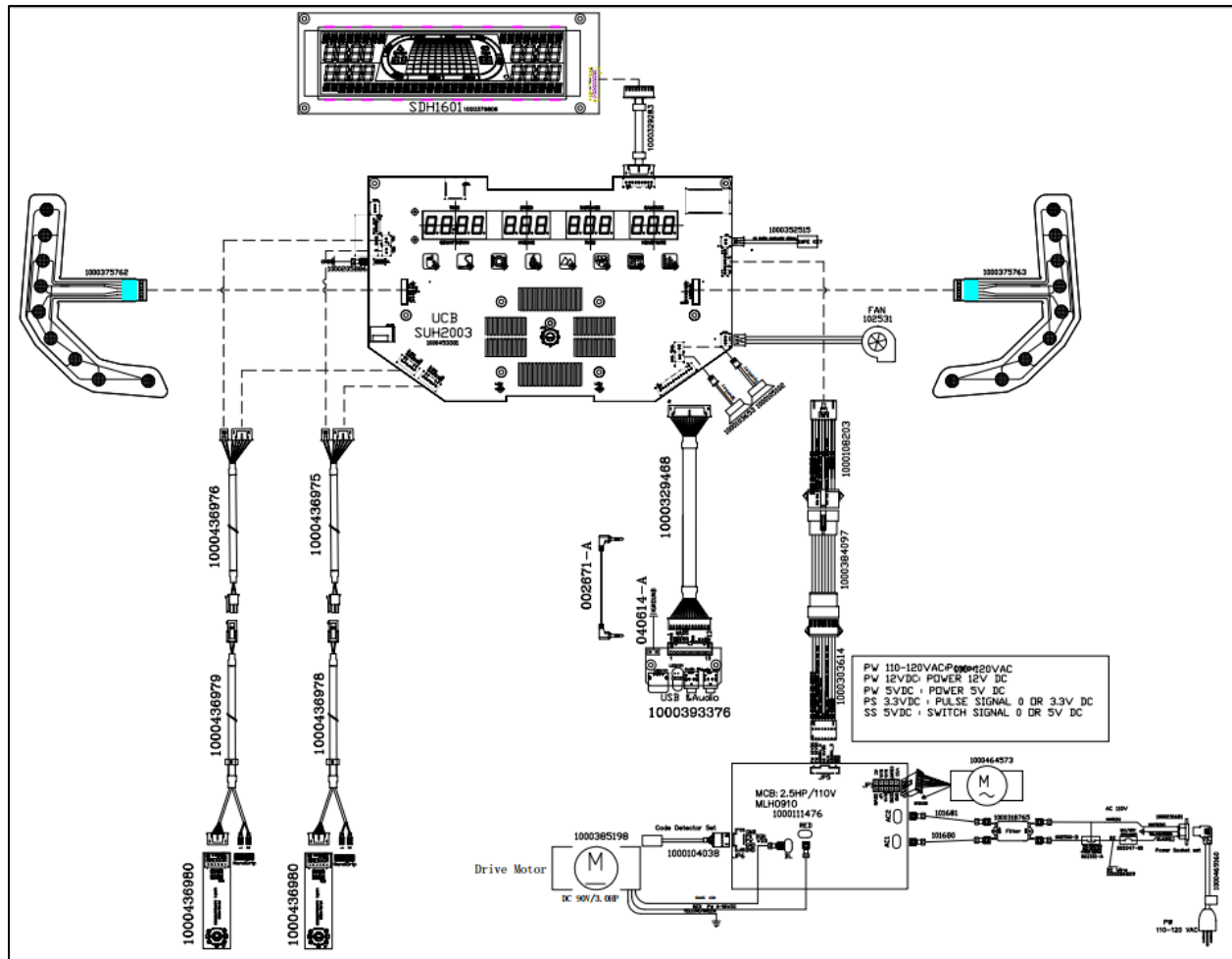
Additional resources are available on the Johnson Customer Service Portal ("CS Web": http://service.johnsonfitness.com/cs_new/login.asp) are noted through this guide (CS Web > *index tab*).

General Troubleshooting

- **UPDATE TO THE LATEST SOFTWARE VERSION, if possible.**
- Cycling power is recommended as the first attempt to fix most failures, and after major repairs are implemented.
- Before replacing any major part, inspect the cables to/from it. Disconnect and inspect the connectors on both ends, as well as the terminals on the boards. If capable, use a multimeter to perform continuity tests to verify that all of the conductors are intact. If no damage/corrosion is noted, carefully reconnect the cables, ensuring proper seating and connection. Request replacement cables if at all suspicious.
- After each corrective action is taken, re-evaluate if the failure has been resolved. Some indications have a straightforward order of attempts, and not all steps are always necessary if a lower-level fix resolves the issue.

Electrical Diagram

7.0AT-03 (TM1002C-1US) WIRE CONNECTION SCHEMATIC V1.0



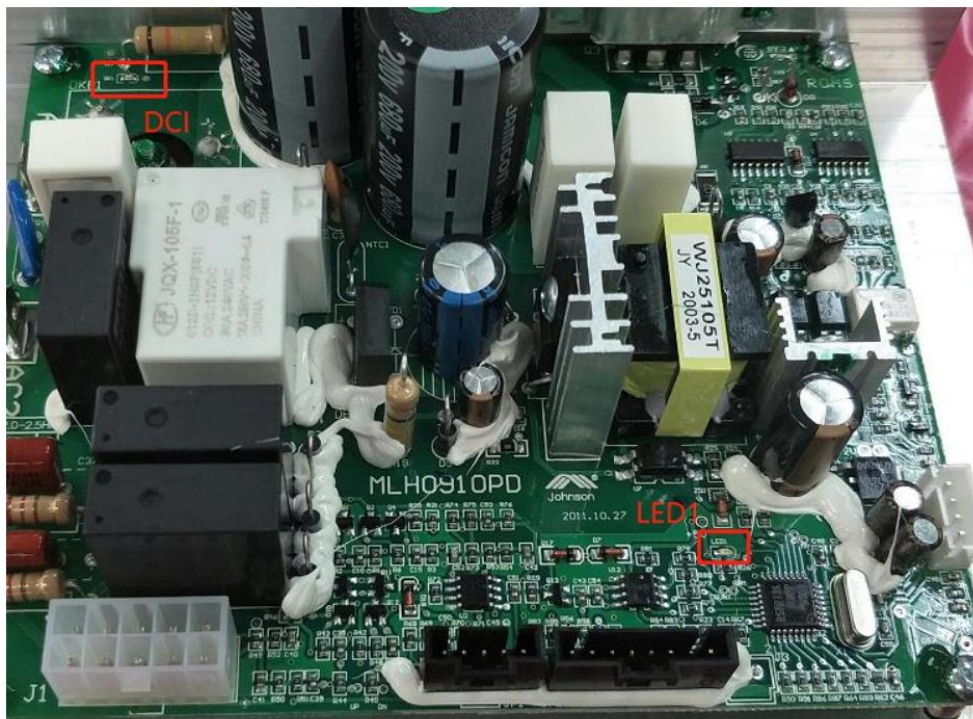
Updated on 2022/05/20.

MCB Wiring Instructions



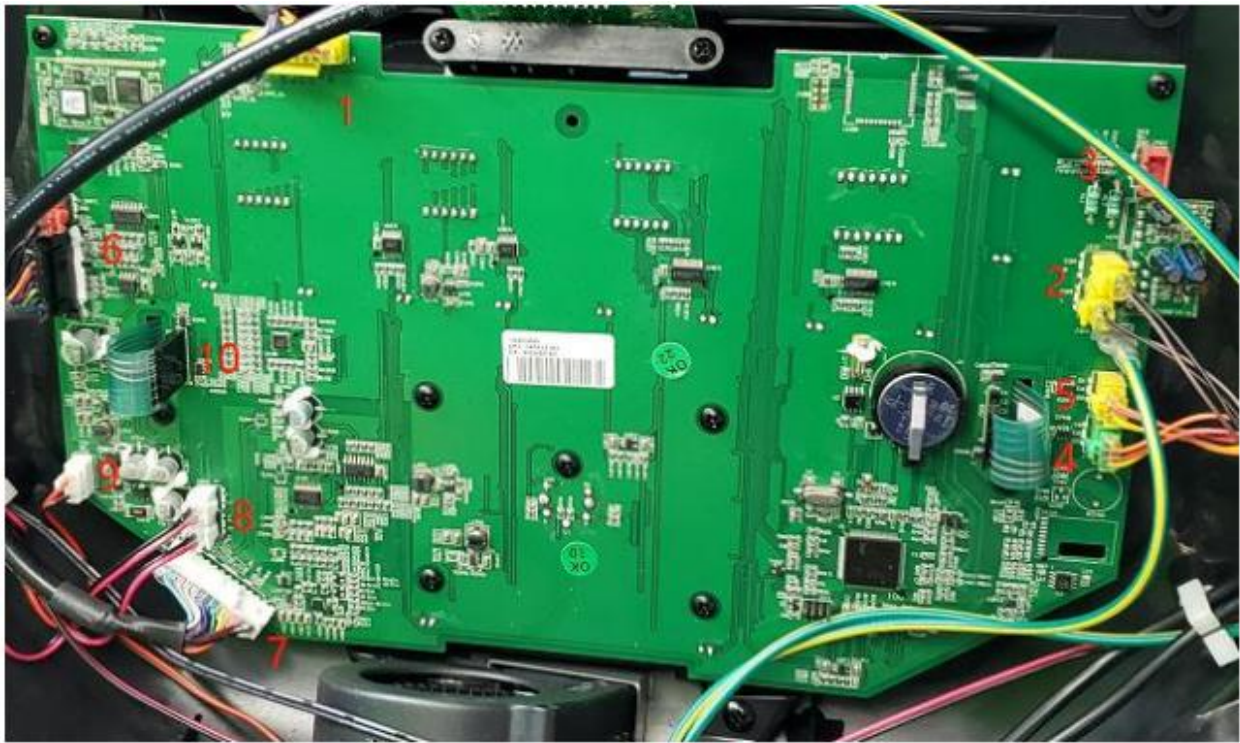
CN1	Power Line
CN2	Incline motor power cable
CN3	Speed sensor cable
CN4	Console set cable
CN5	Software burning cable
CN6	Drive motor cable

MCB LED Configuration



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 and Resistance)



TROUBLESHOOTING SUMMARY

Code	Description	Symptom
1	NO POWER TO THE CONSOLE	Turn on the power switch, but the console will no light up
2	NO FUNCTION FOR SAFETY KEY	The safety key inserted in console, but display window still shows "safety key off"
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
4	INCLINE MOTOR ISSUES	The incline motor does not lift up or down
5	NOISE ISSUES	The machine has abnormal noise when the treadmill is on.
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. Device not charging 5. Speakers buzzing 6. Sound from one speaker only 7. Shock from headphones
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
8	BLUETOOTH ISSUE	1.Bluetooth light cannot turn on 2.Bluetooth can not connect to external device

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.



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), AC voltage 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.

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.

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.

Incline Motor Issue

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 "push to select" key first and then the "START" key.
- C. Roll forward/backward to increase/decrease incline the "Incline scroll wheel".
- 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.

Noise Issues

SOLUTION:

- A. Humping noise twice per rotation on new machine.

Solution: 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.

Solution: 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.

Solution: 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.

Solution: 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.

Solution: This sound is likely due to the air shock.

- Lubricate or replace the air shock as needed.

F. Squeaking / grinding noise when using elevation.

Solution: 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.

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.

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.

Bluetooth Pairing Issue

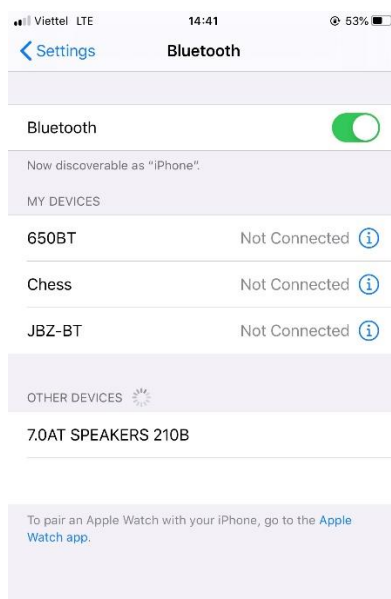
SOLUTION:

A. Press Bluetooth button see if blue light on.

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

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 "7.0AT SPEAKERS XXXX", The Bluetooth may be damaged. Replace console circuit board.



Part Replacement

ESD (electrostatic discharge) damage can occur to console electronics when static buildup on people or work surfaces discharges through circuit boards or wires. For this reason, we recommend wearing a properly grounded ESD wrist strap (Figure 1) and working upon properly grounded ESD mats (Figure 2) whenever you are working on or near a circuit board. Please see the link below for an example of suitable ESD equipment for these tasks.

https://www.amazon.com/iFixit-145202-4-Portable-Anti-Static-Mat/dp/B01BLPBOS4/ref=sr_1_8?dchild=1&keywords=ESD+Mat&qid=1600353374&sr=8-8

If no ESD protection is available, refrain from touching the circuit boards as much as possible when checking connections.

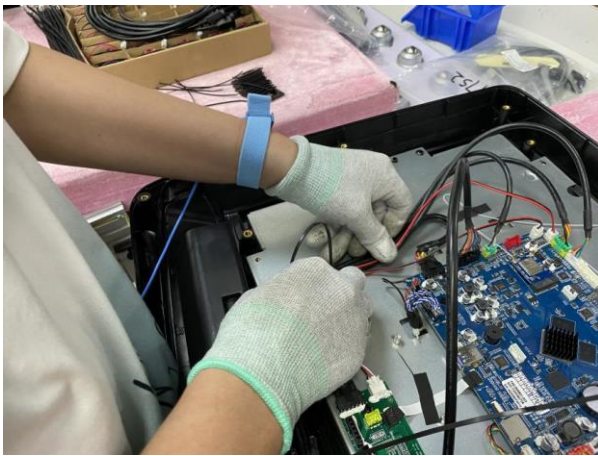


Figure 1

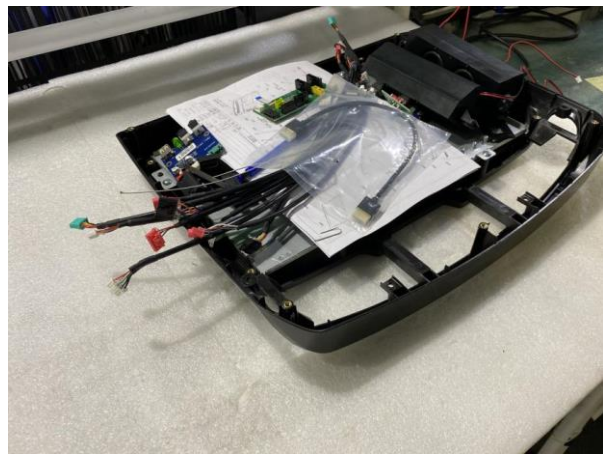


Figure 2

Motor Cover Replacement

1. Turn off and unplug the unit.
2. Remove the screws holding the motor cover (on 2 sides) to the frame.



3. The cover is secured to the frame with Velcro straps, so you will have to pull up with some force.



4. Remove the motor over out of the area and replace with the new one.
5. Reverse Steps 1-3 to install a new motor cover.

Rear Roller Replacement

1. Remove the rear end cap screw.
2. Remove both roller adjustment screws.
3. Remove the roller.



4. Reverse Steps 1-3 to install a new 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.

Side Rail Replacement

1. Remove the rear end cap (see above section).



2. Slide the rail off the treadmill.



3. Reverse Steps 1-3 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 top of the side rail.

Running Deck Replacement

1. Remove the motor cover as outlined as in Section of Motor cover replacement.
2. Remove the end cap as in Section above.
3. Remove rear roller as in Section above.
4. Remove the side rail as outlined as in Section of side rail replacement.
5. Remove the bolts and rail locks on the running deck. The elastomers may come lose.

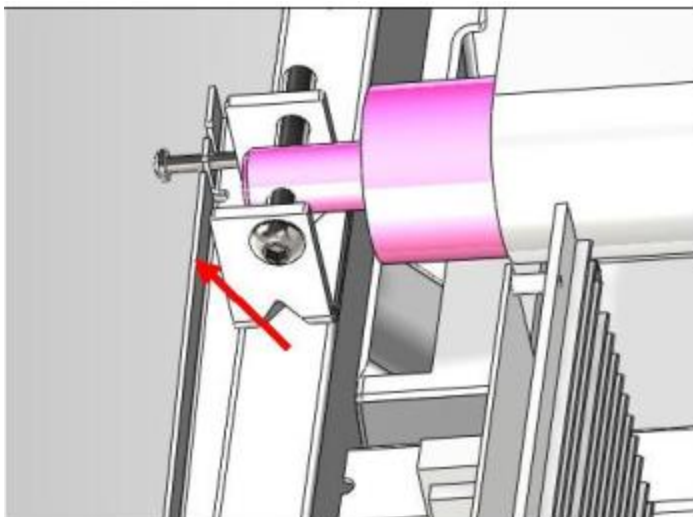


6. Remove the running deck from the running belt.
7. Reverse Steps 1-6 to install a new running deck.
8. Use the silicone oil that was included with the machine to lubricate the belt and desk. If needed, contact Customer Technical Support to purchase a new bottle of silicone oil.

NOTE: New deck surfaces must ALWAYS be matched to a new running belt.

Front Roller Replacement

1. Remove the motor cover as outlined in Section above.
2. Loosen both of the rear roller screws to remove tension from the running belt.



3. Remove the front roller screw.
4. Remove the drive belt from the front roller and remove the roller from the running belt.
5. Replace new Front roller and motor drive belt, and check belt alignment with alignment Jig, the specification is $<1.5\text{mm}$.



6. Check belt tension with equipment.



Belt tension: 275~330Hz

Running Belt Replacement

1. Remove the motor cover as outlined in Section above.
2. Remove the rear roller as outlined in Section above.
3. Remove the running deck as outlined in Section above.
4. Remove the front roller as outlined in Section above.
5. Remove the running belt.



6. Reverse Steps 1-5 to install a new running belt.
7. Use the silicone oil that was included with the machine to lubricate the belt and deck. If needed, contact Customer Technical Support to purchase a new bottle of silicone oil.

Note1:

1. Adjust running belt tension after replacement (Note2)
2. The running deck uses silicone 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, 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 bolts 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

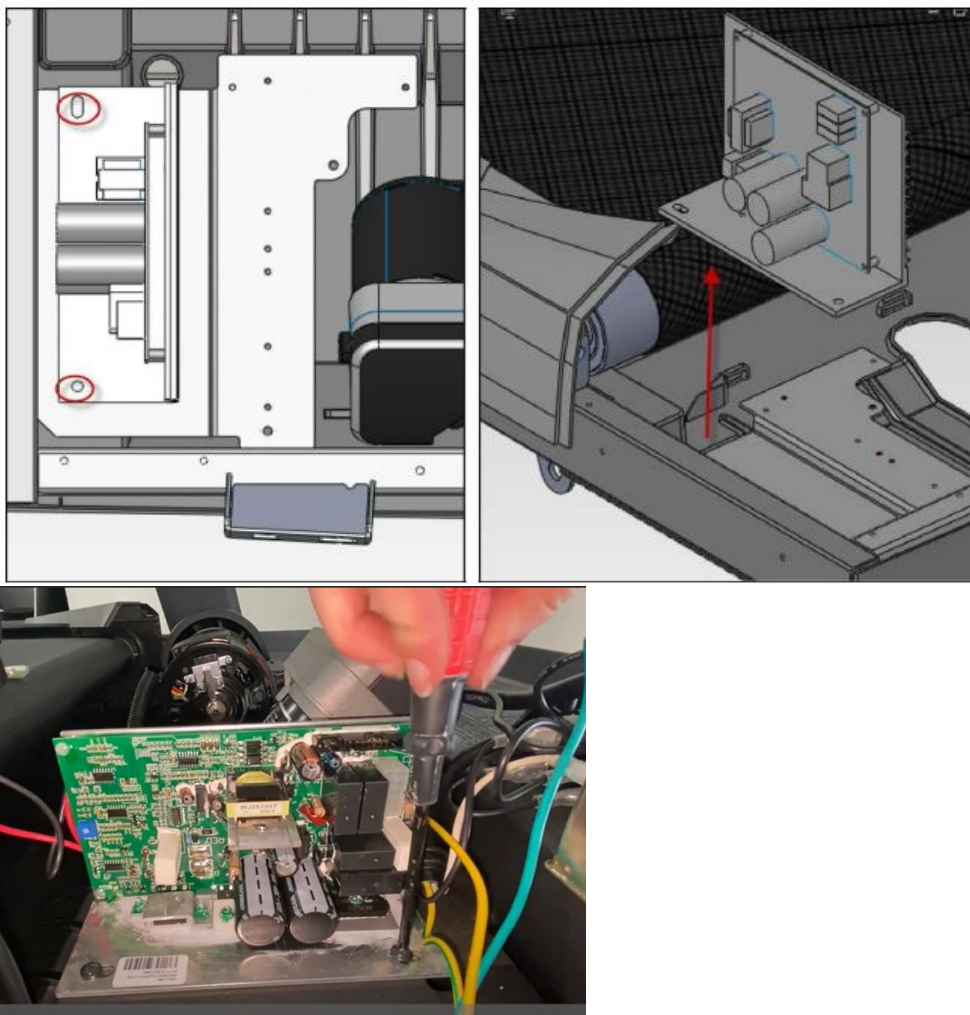
full turn on each side. Manually center the belt by pushing the belt from side to side. Tighten the bolts the same amount as when the user loosened them, approximately one full turn. Inspect the belt for damage.

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 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.

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 above.
3. Disconnect all wires from the MCB.
4. Remove the 2 screws holding each side of the MCB to the frame and remove the faulty MCB.



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

Motor Replacement

1. Turn off power to the treadmill and disconnect the power cord.
2. Remove the motor cover as outlined in Section above.
3. Walk the drive belt off the motor pulley.
4. Disconnect the motor cable ground wire from the grounding post.
5. Disconnect the motor cable from the MCB.
6. Remove the 2 screws holding the motor to the frame (Figure A).

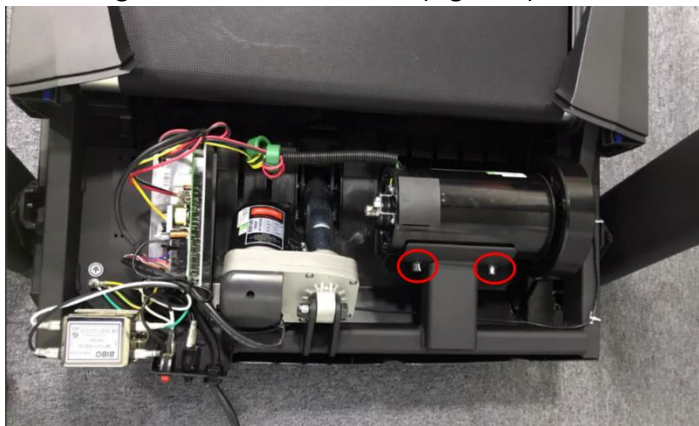
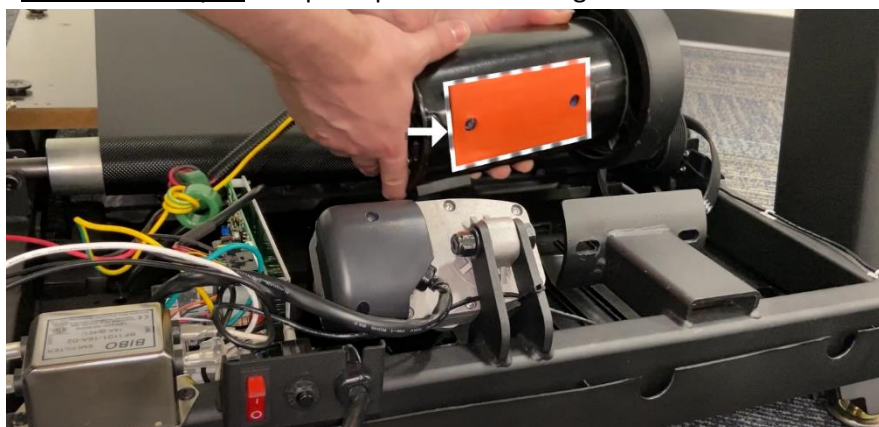


Figure A

7. Remove the motor from the treadmill
8. Reverse Steps 1-7 to install a new motor.

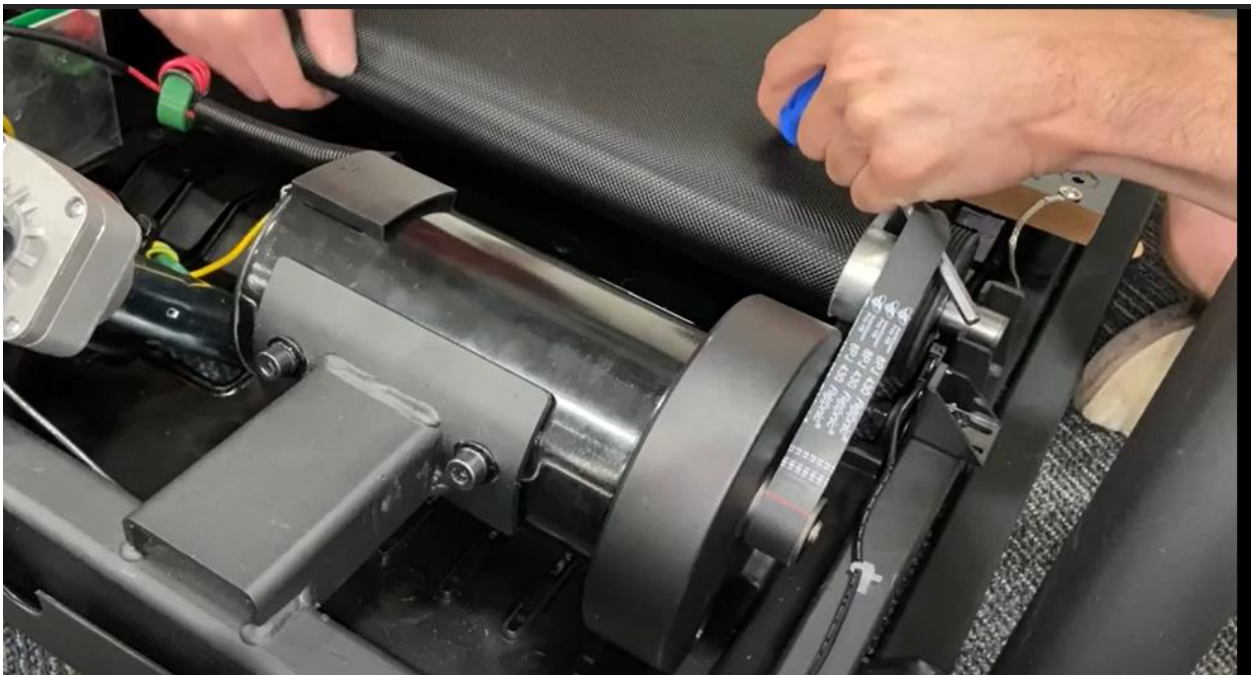
NOTE:

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



Drive Belt Replacement

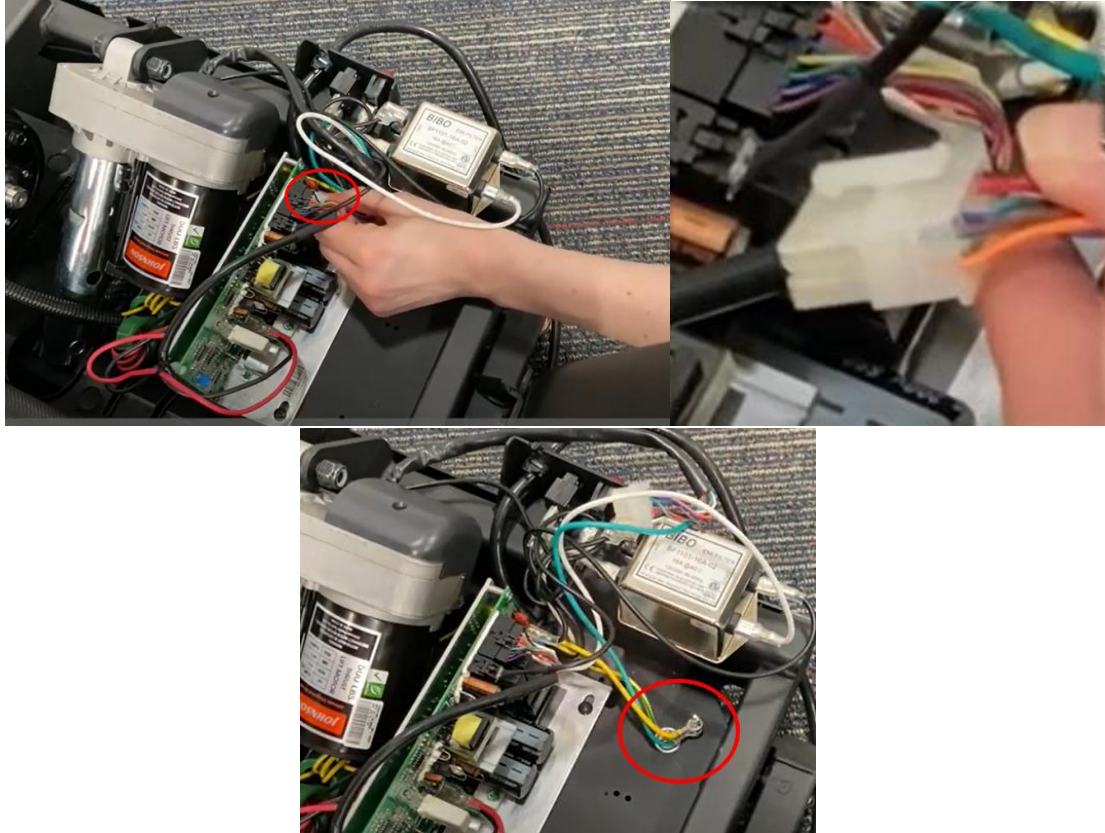
1. Turn off power to the treadmill and disconnect the power cord.
2. Remove the motor cover as outlined in Section above.
3. Walk the drive belt off the motor pulley.
4. Loosen the rear roller screws to relieve tension on the running belt.
5. Remove the two 8 mm screws from front roller.
6. Lift the roller and remove the old drive belt.



7. Reverse Steps 1-7 to install a new drive belt.

Incline Motor Replacement

1. Turn off power to the treadmill and disconnect the power cord.
2. Remove the motor cover as outlined in Section above.
3. Disconnect the incline motor cable from the MCB and the top 2 ground wires from the grounding post.



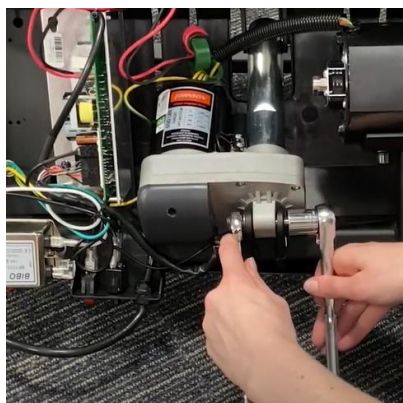
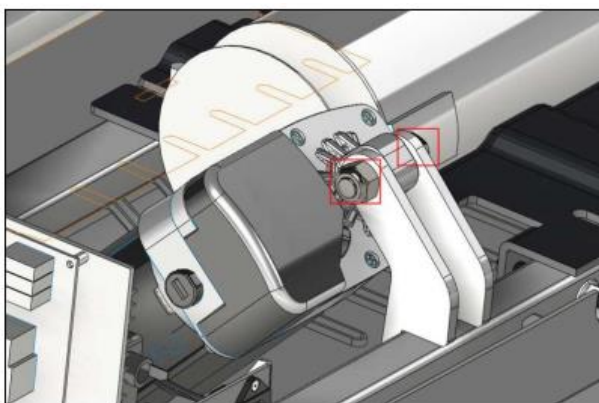
4. Place the treadmill in the folded position. Never work under the treadmill without someone present to fully secure the deck.



5. Remove the screws from the elevation rack.



6. Disconnect the incline motor from the top mounting bracket.



7. Remove the faulty incline motor and reverse Steps 1-6 to install a new incline motor.

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.

Console Overlay Set Replacement

1. Unplug the unit from the wall.



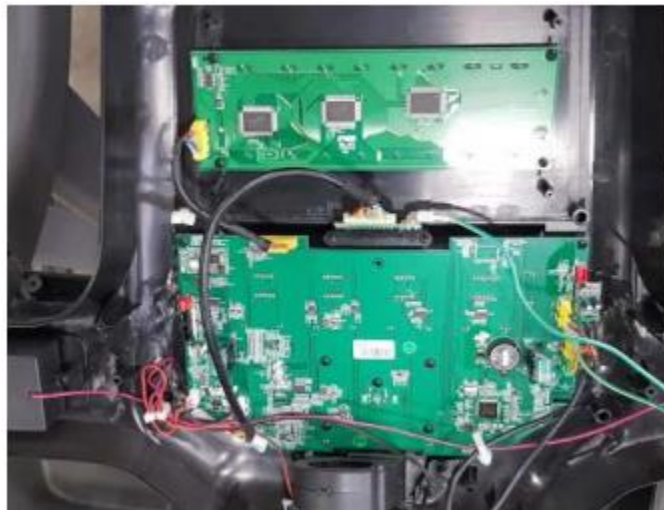
2. Remove the screws (circled in yellow) from the back of the console that hold the front window in place. Make sure to keep the screws.



3. Open the front of the console.



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.



7. Plug the unit into the wall and check for proper function.
 - a. Check the Go button
 - b. Check elevation up and down
 - c. Verify speed up and down
 - d. Make sure heart rate works
 - e. Check the Stop button
 - f. Remove the safety key – the display should show that the safety key is removed
8. If the unit is functioning properly, reinstall the four screws in the back of the console to secure the front window.

Console Circuit Board Replacement

1. Confirm wearing good contact ESD wrist strap.
2. Remove console set as outlined in above section.
3. Replace the new circuit board.
4. Reverse Steps 2-3.





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.

Heart Rate Grip And Keypad Replacement

1. Remove all of 4 pcs bolts and connection wire. (Fig-1)
2. Remove heart rate grip bars. (Fig-2)



Fig-1



Fig-2

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



Fig-3

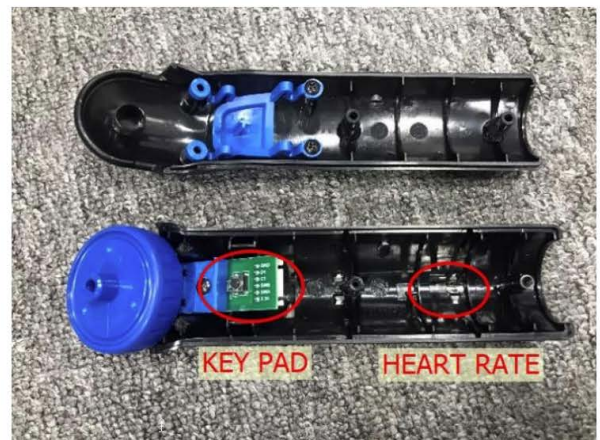


Fig-4

4. Remove keypad or heart rate connection wire. (Fig-4)
5. Replace keypad and overlay or heart rate plate. (Fig-4)
6. Reverse Steps 1-4 to install a new keypad or heart rate board.
7. Turn on power and check keypad and heart rate function.

CHANGE LOG

Change Log

Version	Date	Details	By
1	2022-June-07	Original Version	Claire Nguyen