CT900

Service Manual

DYACO

Dyaco International Inc.

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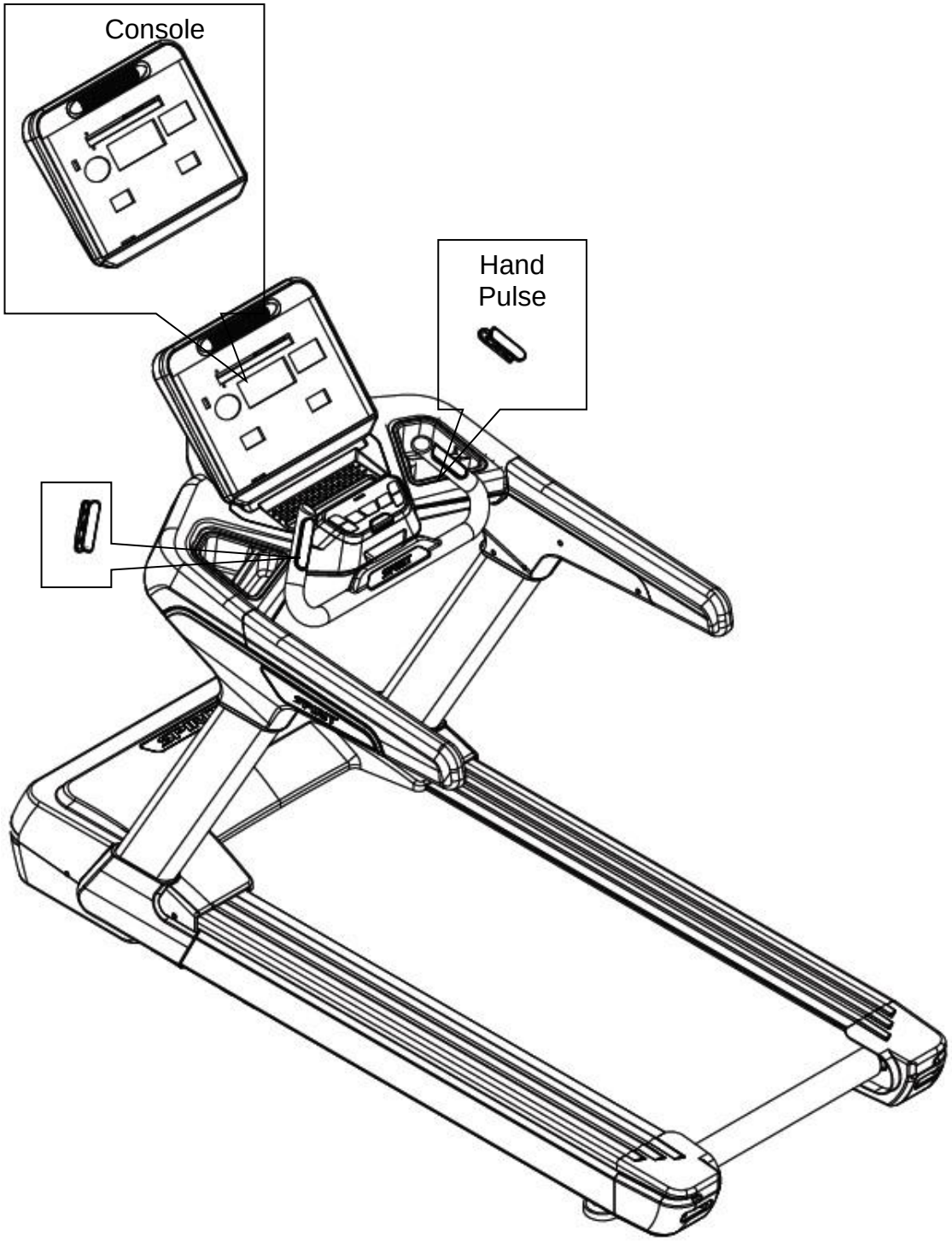
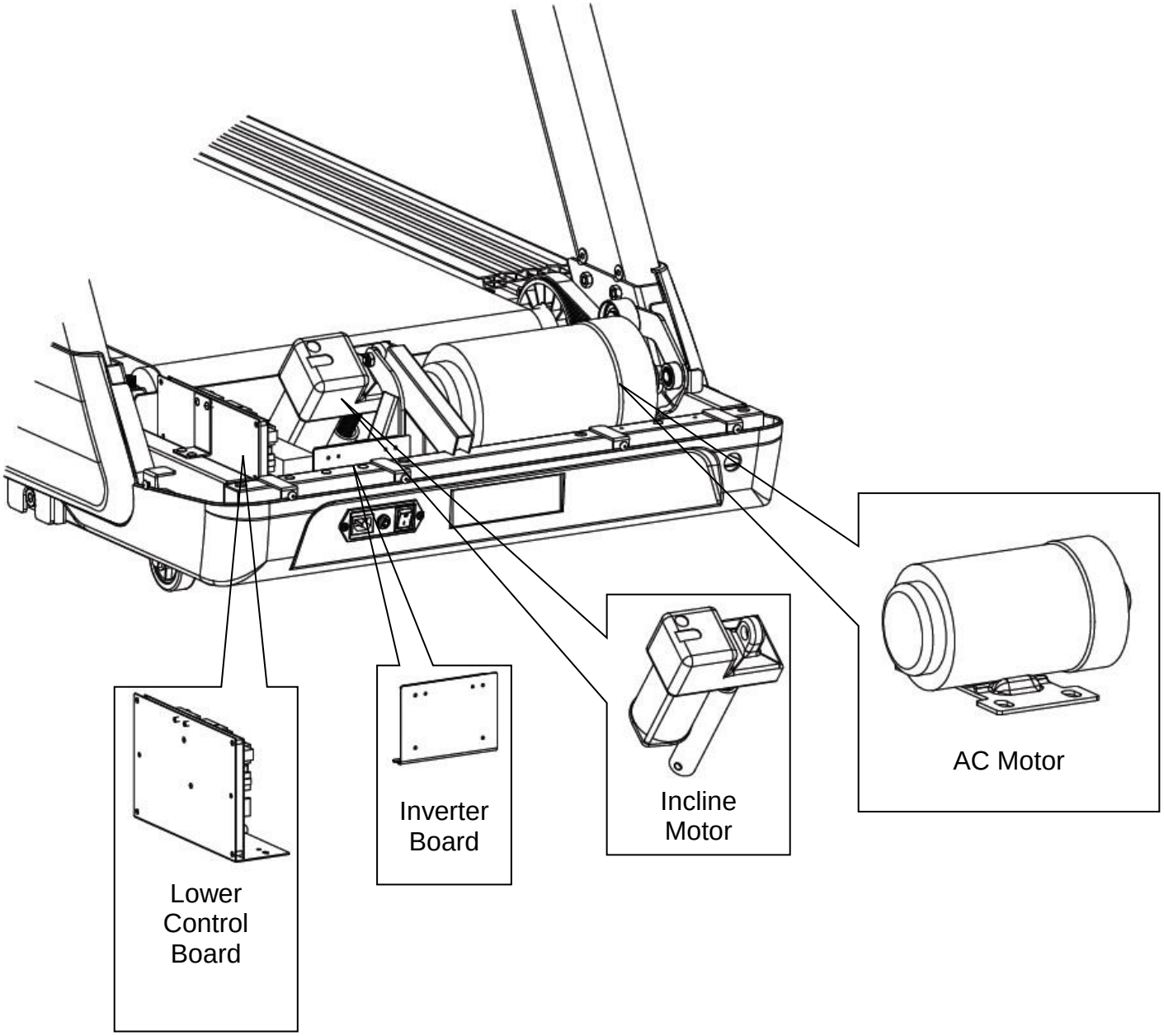
1. CT900 Outlines


Console
Hand
Pulse


Lower
Control
Board
Inverter
Board
Incline
Motor
AC Motor

2. Electronic Parts

Upper Controllers

Lower Controller and Driver

3.Electrical Configurations

SAFETY KEY:

To fits on the Console that activate all functions. If no safety key, console can not be controlled.

CONSOLE:

Interface that controls all functions of the Treadmill.

MAIN CONTROLLER:

The circuit board consist of the AC power supply for console、incline driver and AC motor driver, link the console to output appropriate voltages for DC control Board that control the Treadmill functions.

AC MOTOR:

It can change to increase or decrease speed change.

INCLINE MOTOR:

This is an ac motor. User can to control variable elevation by console within main controller.

GENERAL INFORMATION

CONSOLE

Contains Key controls and LED Display.

MAIN CONTROLLER

Include power supply、AC motor、incline motor、AC control Board control circuit and incline control circuit.

AC MOTOR

Control speed increases and decreases.

INCLINE MOTOR

This is a 220 volt AC motor.

Have four wires, red, black, white and green.

Has one 3 pins cable of position sensor.

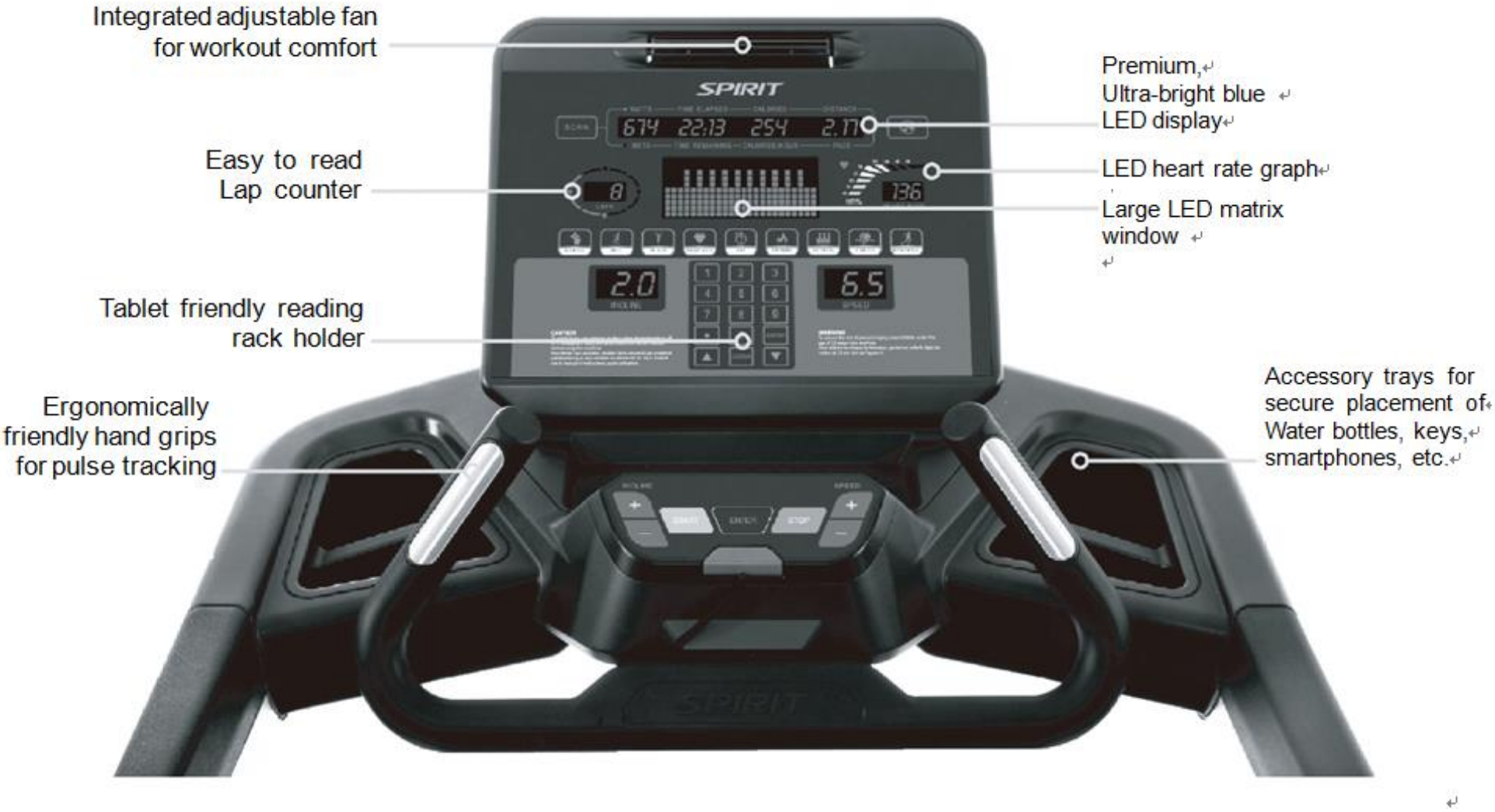
If there is AC voltage on the Red wire (UP) the incline motor will increase the incline.

If there is AC voltage on the Black wire (DOWN) the incline motor will decrease the incline.

The White wire (COM) is neutral.
The green wire is ground.

4. CT900 Product Operation

Display Windows



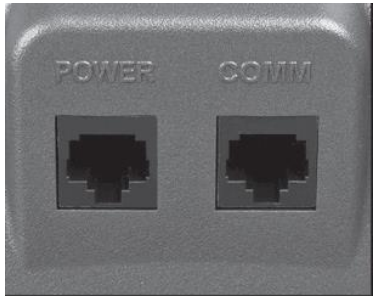
Operation

POWER

Power the treadmill on by plugging it into an appropriate wall outlet, then turn on the power switch located at the front of the treadmill below the motor hood. Ensure that the safety key is installed, as the treadmill will not power on without it.
When the power switch is turned on the treadmill console will take around 10 seconds to power on. The console will then enter idle mode, which is the starting point for operation.

C-SAFE FEATURE

Your console is equipped with a C-SAFE feature. The Power (POWER) port can be used for powering a remote controlled audio-visual system by connecting a cable from the remote to the Power port at the back of the console. The Communication port (COMM) can be used to interact with fitness software applications.



QUICK START

Press any key to wake display up if not already on.

- Press any key to wake display up if not already on.
- Press the Start key to begin belt movement at 0.5 mph / 0.8 kph then adjust to the desired speed using the Speed +/– keys, or by typing the desired speed on the numeric keypad. Once setting desired is selected press Enter.
- To stop the tread belt press and release Stop key.

PAUSE/STOP/RESET

When the treadmill is running the pause feature may be utilized by pressing the red Stop key once. This will slowly decelerate the treadbelt to a stop. The incline will go to zero percent. The Time, Distance and Calorie readings will hold while the unit is in the pause mode. After 5 minutes the display will reset and return to the start-up screen.

- To resume your exercise when in Pause mode, press the Start key. The speed and incline will return to their previous settings.
- Pressing the Stop key twice will end the program and a workout summary will be displayed. If the Stop button is pressed a third time, the console will return to the idle mode (start-up screen).
- If the Stop button is held down for more than three seconds the console will reset.
- When you are setting data, such as age and time, for a program pressing the Stop key will allow you to go back one step for each key press.

INCLINE

Incline may be adjusted any time after the belt starts moving.

- Press and hold the adjustment Incline +/– keys to achieve desired level of incline.
- The display will indicate incline numbers as percent of grade (the same as grade of a road) as adjustments are made.

DOT MATRIX CENTER DISPLAY

Ten rows of dots indicate each level of a workout in manual mode. The dots are only to show an approximate level (speed/incline) of effort. They do not necessarily indicate a specific value, only an approximate percent to compare levels of intensity. In Manual Operation the Speed / Incline dot matrix window will build a profile “picture” as values are changed during a workout. There are twenty-four columns, indicating time. The 24 columns are divided into 1/24th of the total time of the program. When the time is counting up from zero (as in quick start) each column represents 1 minute.

0.4 KM (1/4 MILE) TRACK

The 1/4-mile track (0.4 km) and lap counter are located to the left of the dot matrix window. The flashing dot indicates your progress. In the center of the track there is a lap counter for reference.

HEART RATE FEATURE

The Pulse (Heart Rate) window will display your current heart rate in beats per minute during the workout.
You must use both left and right stainless steel sensors to pick up your pulse. Pulse values are displayed any time the computer is receiving a Grip Pulse signal. You may use the Grip Pulse feature while in Heart Rate Control. The CT900 will also pick up wireless heart rate transmitters that are Polar compatible, including coded transmissions.

HEART RATE BAR GRAPH

Displays a graphical representation of your heart rate as a percentage of your estimated maximum heart rate. When you enter your age during programming, the console will calculate your maximum heart rate then light up the graph to show the percent of estimated maximum heart rate you are currently achieving.

MESSAGE WINDOW DISPLAY

Displays messages that help guide you through the programming process. During a program the message window displays your workout data.

PROGRAMMABLE FEATURES

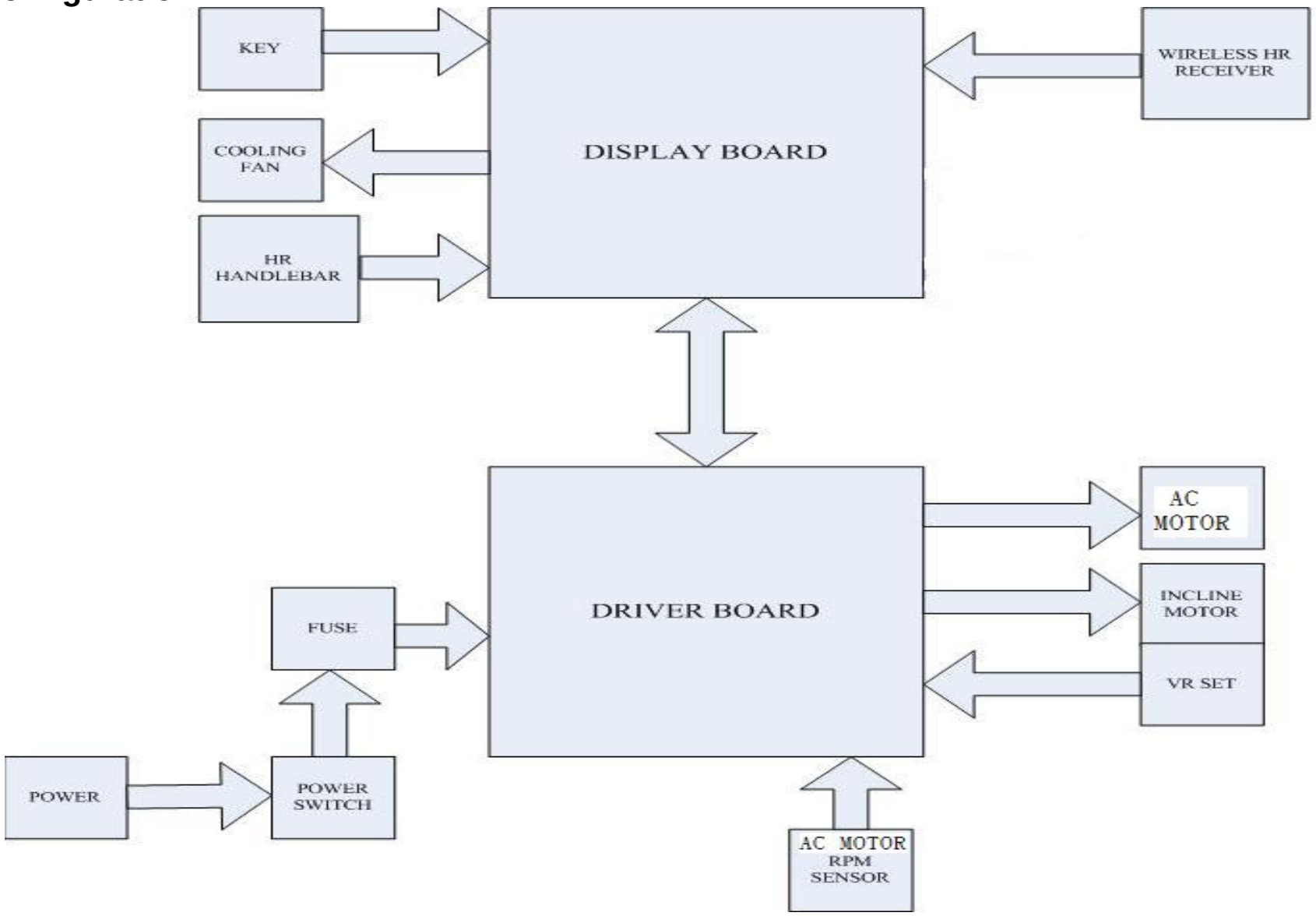
The Spirit Fitness CT900 offers a variety of exercise program options to choose from: Manual, Four Preset Programs (Hill, Fat Burn, Cardio, Interval), 5K Run, Heart Rate Control, High Intensity Interval Training (HIIT), and Nine Fitness Testing Protocols: Gerkin, WFI, Army (pft), Navy (prt), Air Force (prt), Marines (pft), Law Enforcement (peb), U.S. Coast Guard and U.K. Chester Fireman (Performance & Prediction protocols).

To Select and Start a Preset Program

1. Select a preset program key then press Enter to begin customizing the program with your personal data, or just press the Start key to begin the program with the default settings.
2. After selecting a program and pressing enter to set your personal data, the Message window will prompt you through the settings starting with time. The default value of 20 minutes will be displayed and you may press Enter to accept or change it using the keypad or Up / Down keys and just press enter to move to the next step
3. The Message Window will now be blinking a value indicating your Age. Entering the correct age will affect the Heart Rate Bar Graph accuracy and also needed for the HR programs. Use the keypad or Up / Down keys to adjust, and then press enter.
4. The Message Window will now be blinking a value indicating your Bodyweight. Entering your correct bodyweight affects the Calorie readout accuracy. Use the keypad or Up / Down keys to adjust, and then press Enter.
5. The Message Window will now be blinking, showing the preset top speed of the selected program.Use the keypad or Up / Down keys to adjust and then press Enter. Each program has various speed changes throughout; this allows you to limit the highest speed the program will attain during your workout.
6. Now press the Start key to begin your workout, or the Stop button to return to the previous screen.
7. There will be a 3-minute warm-up to begin. You can press the Start button to bypass this and go straight to the workout. During the warm-up the clock will count down from three minutes.

5. CT900 Unit Block Diagrams

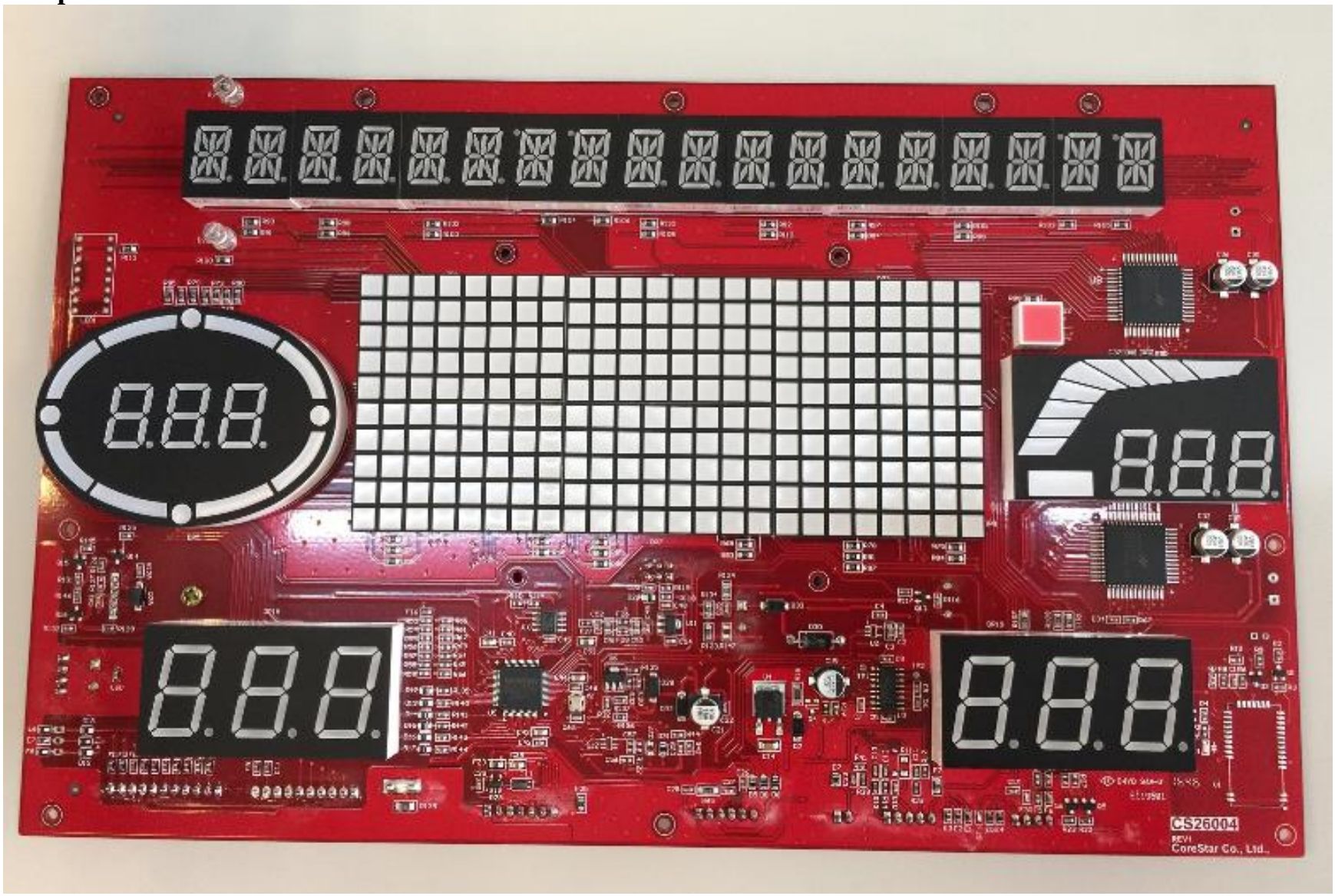
Treadmill Configuration



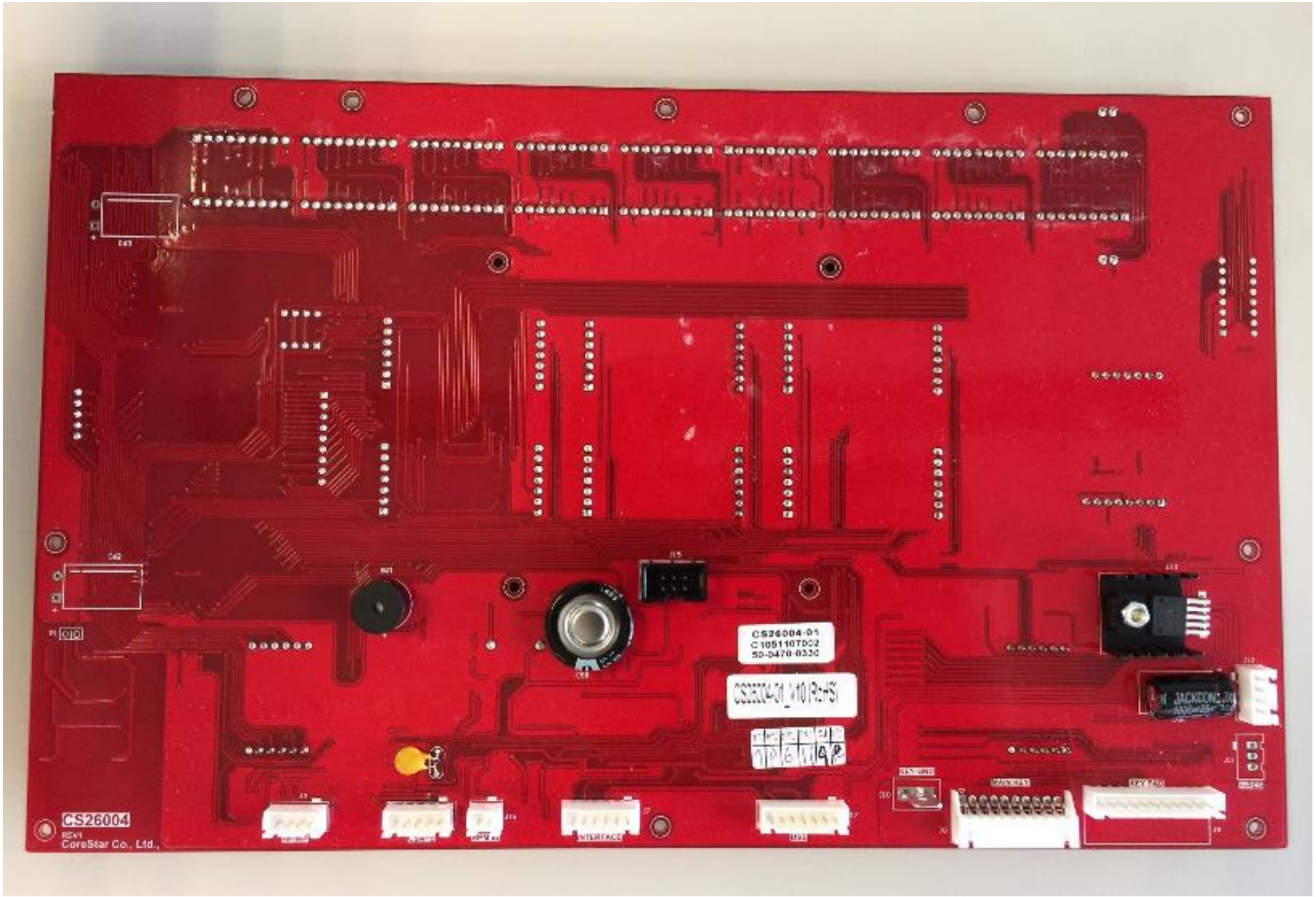
6. CT900 Basic Connections and Wiring

Display Board PCB Component Locations

PCB Board Top



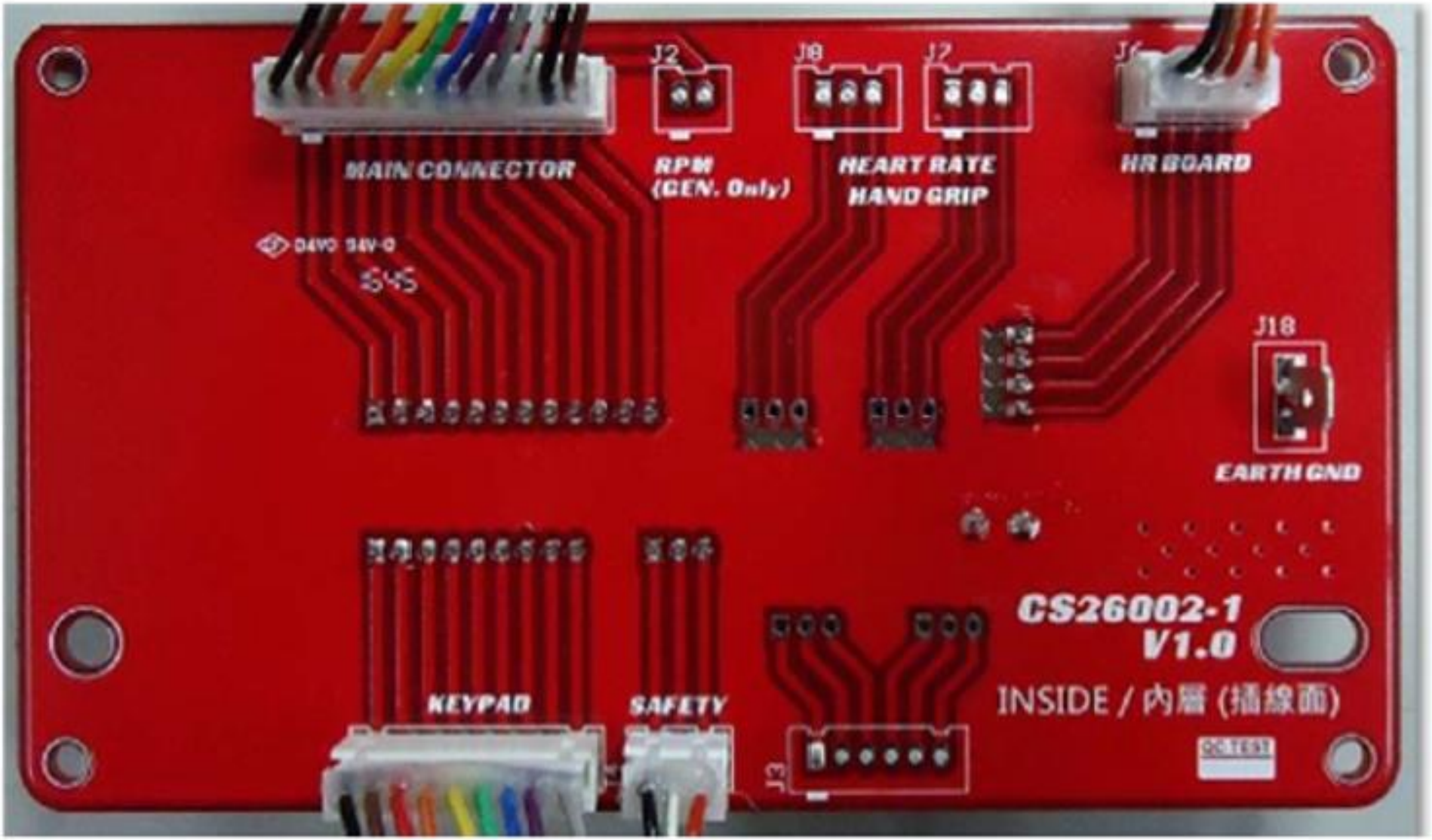
PCB Board Bottom



The console back cover transfer PCB board

Front of the board

The console back cover transfer PCB board



Behind the board.

The console back cover transfer PCB board pin define

J1 · J9→MAIN CONNECTOR :

P-No	1	2	3	4	5	6
Discription	GND	+12V	SG+	GND	+12V	SG-
P-No	7	8	9	10	11	12
Discription	ERP PWR	SAFE KEY	ERP EN	INC_EN	INC_UP/DN	POSITION

J5 · J15→KEYPAD :

P-No	1	2	3	4	5	6
Discription	DATA0	DATA1	DATA2	DATA3	DATA4	DATA5
P-No	7	8	9			
Discription	DATA6	GND	GND			

J4 · J14→SAFETY :

P-No	1	2	3	
Discription	VIN	NC	SAFETY _IN	

J6 · J16→HR BOARD :

P-No	1	2	3	4	
Discription	GND	+5V	HP_MO N	HP/WP	

DRIVER BOARD PCB Component Locations

VFD015TM12A

7. Product Safety Instructions

Important Safety Instructions

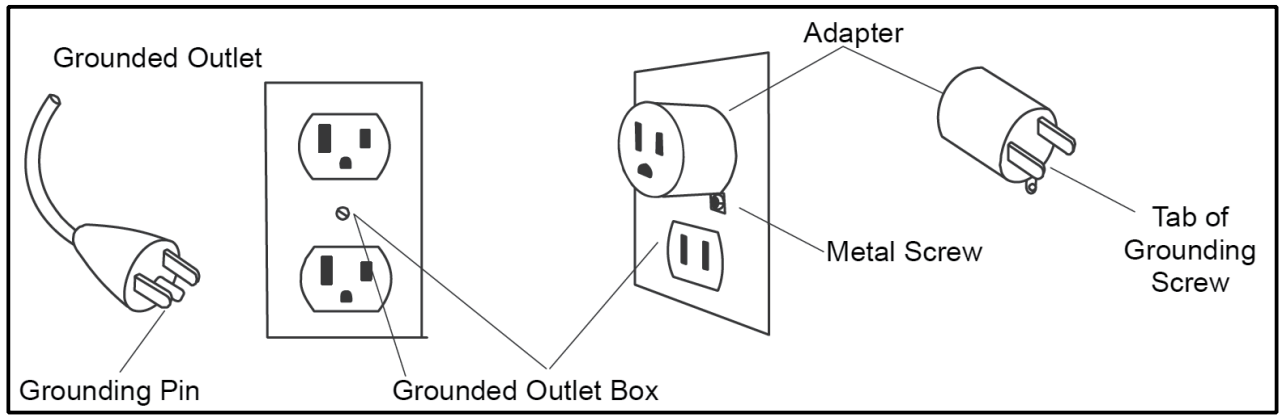
- To reduce the risk of electric shock disconnect your treadmill from the electrical outlet prior to cleaning and/or service work.
- To reduce the risk of burns, fire, electric shock, or injury to persons, install the treadmill on a flat level surface with access to a 220-volt, 10-amp grounded outlet with only the treadmill plugged into the circuit.
- Do not use an extension cord unless it is a 14 AWG or better with only one outlet on the end. Do not attempt to disable the grounded plug by using improper adapters or in any way modify the cord outlet.

Important Electrical Instructions

- Never use a ground fault circuit interrupt (GFCI) wall outlet with this treadmill. As with any appliance with a large motor, the GFCI will trip often. Route the power cord away from any moving part of the treadmill including the elevation mechanism and transport wheels..
- **Circuit Breakers**: Some circuit breakers used in homes are not rated for high inrush currents that can occur when a treadmill is first turned on or even during use. If your treadmill is tripping the house circuit breaker (even though it is the proper current rating) but the circuit breaker on the treadmill itself does not trip, you will need to replace the home breaker with a high inrush type. This is not a warranty defect. This is a condition we as a manufacture have no ability to control. This part is available through most electrical supply stores. Examples:Grainger part # 1D237, or available online at ***www.squared.com*** part # QO120HM.

Important Grounding Instructions

- **This product must be grounded.** If the treadmill should malfunction or breakdown, grounding provides a path of least resistance for electric current, reducing the risk of electric shock. This product is equipped with a cord having an equipment-grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.
- **DANGER - Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product if it will not fit the outlet; have a proper outlet installed by a qualified electrician.** This product is for use on a nominal 120-volt circuit, and has a grounding plug that looks like the plug illustrated below. A temporary adapter that looks like the adapter illustrated below may be used to connect this plug to a 2-pole receptacle as shown below if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet, (shown below) can be installed by a qualified electrician. The green colored rigid earplug, or the like, extending from the adapter, must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adapter is used, it must be held in place by a metal screw.



8. CT900 Error Messages / Troubleshooting

- Error code items：

Error code	Description	Solution
E1 OVER CURRENT	Please follow to AC MOTOR DRIVER inverter VFD-TM Error and Warning codes ' descriptions corresponding table	Please follow to AC MOTOR DRIVER inverter VFD-TM Error and Warning codes ' descriptions corresponding table
E2 OVER VOLTAGE		
E3 IGBT OVER TEMP		
E4 MOTOR OVERLOAD		
E5 THERMAL OVERLOAD		
E6 EXTERNAL FAULT		
E7 EEPROM WR ERR		
E8 DRIVE HW ERR		
E9 HW INTERUPT ERR		
E10 ACCEL OVR CURR		
E11 DECEL OVR CURR		
E12 OVER CURRENT		
E13 GROUND FAULT		
E14 DC LOW VOLT		
E16 EEPROM RD ERR		
E17 EXT BASE BLOCK		
E18 OVER TORQUE		
E19 AUTO ACCEL ERR		
E20 SW PROTECT		
E21 SAFETY KEY		
E22 LOW CURRENT		
E23 OVER SLIP		
E24 OVER SPEED		
E25 STOP OVER VOLT		
E26 ENCODER ERR		
E27 COMM CODE ERR		
E28 DATA ADDRS FLT		

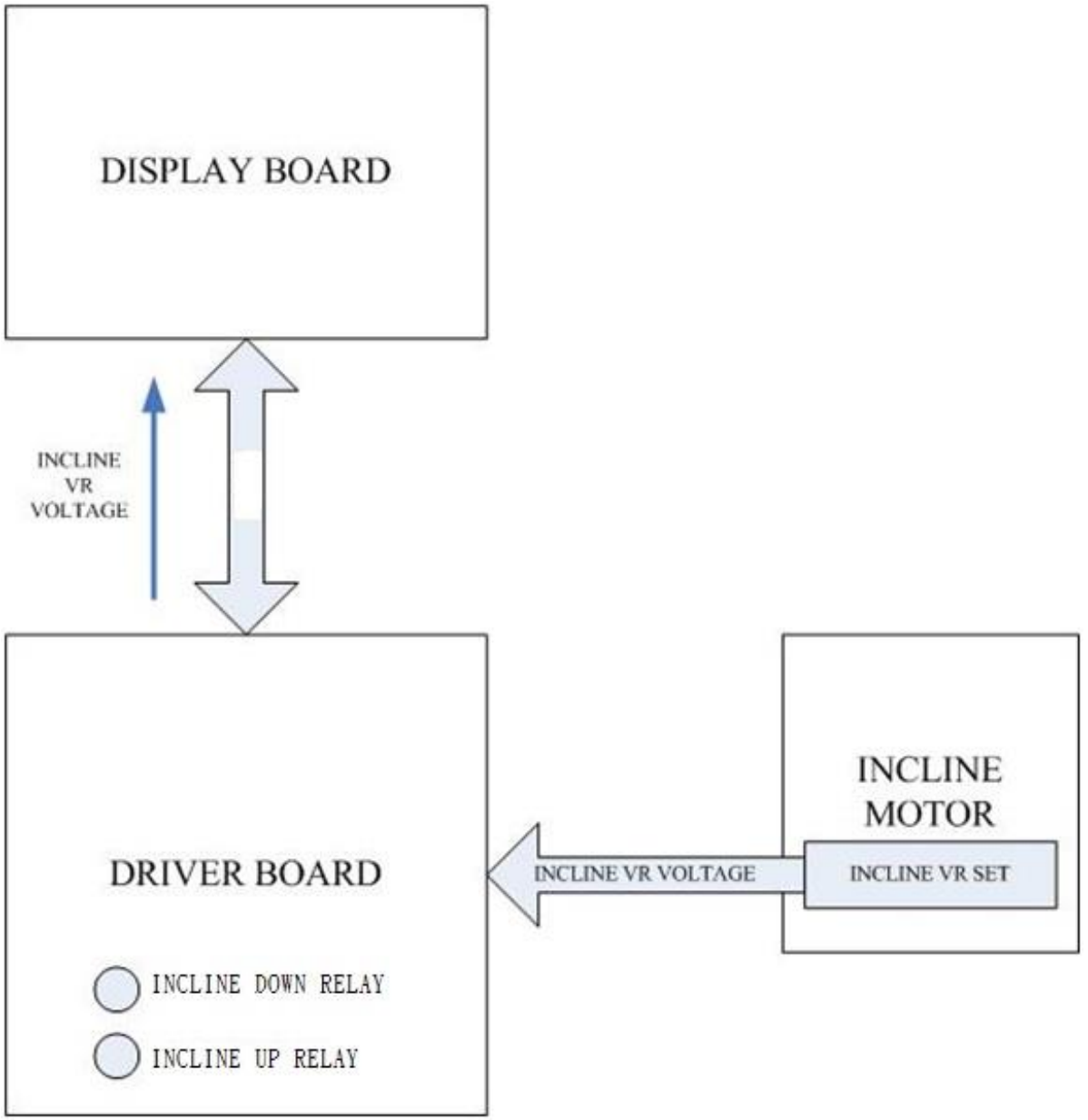
E29 INCORRECT DATA		
E30 COMM CMD ERR		
E31 COMM TIMEOUT	The communication transmission timeout error between the console and the inverter.	Check each connector/wire for good
E32 MOTOR TEMP	Please follow to AC MOTOR DRIVER inverter VFD-TM Error and Warning codes ' descriptions corresponding table	Please follow to AC MOTOR DRIVER inverter VFD-TM Error and Warning codes ' descriptions corresponding table
E33 INCLINE ERR	Abnormal elevation which means that the incline motor AD value cannot be returned to the initial positive. or run calibration, the difference in the AD value between the highest and lowest points of the incline motor is too small.	The first calibration, if calibration or error after calibration, you need to replace the incline motor or inverter.
E34 CONSOLE EE ER	The console EEPROM error	Replace the console

- Prepare：

Picture	Tool name
	Multi-meter

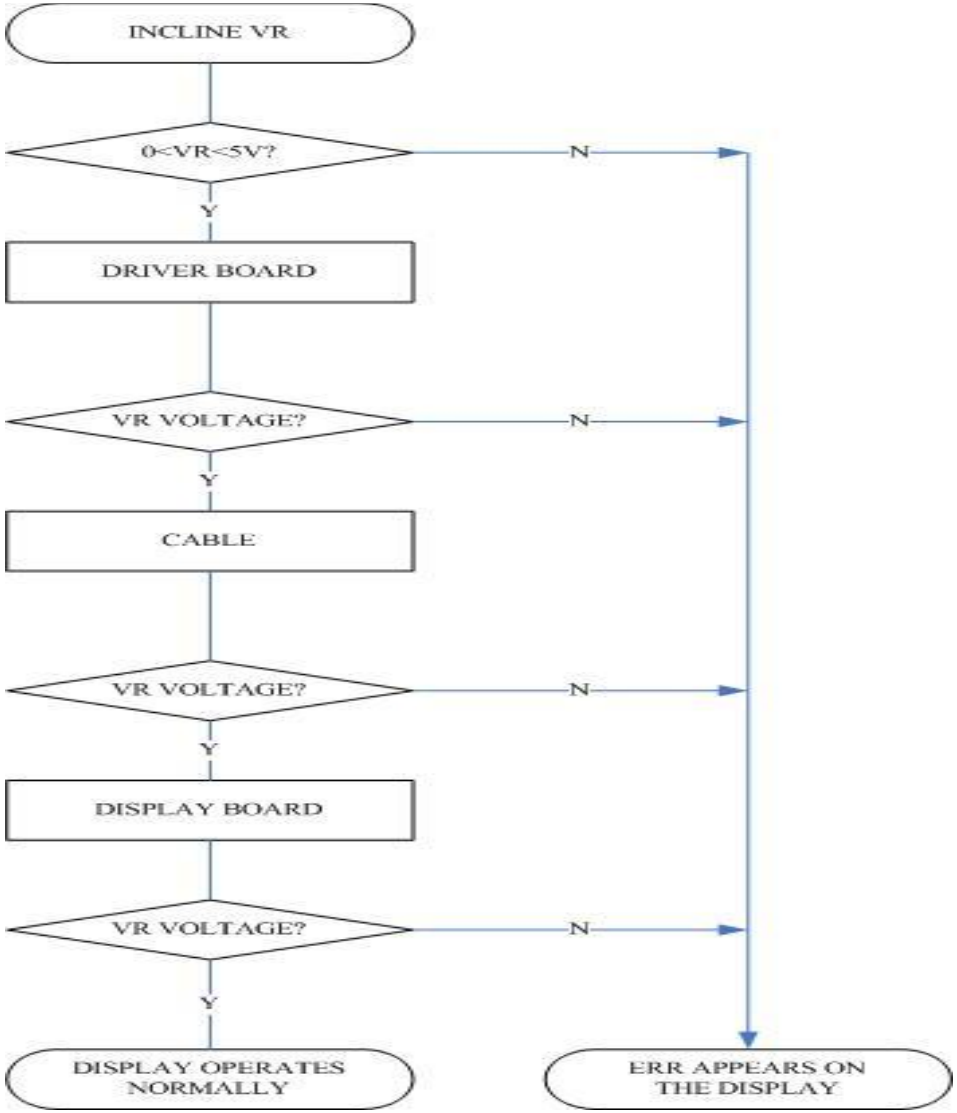
Error Message：E33

- Definition：The console board is not detecting the VR voltage value, or the voltage value has exceeded the range.” E33” appears on the display.
- Configuration：



Case of INCLINE E33

Incline VR value exceeds the range. INCLINE E33 appears on the display.
Incline motor isn't operation up or down, making the VR value exceed the range.
After turning on the unit, the display board detects that the incline VR voltage exceeds the range, so INCLINE E33 appears.
Action Flow Chart



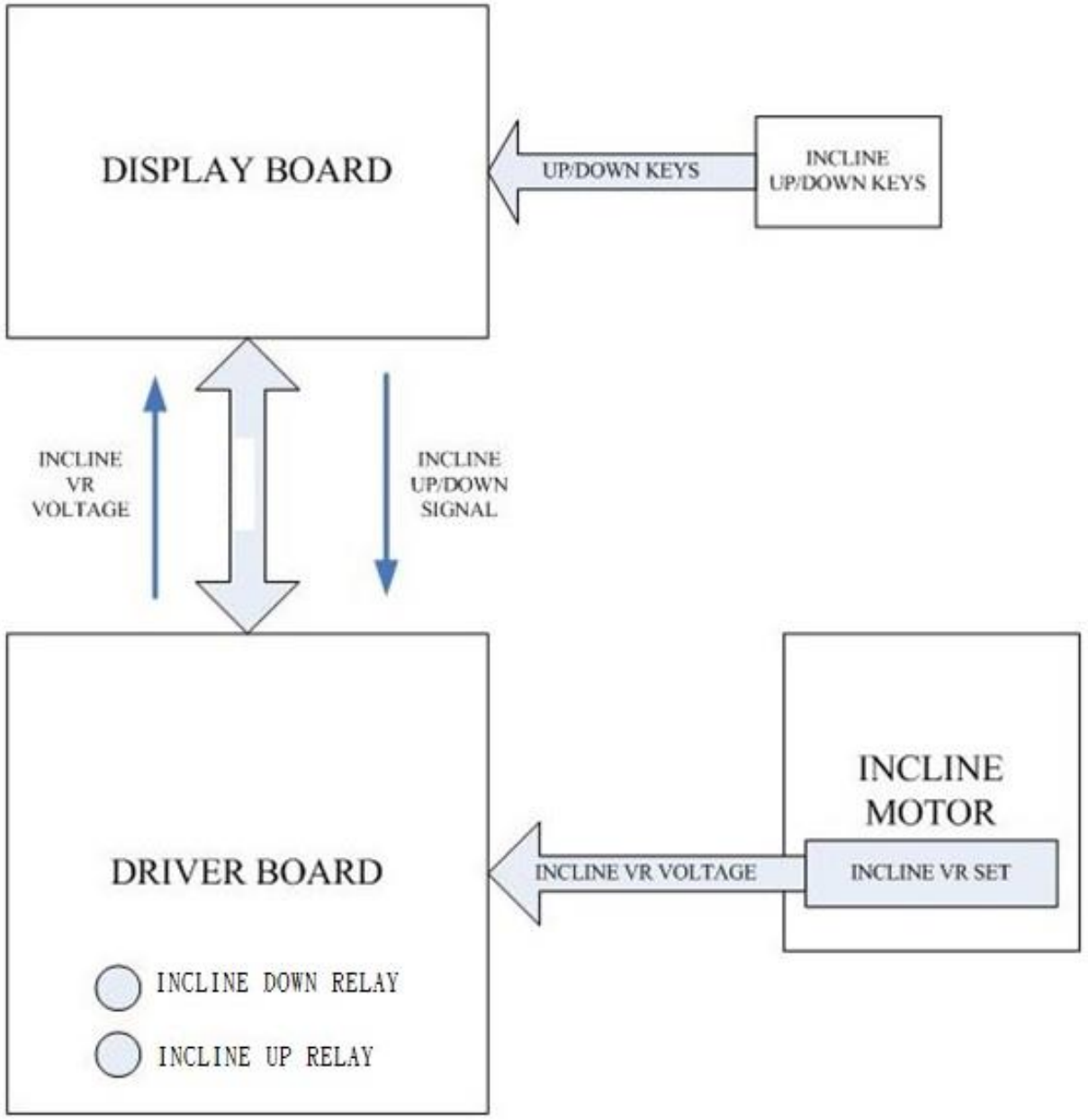
Troubleshooting

Part	Troubleshooting
Incline VR	1.Reconnect VR wires. 2.Inspect whether the incline wires are broken or disconnected.
Display board	1.Inspect the incline wire and console cable connections. 2.Test whether the VR voltage varies at the incline wire terminal.
Console cable	1.Inspect the wire connections. 2.Inspect whether wires are broken or crimped. 3.Replace the wires and test again.
Incline	Inspect the display board console cable connections.

Error Message：INCLINE E33

Definition：During incline action, the display board CPU cannot read the VR value, so INCLINE ERR appears.

Configuration：



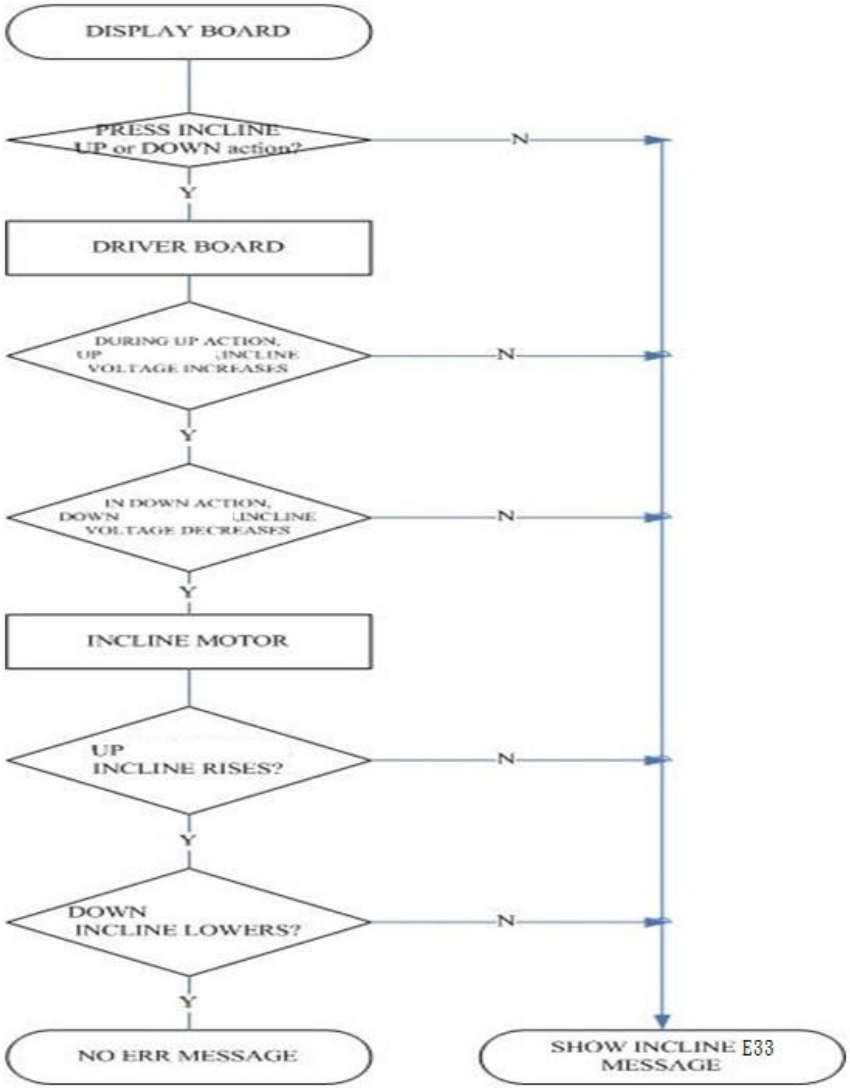
Cause of INCLINE ERR

- Press the incline UP/DOWN key. The incline doesn't operate. INCLINE ERR appears on the display.

Explanation

- Press the incline UP and DOWN key. The driver board UP or DOWN indicator lights. The incline operates, moving the VR, which changes the VR value.
- The display board CPU reads the incline VR value. If there is no VR value change, to the CPU, the incline is not operating when it should be. INCLINE Err appears on the display.

Action Flow Chart



Troubleshooting

Part	Troubleshooting
Display board	1.Press incline UP key. The driver board UP RELAY action. 2.Press incline DOWN key. The driver board DOWN RELAY action. 3.If not as above, inspect the cable and connections.
console cable	1.Inspect whether the console cable is connected well. 2.Test by replacing the cable with a good one.
Driver board	Inspect whether the driver board UP/DOWN REALY is action. 1.Press incline UP or DOWN key again, making the incline motor return to its position. 2.If ERR still appears, re-calibrate the incline set.
Incline motor	1.Inspect whether the incline motor is stuck. 2.Inspect whether the incline gears are cracked. 3.Test whether the incline motor has a broken circuit. 4.Re-calibrate the incline set.

Factory and Acceleration Settings

1.1 Enter the Factory settings; press Start and Speed Fast keys while console is in power up reset. User presses enter

1.1.1 UNITS: ENGLISH

1.1.1.1 The default setting is English. User can press any up/down arrows to change to Metric. User presses enter.

1.1.2 ADJUST MIN SPEED 0.5

1.1.2.1 Default value is 0.5 mph and can be adjusted from 0.3 to 0.7mph.

1.1.2.2 The speed number to be shown in the speed window.

1.1.3 ADJUST MAX SPEED 12.0

1.1.3.1 Default value is 12.0 mph and can be adjusted down to 10.0 mph.

1.1.3.2 The speed number to be shown in the speed window

1.1.4 ADJUST ACCEL 0:02

1.1.4.1 The default is 0:02 seconds and will be shown in the Time window.

1.1.4.2 The time can be adjusted down to 0:01 and up to 0:04 seconds

1.1.5 ADJUST DECEL 0:02

1.1.5.1 The default is 0:02 seconds and will be shown in the Time window.

1.1.5.2 The time can be adjusted down to 0:01 and up to 0:04 seconds

1.1.6 CALIBRATION

1.1.6.1 Display show “FINISHED” then will show “ENTER TO CALIBRATE”. If the machine needs to do incline calibration, press” ENTER”.

1.1.6.2 If the machine doesn’t need to do incline calibration, press “STOP key” then reset.

Maintenance Mode

1.1 Press and hold the Start, Stop and Enter key at the same time,

1.2 The MW will display **MAINTENANCE MODE** then **PRESS ENTER**

1.3 The Maintenance Mode menu is:

1.3.1 KEY TEST (Enter to run)

1.3.1.1 MW shows **PRESS ALL KEYS**

1.3.1.2 As User presses keys show key number on MW ie: **S1**

1.3.1.3 When all keys are pressed. MW shows **TEST PASSED** for 3 seconds then exit to next test in menu.

1.3.2 DISPLAY TEST (Enter to run)

1.3.2.1 Light all LEDs. User presses stop to end test and exit to next test in menu

1.3.3 SLEEP MODE – ON (Enter to modify)

1.3.3.1 Default is ON. Sleep after 30 minutes.

1.3.4 ODOMETER (Enter for menu)

1.3.4.1 MW shows **ODOMETER** _ _ _ _ _ **HRS**

1.3.4.2 MW shows **ENTER TO RESET** If user presses enter reset Odometer and exit to next test in menu.

1.3.5 UNITS – ENGLISH (Enter to modify)

1.3.5.1 Default is English

1.3.6 SPEAKER – ON (Enter to modify)

1.3.6.1 Default is ON

1.3.7 INCLINE RETURN - ON (Enter to Modify)

1.3.7.1 Default is ON. Incline returns to home position when Pause is pressed

1.3.7.2 OFF means the incline remains at current setting when Pause is pressed. But will return to home position when program is ended

1.3.8 SERVICE MODE (Enter for Menu)

1.3.8.1 **INCLINE** (Enter to run)

1.3.8.1.1 **USE INCLINE KEYS** then MW displays: **HOME POS SW – OFF**

1.3.8.1.1.1 When switch is activated display: **ON**

1.3.8.2 **DRIVE MOTOR** (Enter to run)

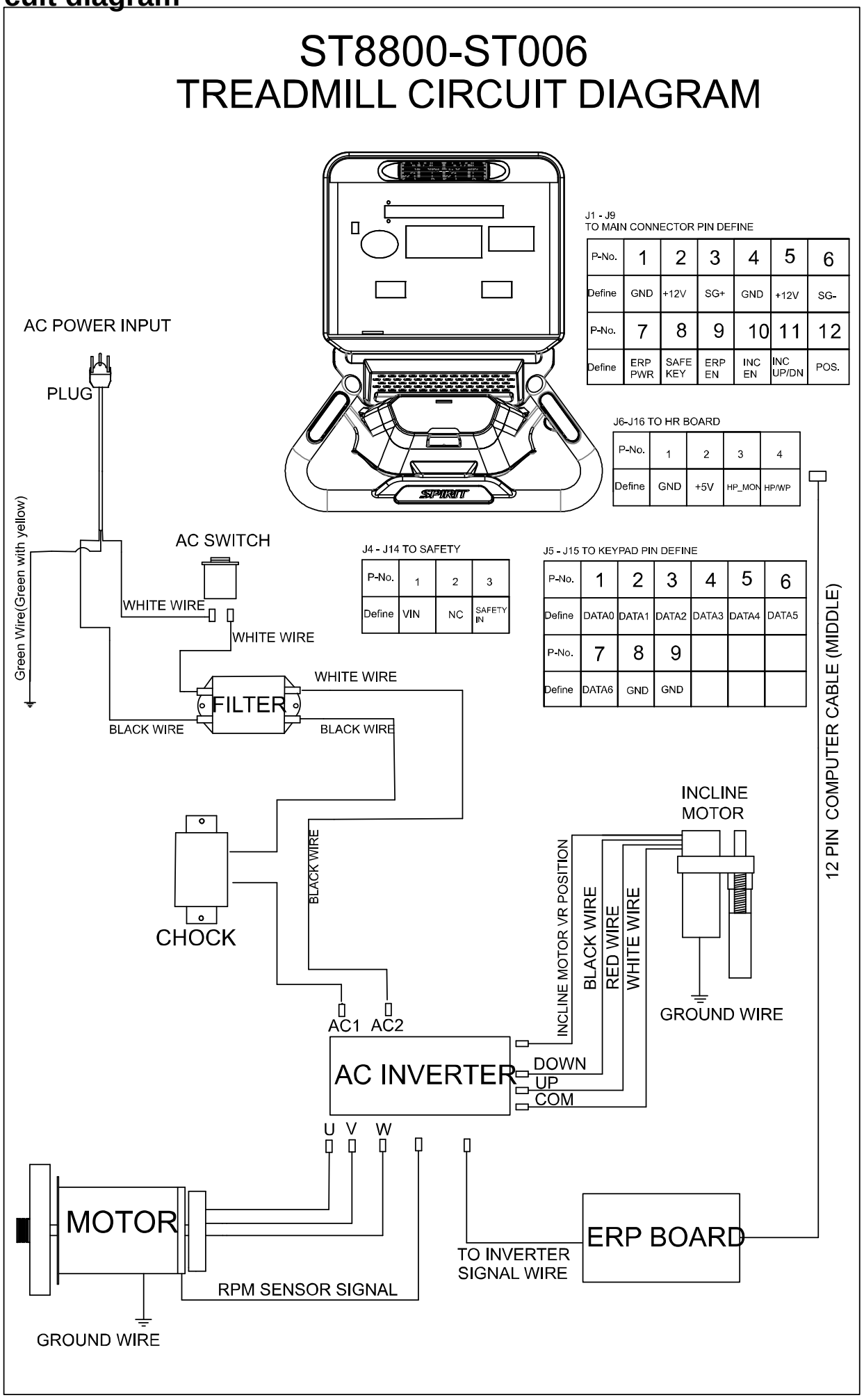
1.3.8.2.1 **USE SPEED KEYS.** Each key press increases motor speed 0.1 mph/kph

1.3.8.2.2 MW then shows: **RPM** _ _ _ **AMPS**___

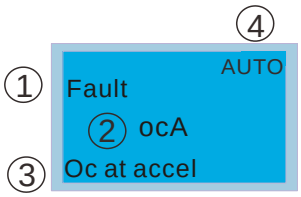
1.3.8.2.3 RPM is measured from the flywheel hall sensor

1.3.8.2.4 The Speed window shows MPH information

Circuit diagram



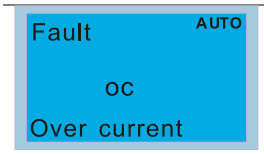
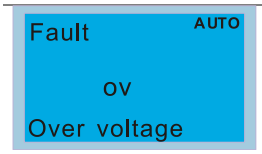
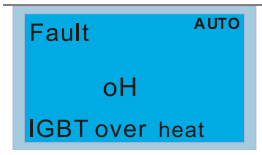
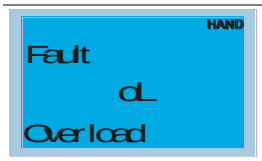
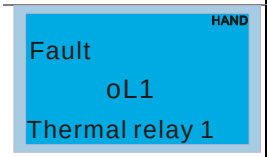
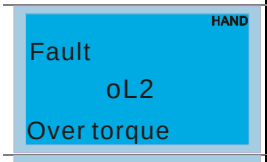
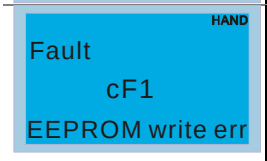
AC MOTOR DRIVER INVERTER
VFD-TM Error and Warning Codes' Descriptions

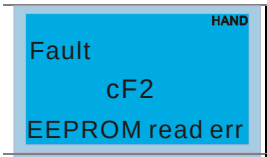
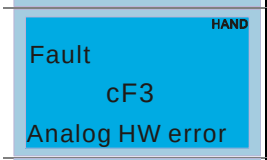
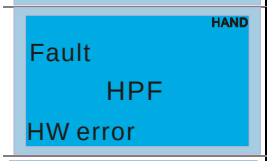
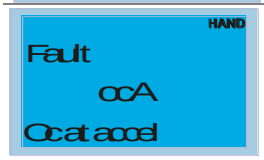
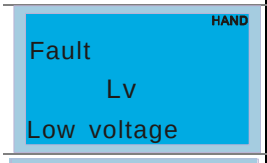


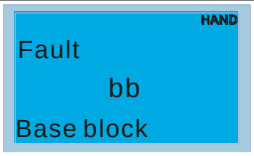
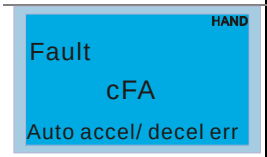
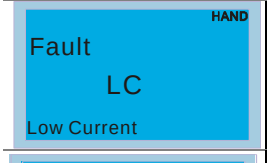
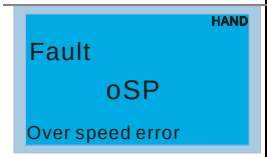
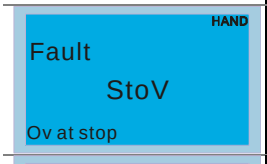
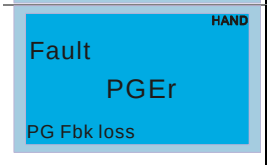
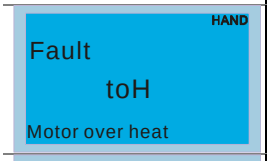
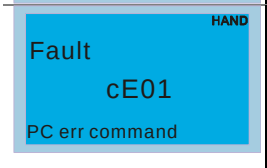
① Display error signal.
② Display abbreviated error code.
③ Display error description.
④ The factory setting of the control board is AUTO.

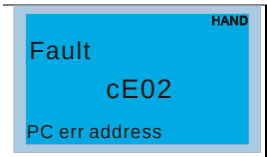
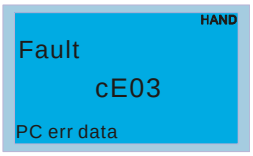
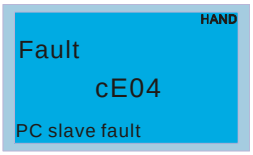
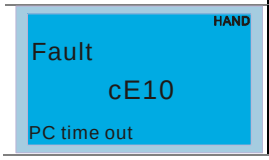
List of Error Codes:

Press RESET button to clear **Error** Code

Display on KPC-CC01	Error Code #	Error Description	Corrective Actions
	1	Hardware failure in over-current detection	1. Check if the motor and the motor drive have the same output power. 2. Check the wiring between the AC motor drive and motor for possible short circuits. 3. Increase the acceleration time. 4. Check if the motor is overloaded
	2	DC BUS over-voltage during operation.	1. Check if the input voltage falls within the rated AC motor drive input voltage range. 2. Check for possible voltage transients. 3. If DC BUS over-voltage due to regenerative voltage; increase the deceleration time or add an optional brake resistor.
	3	Inside of motor drive is overheated and the high temperature exceeds the protection level	1. Ensure that the ambient temperature falls within the specified temperature range. 2. Make sure that the ventilation holes are not obstructed. 3. Remove any foreign objects from the heatsink and check for possible dirty heat sink fins. 4. Provide enough spacing for adequate ventilation.
	4	Overload: The motor drive detects excessive drive output current. The motor drive can endure 150% of rated current for 60 seconds.	1. Check if the motor is overloaded. 2. Decrease the setting value at Pr01-23 to increase the output capacity of the motor drive.
	5	Electronics thermal relay protection: Motor is overloaded.	1. Check if the motor is overloaded. 2. Check if the setting of Pr00-13 <Motor Rated Current> is appropriate. 3. Check the setting of Pr04-13~ Pr04-14 <Electronic thermal relay> is appropriate. 4. Increase the capacity of the motor.
	18	Motor is overload: The AC motor drive detects excessive drive output current.	1. Check if the motor is overloaded. 2. Check if the setting of Pr04-15~ Pr04-17 <Torque detection level> is appropriate.
	7	Internal EEPROM cannot be programmed.	Check the voltage of input power then restart the motor drive.

	16	Internal EEPROM cannot be programmed.	Check if the power board and control board inside the motor are properly installed. Press RESET key and set up the parameters as factory setting.
	8	Motor drive internal error	Check if the input the input voltage is right then restart the motor drive.
	9	Hardware interruption error	Check if the input voltage is right then restart the motor drive
	10	Over-current during acceleration (detected by software)	1. Short-circuit at motor output: Check for possible poor insulation at the output. 2. Increase the acceleration time. 3. Decrease the setting value of Pr01-23 <Increasing torque> 4. AC motor drive output power is too small: Replace the AC motor drive with the next higher power model.
	11	Over-current during deceleration (detected by software)	1. Short-circuit at motor output: Check for possible poor insulation at the output. 2. Increase the deceleration time. 3. AC motor drive output power is too small: Replace the AC motor drive with the next higher power model.
	12	Over-current during steady state operation (detected by software)	1. Short-circuit at motor output: Check for possible poor insulation at the output. 2. Sudden increase in motor loading: Check for possible motor stall. 3. AC motor drive output power is too small: Replace the AC motor drive with the next higher power model.
	13	Ground fault When (one of) the output terminal(s) is grounded, short circuit current is more than 50% of AC motor drive rated current, the AC motor drive power module may be damaged. NOTE: The short circuit protection is provided for AC motor drive protection, not for protecting the user.	1. Check the wiring connections between the AC motor drive and motor for possible short circuits, also to ground. 2. Check whether the IGBT power module is damaged. 3. Check for possible poor insulation at the output
	14	DC BUS voltage is less than is too low.	1. Check if the input voltage is normal 2. Check for possible sudden load
	6	External Fault: When errors occurred on the external input terminals (MI1~ MI5),	Clear the fault then press RESET button

		the motor drive stops output.	
	17	External Base Block: When the external input terminal (B.B) is active, the AC motor drive output will be turned off.	Deactivate the external input terminal (B.B) to run the AC motor drive.
	19	Fault occurred on auto-acceleration/ deceleration	1. Does the motor drive chosen match the motor? 2. The regenerative inertia of the loading is too large. 3. There is a sudden change in loading.
	20	Software Protection	Check if the input voltage is right then restart the motor drive
	21	Safe key is removed	Check if the safe key is properly inserted.
	22	Low current detection (motor is disconnected)	1. Check if the wiring between the motor drive and the motor is correct. 2. Check the setting of Pr04-18~ Pr04-20.
	23	Over slip detection	1. Verify if there's an overload. 2. Verify the setting of Pr04-21~ Pr03-23.
	24	Over speed detection	1. Verify if the frequency command is bigger than the maximum value of main communication frequency. 2. Verify the setting of Pr03-12~ Pr03-14)
	25	DC BUS over-voltage when the motor drive is stopping.	1. Check if the input voltage falls within the rated AC motor drive input voltage range. 2. Check for possible voltage transients.
	26	PG feedback loss	1. Verify if the encoder works properly. 2. Verify if the wiring of PG is correct. 3. Verify if the speed of motor is over the detection range of PG terminal. 4. Verify if the setting of Pr02-31~ Pr02-39 is correct.
	32	Motor overheating protection	1. Verify if the motor's temperature is too high. 2. Verify if the motor's overheating protection switch is properly wired.
	27	Communication code is incorrect.	1. Verify the function code of the ModBus fits the communication specifications of the motor drive. 2. Verify the quality of the communication cable and the communication. 3. Clear the fault then press RESET button

	28	Incorrect data address	1. Verify if the Modbus' data address fits the communication specification of the motor drive. 2. Verify the quality of the communication cable and the communication. 3. Clear the fault and then press RESET button.
	29	Incorrect data value	1. Verify if the Modbus' data value fits the communication specification of the motor drive. 2. Verify the quality of the communication cable and the communication. 3. Clear the fault and then press RESET button.
	30	Communication command cannot be processed	1. Verify if the Modbus' data value fits the communication specification of the motor drive. 2. Verify if the ModBus command was given too fast. 3. Verify the quality of the communication cable and the communication. 4. Clear the fault and then press RESET button.
	31	Communication transmission time-out	1. Verify the quality of the communication cable and the communication. 2. Clear the fault and then press RESET button.

List of Warning Codes:

Press RESET button to clear **Warning** Code

Display on KPC-CC01	Warning Code #	Warning Description	Corrective Actions
cE1	1	Communication command defected	1. Verify if the function codes of the ModBus fit the specifications of the motor drive. 2. Verify the communication cable and the communication quality. 3. Clear the fault and then press RESET button
cE2	2	Address of data defected	1. Verify if the data address of the ModBus fits the specifications of the motor drive. 2. Verify the communication cable and the communication quality. 3. Clear the fault and then press RESET button
cE3	3	Length of communication data defected	1. Verify if the length of communication data fits the specifications of the motor drive. 2. Verify the communication cable and the communication quality. 3. Clear the fault and then press RESET button
cE4	4	Communications being written in a read only address.	1. Verify if the ModBus command fits the specifications of the motor drive. 2. Verify if the ModBus command was sent too rapidly. 3. Verify the communication cable and the communication quality. 4. Clear the fault and then press RESET button
cE10	5	ModBus transmission time-out	1. Verify the communication cable and the communication quality. 2. Clear the fault and then press RESET button.
oL2	6	Motor overload.	1. Reduce the motor load. 2. Adjust the over-torque detection setting to an appropriate setting (Pr04-15 ~Pr04-17). 3. Clear the fault and then press RESET button
AuE	8	Automatic Parameter Identification error	1. Verify motor's wiring. 2. Verify if the motor fits specifications of the motor drive. 3. Verify motor's parameter settings.
SE1	9	Parameter copy error 1	Verify the communication cable and the communication quality.
SE2	10	Parameter copy error 2	1. Verify the communication cable and the communication quality. 2. A write error occurred on Internal IC. 3. Verify the wiring between the control board and the electric board inside the motor drive.
LC	11	Low Current Warning	1. Verify the wiring between the motor and the motor drive. 2. Verify the settings of Pr04-18 ~Pr04-20.
oSL	12	Over Slip Warning	1. Verify if the motor drive is overload. 2. Verify the setting of Pr04-21 ~Pr04-23.
oSP	13	Over speed warning	1. Verify if the frequency command bigger than the

			maximum of main communication frequency. 2. Verify the settings of Pr03-12 and Pr03-14.
InC1	14	Up and Down not responding	1. Verify the wiring between the up-down motor and the motor drive. 2. Verify the settings of Pr02-20 ~Pr02-30. 3. Verify if the up-down reaches the impassable point.
InC2	15	Up-Down Loss	1. Verify the wiring between the up-down motor and the motor drive. 2. Verify the settings of Pr02-20 ~Pr02-30.
InC3	16	Up-down reversed	1. Verify the wiring between the up-down motor and the motor drive. 2. Verify the settings of Pr02-20 ~Pr02-30.
toH	17	Motor over-heating warning	1. Verify if the motor is overheated. 2. Verify the wiring of motor's temperature protection switch.
Stop	18	SafeKey is coasting to stop	Unable to send the RUN command while the SafeKey is coasting to stop.
ocSt	19	Over current protection warning	Verify if the motor is overload.
tHL	20	Temperature detection loss warning	Verify the wiring of the motor's temperature detection cable (J14).
PGEr	21	PG feedback loss warning	1. Verify if the Encoder works properly. 2. Verify the wiring of PG card. 3. Verify if the motor's speed over the PG terminal's detection range. 4. Verify the setting of Pr02-31 ~ Pr02-39.

TROUBLESHOOTING

Before contacting your dealer for aid, please review the following information. It may save you both time and expense. This list includes common problems that may not be covered under the treadmill's warranty.

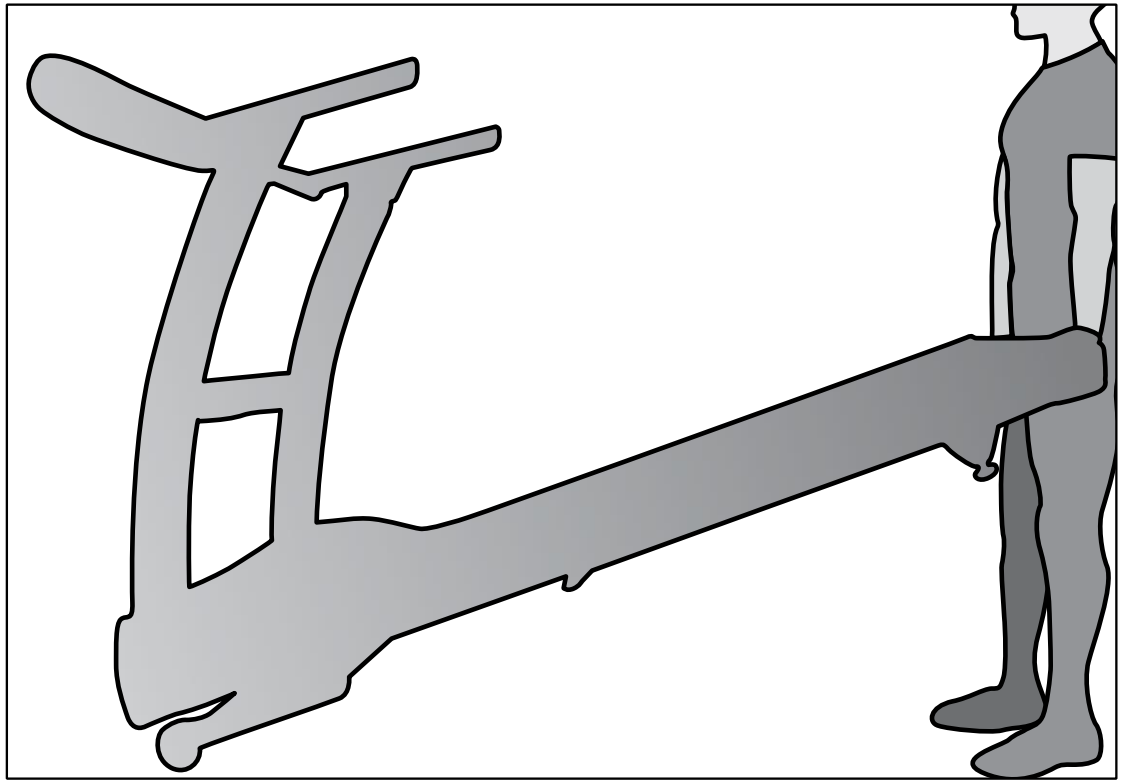
PROBLEM	SOLUTION/CAUSE
Display does not light	1) Tether cord not in position. 2) Circuit breaker on front grill tripped. Push circuit breaker in until it locks. 3) Plug is disconnected. Make sure plug is firmly pushed into 220 VAC wall outlet. 4) Breaker panel circuit breaker may be tripped. 5) Treadmill defect. Contact your dealer.
Treadbelt does not stay centered	The user may be walking while favoring or putting more weight on either the left or right foot. If this walking pattern is natural, track the belt slightly off-center to the side opposite from the belt movement.
Treadmill belt hesitates when walked/run on	See General Maintenance section on Treadbelt Tension. Adjust as necessary.
Motor is not responsive after pressing start	1. Reset power. If still no good contact service.
Treadmill will only achieve approximately 7mph /10 kph but shows higher speed on display	This indicates motor should be receiving power to operate. Do not use an extension cord. If an extension cord is required it should be as short as possible and heavy duty 16-gauge minimum, low voltage. Contact an electrician or your dealer. A minimum of 210 volt AC current is required.
Treadmill trips on board 20 amp circuit	High belt/ deck friction. See General Maintenance section on cleaning the deck. If cleaning doesn't prevent this from reoccurring, check to see if there is significant wear of the deck. If so, the deck may need to be flipped if it is on its original side.
Computer shuts off when console is touched (on a cold day) while walking/running	Treadmill may not be grounded. Static electricity is "crashing" the computer. Refer to Grounding Instructions
Circuit breaker trips, but not the treadmill circuit breaker.	Need to replace the house breaker with a "High inrush current" type breaker

Condition	Reason	Solve
When turn on power, ON/OFF switch isn't lit.	1 Power cord isn't plugged into outlet. 2 Power cord isn't plug into unit. 3 The voltage of outlet is too low. 4 Plug or connector of power cord is open. 5 Connector of power cord is broken. 6 Connecting cable disconnected. 7 Breaker tripped. 8 Breaker is broken. 9 ON/OFF switch is broken.	1 Plug the power cord into outlet. 2 Plug the power cord into unit. 3 Check the voltage of outlet. 4 Replace power cord. 5 Replace power cord. 6 Check if wire is disconnected, connect it again. 7 Press the small red button to return to original status. 8 Replace breaker. 9 Replace AC switch.
After turning on power, treadmill has a popping sound.	1 Incorrect input power, varistor is blown broken on controller.	1 Check the voltage of power is 220V. Replace controller.
When insert safe key, no display on monitor.	1 Haven't switch ON/OFF switch. 2 Insert the Safe key on wrong position. 3 console connector not plugged in properly. 4 console cable is broken. 5 Fuse on controller is blown. 6 Varistor on controller is blown. 7 Safety device is broken. (open) 8 Other components are faulty.	1 Switch the AC switch. 2 Insert the safe key on right position. 3 Please check the wire and connect again. 4 Replace console cable. 5 Replace fuse or controller. 6 Replace varistor or controller. 7 Replace safety key device. 8 Replace console.
With no safe key but treadmill could display or operate	1 Safety device is broken. (short)	1 Replace the safety key device or console.
When press "START", treadmill doesn't start.	1 Motor wire isn't connected into right position. 2 Motor is broken. 3 Treadmill controller shut down and LED would be ON.	1 Please check and plug again. 2 Replace motor or check the wire and connector if it was broken. 3 Turn off the AC switch and turn on power again.
Treadmill stops or shuts off by itself.	1 House breaker tripped. 2 Treadmill breaker tripped. 3 Treadmill controller fuse is broken. 4 Treadmill controller shut down and LED would be ON.	1. Reset it. 2. Reset treadmill breaker. 3. Replace with new fuse 4. Turn off the AC switch and turn on power again.
After removing safe key, treadmill can't stop.	1. The safety key device is broken.	1. Replace with new safety key device.
LED not bright, incomplete or imperfect.	1. LED light is broken. 2. Power to console too low.	1. Replace with new LED or console. 2. Check AC power is 220V. 3. Check power to console. 4.Replace lower controller.
LED displays not bright, incomplete or imperfect.	1. LED displays are broken.	1. Replace with new console.

The incline position doesn't match console	1 Console is not calibrated.	1 Calibrate the console.
INCLINE ERR ,INCLINE window displays "INCLINE E33".	1 Position sensor value of incline motor is wrong.	1 Turn off the AC switch and turn on power again. 2. Calibrate the monitor.
After pressing "START" button, the treadmill stops immediately.	1 Controller is broken.	1 Turn off the AC switch and turn on power again. 2 Replace controller and calibrate it.
Erratic pulse display.	1. Another chest belt in use around treadmill. 2. Other magnetic field disturbance. 3. Receiver is broken.	1. Check for other chest belt use around treadmill. 2. Change the position or direction of treadmill. 3. Replace with new receiver.
After pressing "START" button, the treadmill stop immediately.	Controller was broken.	Replace with new controller and calibrate it.
FAST/SLOW button of SPEED ADJUSTMENT SWITCH can't be used. Speed button just can press FAST, can't press SLOW. Speed button just can press SLOW, can't press FAST.	1 The connector of SPEED CABLE and CONSOLE not connected properly. 2 The connector of SPEED CABLE and SPEED ADJUSTMENT SWITCH W/CABLE not connected properly. 3 The connector of SPEED CABLE or SPEED ADJUSTMENT SWITCH/W/CABLE is damaged. 4. Button of SPEED ADJUSTMENT SWITCH is broken. 5. The connector of SPEED CABLE or SPEED ADJUSTMENT SWITCH/W/CABLE is damaged. 6. The connector of SPEED CABLE or SPEED ADJUSTMENT SWITCH/W/CABLE is damaged.	1. Connect cables again. 2. Connect cables again. 3. Connect cable again. 4. Replace with new buttons. 5. Replace with new cable. 6. Replace with new cable.
UP/DOWN button of INCLINE ADJUSTMENT SWITCH can't be used. Incline button just can press UP, can't press DOWN. Incline button just can press DOWN, can't press UP.	1 The connector of INCLINE CABLE and CONSOLE not connected properly. 2. The connector of INCLINE CABLE and INCLINE ADJUSTMENT SWITCH W/CABLE not connected properly. 3 The connector of INCLINE CABLE or INCLINE ADJUSTMENT SWITCH CABLE got damage. 4. Button of INCLINE ADJUSTMENT	1 Connect the wires again. 2. Connect the wires again. 3. Replace the cable. 4. Replace buttons.

	SWITCH is broken. 5. The connector of INCLINE CABLE or INCLINE ADJUSTMENT SWITCH CABLE got damage. 6. The connector of INCLINE CABLE or INCLINE ADJUSTMENT SWITCH CABLE damaged.	5. Replace the cable. 6. Replace the cable.
Hand pulse lost its function. (No pulse displayed on monitor)	1. Hands not on the hand pulse sensors or only one hand on sensor. 2. The connector of HANDPULSE W/WIRE and Console not connected properly. 3. The wires got damaged when connecting the HANDPULSE W/WIRE and Console. 4. Hand pulse board is broken.	1. Two hands hold the hand pulse. 2. Connect the cable again. 3. Replace with new cable. 4. Replace console or Hand pulse board.
Wireless lost its function. (No pulse displayed on monitor)	1. Chest belt not worn properly. 2. Distance is too far and exceeds range of receiver. 3. Chest belt battery is weak or dead.	1. Check chest belt has proper contact with skin and is oriented correctly. 2. User chest belt in front of console within 3 feet. 3. Replace with new lithium battery type is CR2032.
Chest belt too close to the treadmill.	Weak battery.	Replace with new lithium battery with type CR2032.
Tread belt does not run in center.	Tread belt tension not even across tread belt.	See treadmill belt adjustment
Tread belt hesitates while being stepped on.	Insufficient lubricant on tread belt. Tread belt tension insufficient	See treadmill belt lubrication
Black particles collecting under treadmill.	Drive belt is breaking in.	Vacuum under treadmill periodically.
Noise under motor cover.	1. Worn brushes or bearings on motor. 2. Front roller bearings are defective. 3. Drive belt is misadjusted (too tight or too loose).	1. Replace with new motor. 2. Replace with new front roller. 3. Adjust motor position.
Noise in the rear of the treadmill.	1. Rear roller bearings are defective. 2. Rear roller misaligned.	1. Replace with new rear roller. 2. Adjust rear roller position.

9. Treadmill Folding/Unfolding and Transport



TRANSPORTATION
INSTRUCTIONS

Carefully lift the treadmill at the rear roller area, grasping the two side end caps, and roll the treadmill away.

10. General Maintenance

10.1 Tread belt and Deck
Your treadmill uses a very high-efficient low-friction bed. Performance is maximized when the bed is kept as clean as possible. Use a soft, damp cloth or paper towel to wipe the edge of the belt and the area between the belt edge and frame. Also reach as far as practical directly under the belt edge. This should be done once a month to extend belt and bed life. Uses water only - no cleaners or abrasives. A mild soap and water solution along with a nylon scrub brush will clean the top of the textured belt. **Allow the belt to dry before using**.

The low maintenance (routine monthly cleaning), dual-sided hard wax deck is designed to withstand up to 32,000 kilometers on each side. If the original side of the deck shows significant wear, it needs to be flipped.

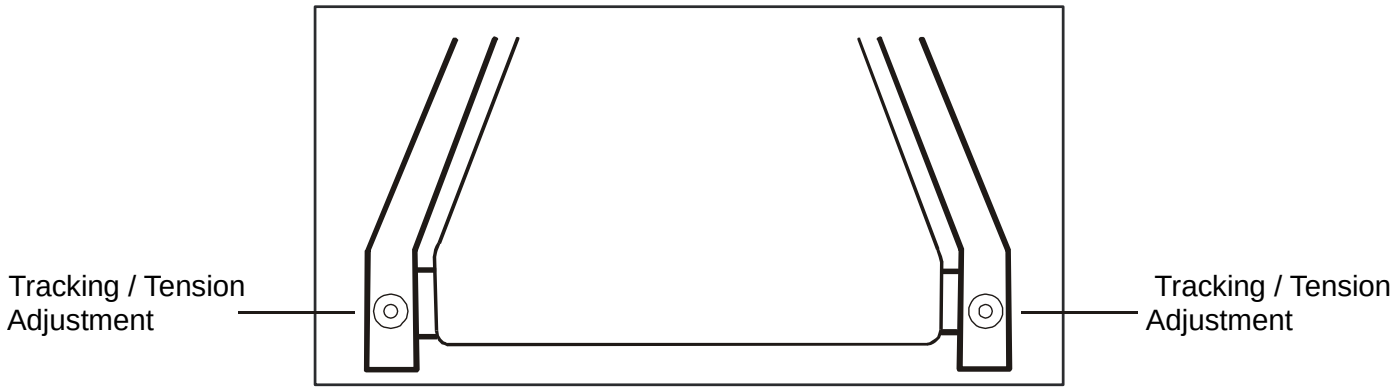
Contact your service technician for assistance. Do not apply any type of lubricant or wax to the surface.

Belt Dust - This occurs during normal break-in or until the belt stabilizes. Wiping excess off with a damp cloth will minimize buildup.

General Cleaning - Dirt, dust, and pet hair can block air inlets and accumulate on the running belt. On a monthly basis: vacuum underneath your treadmill to prevent buildup. Once a year, you should remove the motor hood and vacuum out dirt that may accumulate. UNPLUG POWER CORD BEFORE THIS PERFORMING THIS TASK. Do not attempt any servicing or adjustments other than those described in this manual. Opening the motor cover must be left to trained service personnel familiar with electro-mechanical equipment and authorized under the laws of the country in question to carry out maintenance and repair work.

BELT ADJUSTMENTS:

Tread-belt Tension Adjustment - Adjustment must be made from the rear roller. The adjustment bolts are located at the end of the step rails in the end caps, as noted in diagram below.



Note: *Adjustment is through small hole in the end cap.*

Tighten the rear roller bolts only enough to prevent slippage at the front roller. Turn both tread-belt tension adjustment bolts in increments of 1/4 turn each and inspect for proper tension by walking on the belt at a low speed, making sure the belt does not slip. Keep tensioning the bolts until the belt stops slipping.

- **If you feel the belt is tight enough, but it still slips, the problem may be a loose Motor drive belt under the front cover.**

DO NOT OVERTIGHTEN – Over tightening will cause belt damage and premature bearing failure.

TREADBELT TRACKING ADJUSTMENT:

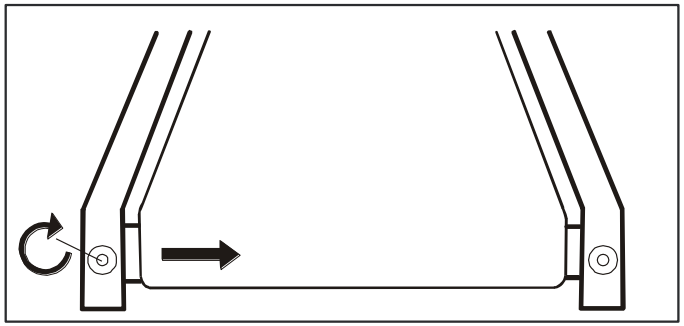
The performance of your treadmill is dependent on the frame running on a reasonably level surface. If the frame is not level, the front and back roller cannot run parallel, and constant belt adjustment may be necessary.

The treadmill is designed to keep the tread-belt reasonably centered while in use. It is normal for some belts to drift near one side while the belt is running with no one on it. After a few minutes of use, the tread-belt should have a tendency to center itself. If, during use, the belt continues to move toward one side, adjustments are necessary.

TO SET TREADBELT TRACKING:

A 10 mm Allen wrench is provided to adjust the rear roller. Make tracking adjustments from the **left** side only. Set belt speed at approximately 3 to 5 kph. Remember, a small adjustment can make a dramatic difference!

Turn the bolt clockwise to move the belt to the right. Turn the bolt only a 1/4 turn and wait a few minutes for the belt to adjust itself. Continue to make 1/4 rotation turns until the belt stabilizes in the center of the running deck.



The belt may require periodic tracking adjustment depending on use and walking/running characteristics. Some users will affect tracking differently. Expect to make adjustments as required to center the tread-belt. Adjustments will become less of a maintenance concern as the belt is used. Proper belt tracking is an owner responsibility common with all treadmills.

ATTENTION:
DAMAGE TO THE RUNNING BELT RESULTING FROM IMPROPER TRACKING / TENSION ADJUSTMENTS IS NOT COVERED UNDER THE WARRANTY.
Unplug treadmill before performing any maintenance.

Task	How To	Daily	Weekly	Monthly	Semi-Annually	Annually
Wipe Down Unit	Damp cloth w/ water	●				
Clean Under Belt	Towel or vacuum			●		
Check Belt Tension/Tracking	Feel/Visual		●			
Clean Under Motor Cover	Vacuum carefully				●	
Check Hardware	Wrench			●		
Inspect for Deck Wear	Visual				●	
Inspect Drive Belt	Visual				●	

RECOMMENDED MAINTENANCE OF RUNNING BELT/DECK

Total Using Distance	20,000 Km/ 12,500 Mile	40,000 Km/ 25,000 Mile
Tasks	Flipping Deck	Replacing Belt and Deck

Note: ● Please clean wax on roller during flipping deck or replacing belt/belt.

● The low maintenance (routine monthly cleaning), dual-sided hard wax deck is designed to withstand up to 20,000 Kilometer/12,500 Miles on each side. If the original side of the deck shows significant wear, it needs to be flipped. Contact your service technician for assistance. Do not apply any type of lubricant or wax to the surface.

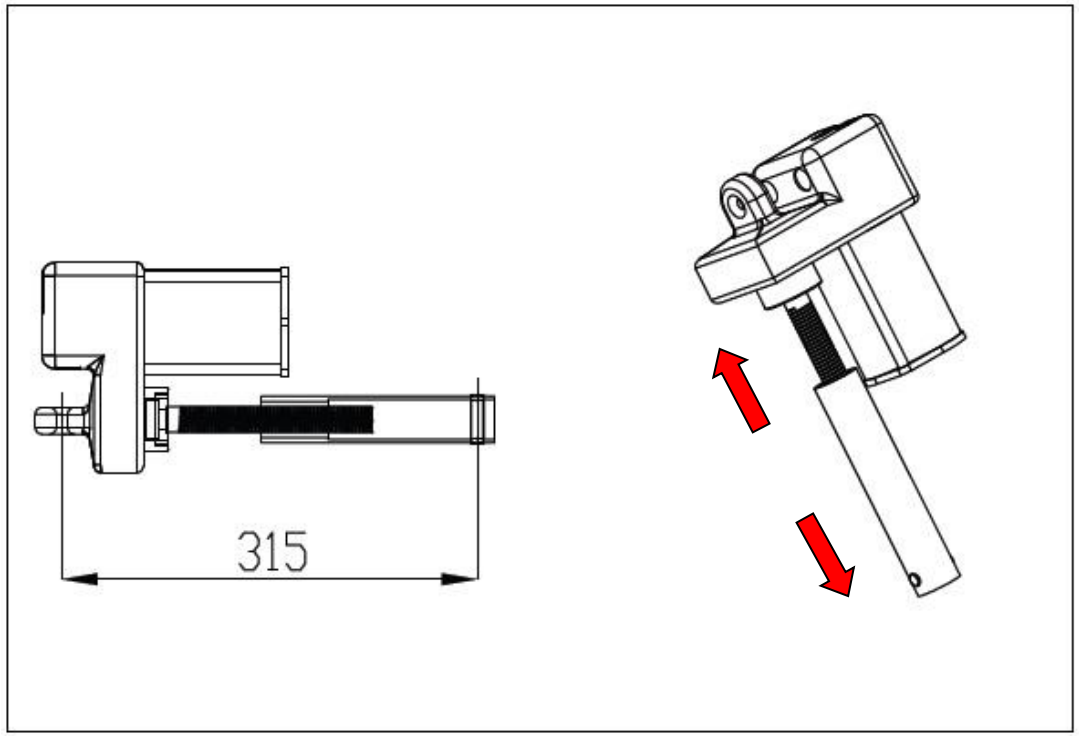
10.2. Service Troubleshooting Checklist – Diagnosis Guide

Before contacting your dealer for aid, please review the following information. It may save you both time and expense. This list includes common problems that may not be covered under the treadmill's warranty.

PROBLEM	SOLUTION/CAUSE
Display does not light	1) Tether cord not in position. 2) Circuit breaker on front grill tripped. Push circuit breaker in until it locks. 3) Plug is disconnected. Make sure plug is firmly pushed into 110 VAC wall outlet. 4) Breaker panel circuit breaker may be tripped. 5) Treadmill defect. Contact your dealer.
Tread-belt does not stay centered	The user may be walking while favoring or putting more weight on either the left or right foot. If this walking pattern is natural, track the belt slightly off-center to the side opposite from the belt movement.
Treadmill belt hesitates when walked/run on	See General Maintenance section on Tread-belt Adjustment. Motor drive belt may be loose.
Motor is not responsive after pressing start	1) If the belt moves, but stops after a short time and the display shows "LS/LOW SPEED", run calibration (See section 8.1 on Error Message: LS/LOW SPEED). 2) If you press start and the belt **never** moves, then the display shows LS/LOW SPEED, contact service.
Treadmill will only achieve approximately 10 kph but shows higher speed on display	This indicates motor should be receiving power to operate. Low AC voltage to treadmill. Do not use an extension cord. If an extension cord is required it should be as short as possible and heavy duty 16 AWG minimum. Low household voltage. Contact an electrician or your dealer. A minimum of 110 volt AC current, 60 hz is required.
Treadmill trips on board 15 amp circuit	High belt/deck friction. See General Maintenance section on Belt/Deck Lubrication..
Computer shuts off when console is touched (on a cold day) while walking/running	Treadmill may not be grounded. Static electricity is "crashing" the computer. Refer to section 7.3 for Grounding Instructions.
House circuit breaker trips, but not the treadmill circuit breaker.	Need to replace the house breaker with a "High inrush current" type breaker (see section 7.2 for Important Electrical Instructions.)

Treadmill with noises	1. If the noise is coming from the rollers, . 2. If the noise is coming when the user is running on the treadmill with lowest level of incline, it could be due to too much pressure with the incline cylinder. (only in case of the lowest incline level). 3. If there is knocking noise during the workout, check and make sure all bolts are tightened. 4. When there is thumping noise while the belt is running. This happens with a brand new treadmill or when the treadmill has not been used for a long time. This is due to the belt has been shaped with rollers and harden because of low temperature. Running the belt for tens of minutes the thumping noise will gradually go away.
Noise under motor cover.	1. Worn brushes or bearings on motor. Replace with new motor brushes. 2. Front roller bearings are defective. Replace with new front roller. 3. Drive belt is misadjusted (too tight or too loose). Adjust motor position.
Noise in the rear of the treadmill.	1. Rear roller bearings are defective. Replace with new rear roller 2. Rear roller misaligned. Adjust rear roller position.
Tread belt hesitates while being stepped on.	1. Insufficient lubricant on tread belt. 2. Tread belt tension insufficient
Black particles collecting under treadmill.	Drive belt is breaking in. Vacuum under treadmill periodically.

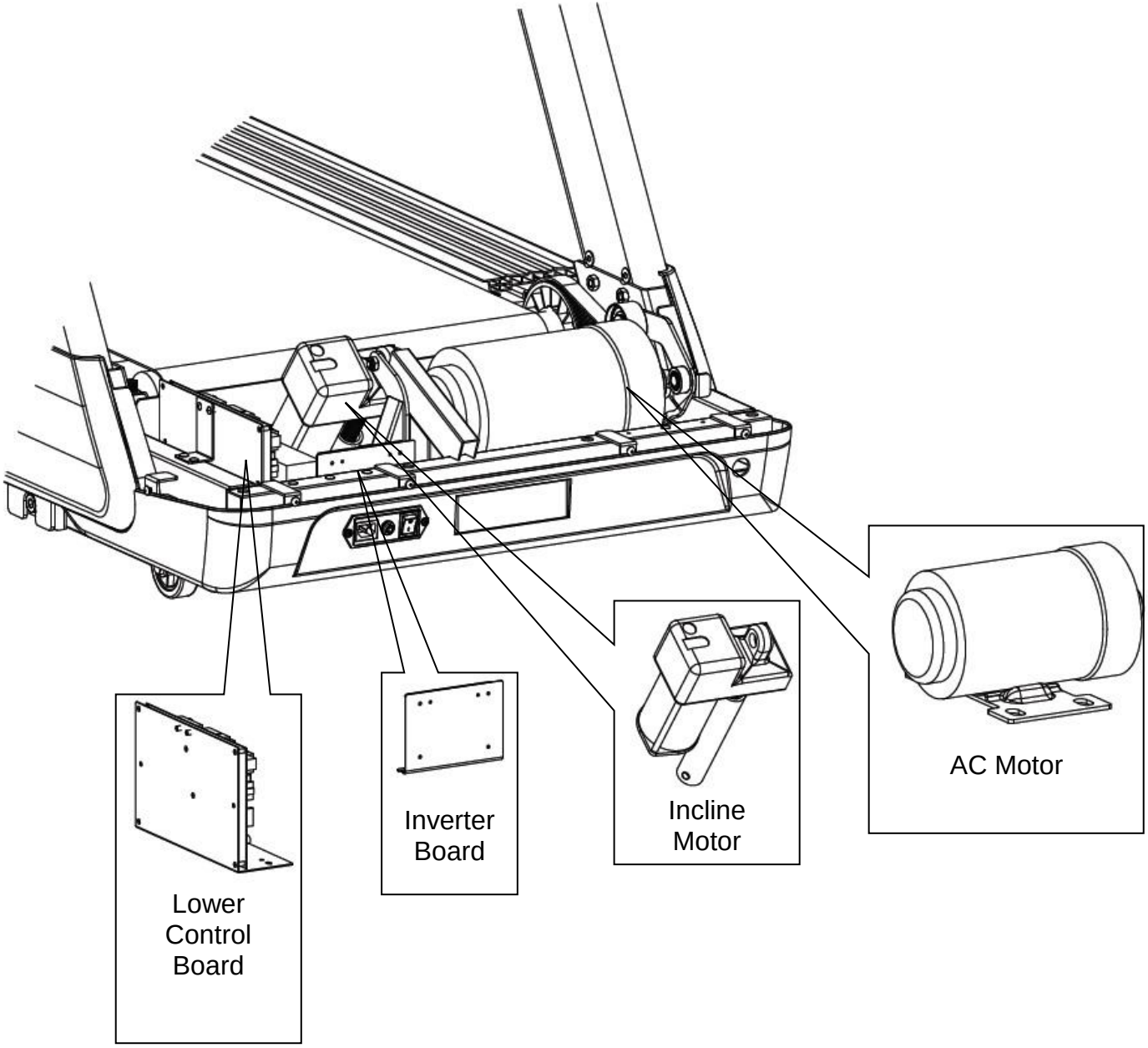
11. Installation of the Incline Motor

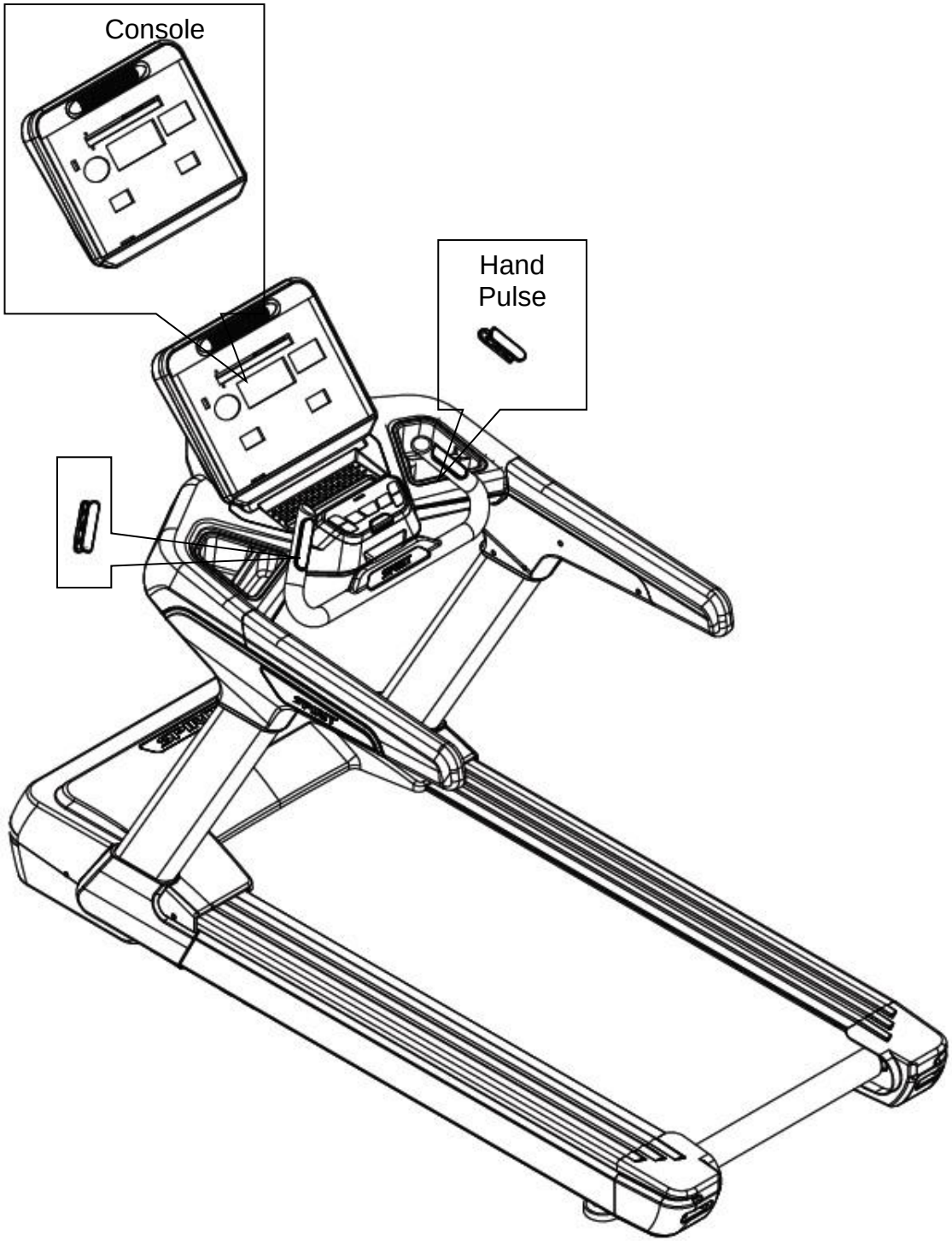


Incline Range must be adjusted to 315 mm minimum prior to installation.

1. Serial Number Location

2. Component Description

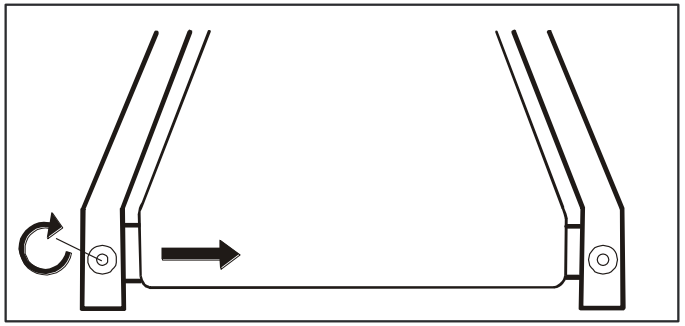



Console
Hand
Pulse

3. Preventative Maintenance

TO SET TREADBELT TRACKING:

A 10 mm Allen wrench is provided to adjust the rear roller. Make tracking adjustments from the **left** side only. Set belt speed at approximately 3 to 5 kph.



Remember, a small adjustment can make a dramatic difference!

Turn the bolt clockwise to move the belt to the right. Turn the bolt only a 1/4 turn and wait a few minutes for the belt to adjust itself. Continue to make 1/4 rotation turns until the belt stabilizes in the center of the running deck.

The belt may require periodic tracking adjustment depending on use and walking/running characteristics. Some users will affect tracking differently. Expect to make adjustments as required to center the tread-belt. Adjustments will become less of a maintenance concern as the belt is used. Proper belt tracking is an owner responsibility common with all treadmills.

4. Part Replacement Guide

4.1 Console Replacement

4.1.1 As shown in Figure 4.1.1, use the screwdriver to remove the LED chin cover 4 umbrella head screws.

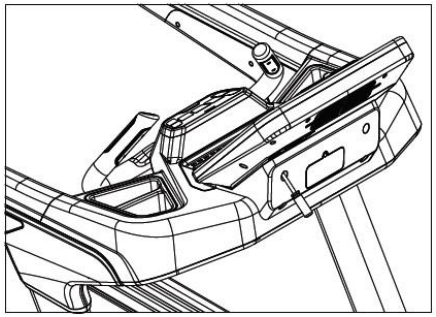


Figure 4.1.1

4.1.2 As shown in Figure 4.1.2, remove the electronic control cable connector, use the cross screwdriver to remove the electronic watch 4 umbrella head screws, you can remove the electronic form.

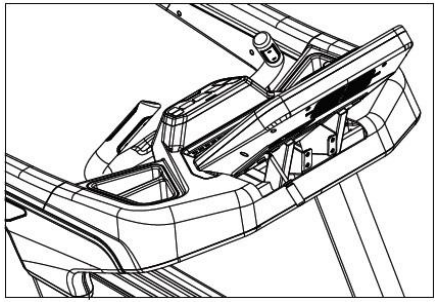


Figure 4.1.2

4.1.3 Electronic watch assembly can be replaced according to 4.1.1 and 4.1.2.

4.2 Lower Control Board Replacement

4.2.1 As shown in Figure 4.2.1, use the male screwdriver to loosen the eight umbrella head screws that secure the motor cover to remove the motor cover.

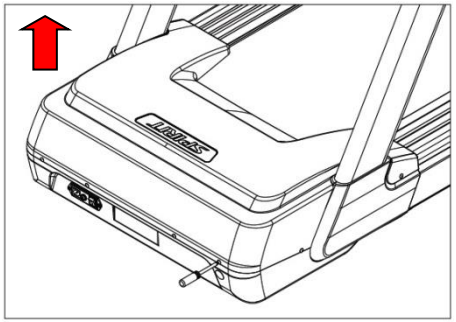


Figure 4.2.1

4.2.2 Remove the lower controller by removing the controller-related line and using the cross screwdriver to remove the controller as shown in Figure 4.2.2.

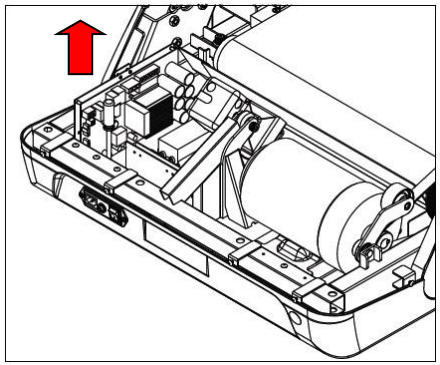


Figure 4.2.2

4.2.3 Replace the components and insert the wires back in accordance with 4.2.1 and 4.2.2.

4.3 Motor Replacement

4.3.1 Refer to Step 4.2.1 to remove the motor cover.

4.3.2 As shown in Figure 4.3.1, use the screwdriver to remove the motor ground wire (green yellow) and the motor connected to all wires on the control panel.

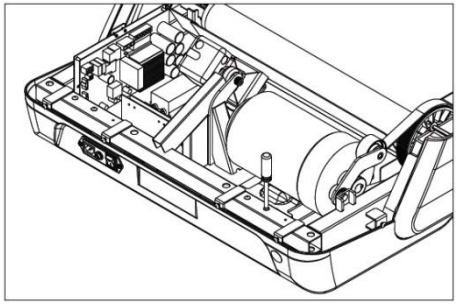


Figure 4.3.1

4.3.3 As shown in Figure 4.3.2, remove the motor under the cover button.

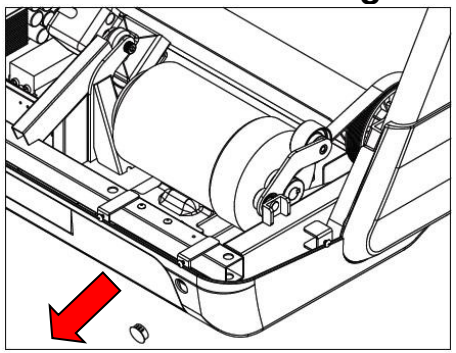


Figure 4.3.2

4.3.4 As shown in Figure 4.3.3, use the tool to secure the red arrow and release the belt with the 13th T-sleeve to remove the belt and remove the belt from the motor.

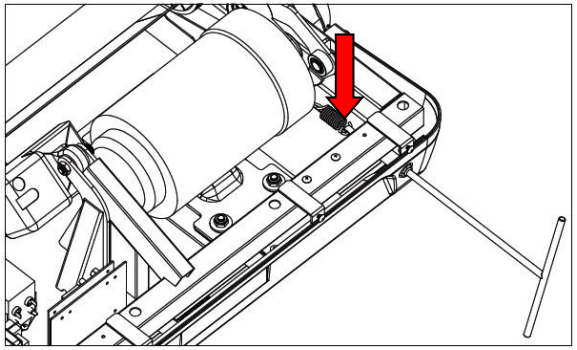


Figure 4.3.3

4.3.5 Remove the four M10 caps using the 17th T-Shirt to remove the motor from the motor.

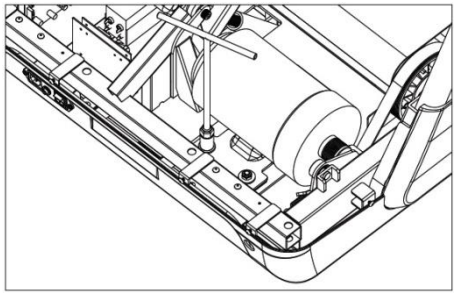


Figure 4.3.4

4.3.6 Refer to Step 4.3.5 to replace the motor. The motor needs to push forward, the belt hook back.

4.3.7 Refer to Step 4.3.4, use 13 T-type sleeve, adjust the required belt tension, the value can be adjusted to 120 ~ 130HZ.

4.3.8 Connect the motor ground wire and the motor to all the wires on the control panel.

4.4 A.C. Input Module Replacement

4.4.1 Refer to Step 4.2.1 to remove the motor cover.

4.4.2 Remove the AC power switch ground wire using a screwdriver as shown in Figure 6.4.1.

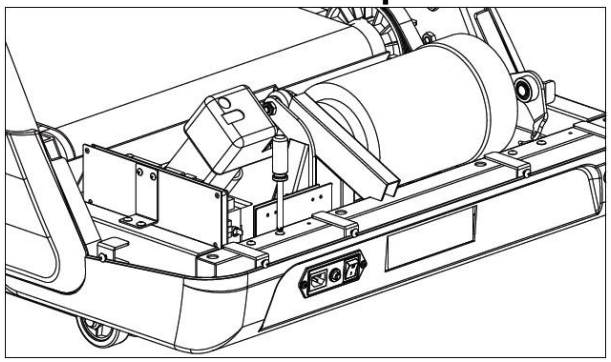


Figure 4.4.1

4.4.3 Remove the AC power switch module with the cross screwdriver and switchboard 8 as shown in Figure 6.4.2.

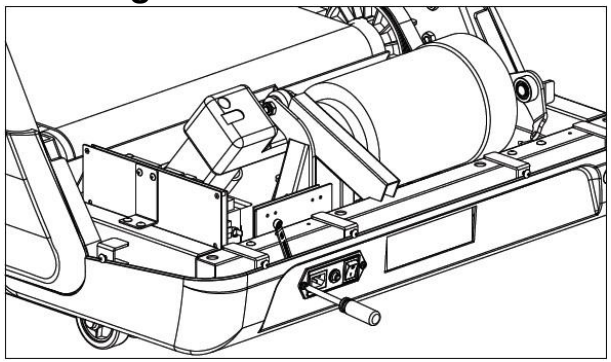


Figure 4.4.2

4.4.4 After replacing the new product, replace it in the order of removal.

4.5 Front and Rear Roller Replacement

4.5.1 As shown in Figure 4.5.1, use the screwdriver to remove the left and right side adjustment screw.

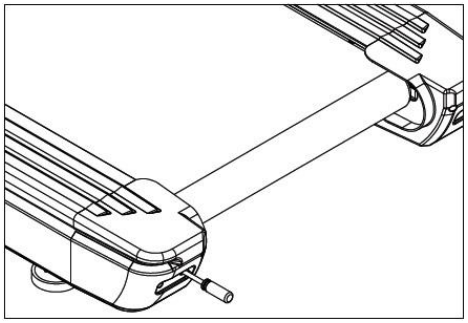


Figure 4.5.1

4.5.2 As shown in Figure 4.5.2, use the No. 8 L-type hex wrench to remove the two rear wheel screws.

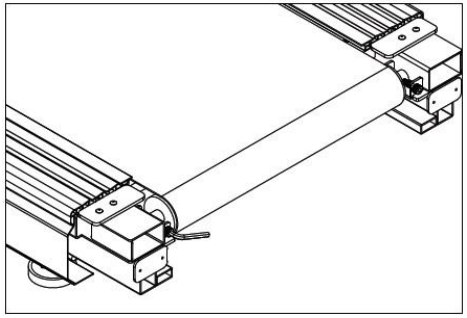


Figure 4.5.2

4.5.3 Refer to Step 4.2.1 to remove the motor cover.

4.5.4 Refer to Step 4.3.3 and Step 4.3.4 to release the belt. Please refer to 4.5.1 and 4.5.2 for the assembly of the left and right chain cover.

4.5.5 As shown in Figure 4.5.3, remove the front roller with the No. 8 L-shaped hex wrench and remove the front roller.

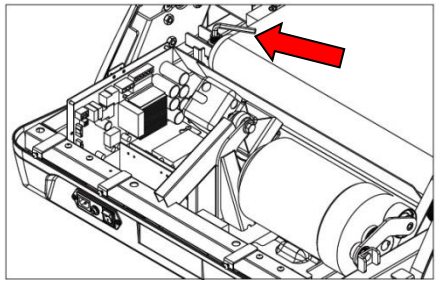


Figure 4.5.3

4.5.6 Replacement of the new front and rear rollers, and then assembled in the order of removal.

4.5.7 When assembled, adjust the running belt tension, so that running in the set. Refer to step 4.3.4, use 13 T-type sleeve, adjust the belt tension 120 ~ 130HZ can.

4.6 Running Deck, Running Belt and Cushion Replacement

4.6.1 Refer to Step 4.5.1 to Step 4.5.5 to remove the front and rear rollers.

4.6.2 As shown in Figure 4.6.1, use a screwdriver to remove the screws on the rear cover.

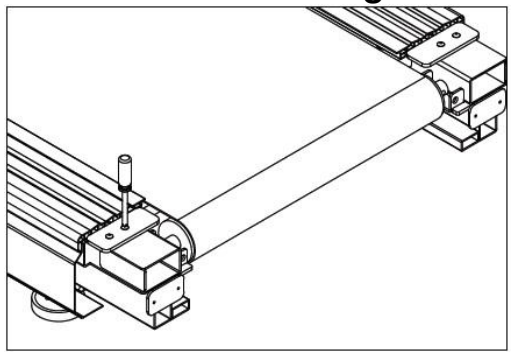


Figure 4.6.1

4.6.3 As shown in Figure 4.6.2, use the No. 6 L-shaped hex wrench to loosen the 8 screws of the retaining strip.

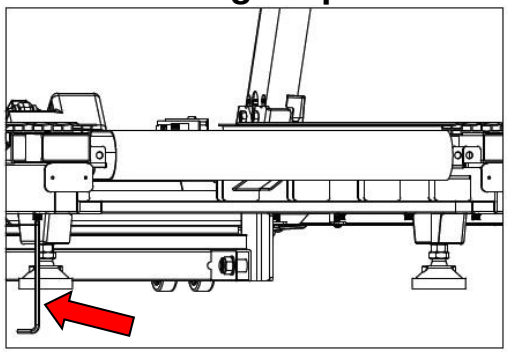


Figure 4.6.2

4.6.4 As shown in Figure 4.6.3, remove the left and right trims in the direction of the arrow.

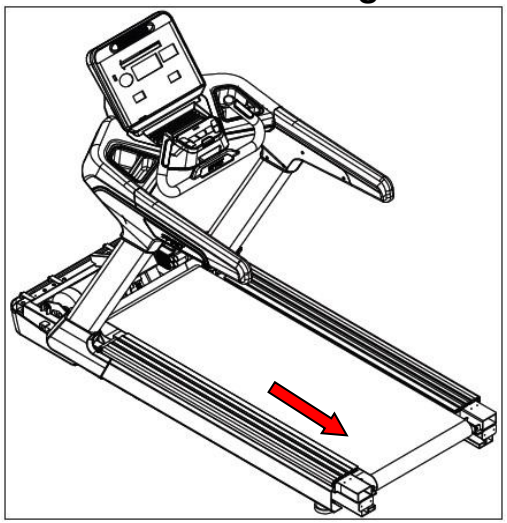


Figure 4.6.3

4.6.5 As shown in Figure 4.6.4, use the No. 4 L-type hexagonal wrench to remove the running plate fixing screw. Set off the running board; choose to replace the running board or running belt. To change the cushion, as shown in Figure 6.6.5, and then remove the 8 buffer to replace the new, assembled and then removed in order to replace.

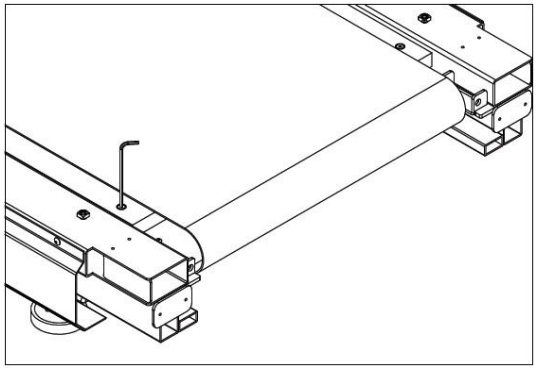


Figure 4.6.4

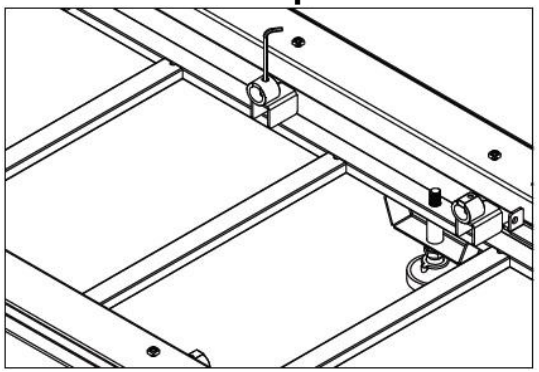


Figure 4.6.5

4.6.6 When assembled, adjust the running belt tension, so that running in the set.

4.7 Incline Motor Replacement

4.7.1 Refer to Step 4.2.1 to remove the motor cover.

4.7.2 As shown in Figure 4.7.1, Figure 4.7.2, Figure 4.7.3, move the machine up on the paper tube, use the No. 17 opening wrench 2 to remove the lifting motor The screws that are fixed to the lifting frame , Use the No. 17 opening wrench 2 to remove the lifting motor fixed to the main frame of the screw and detachable motor, remove the need to be associated with the line removed.

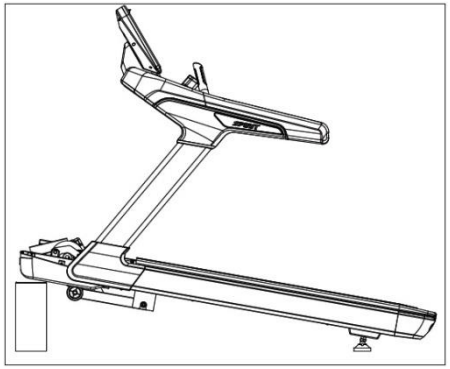


Figure 4.7.1

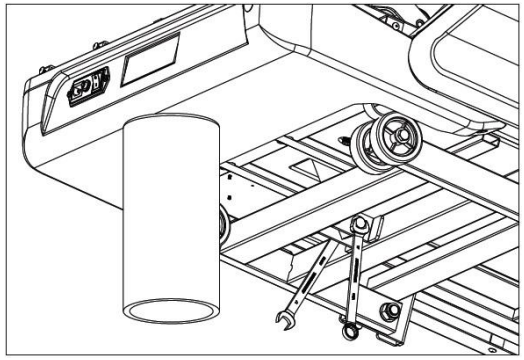


Figure 4.7.2

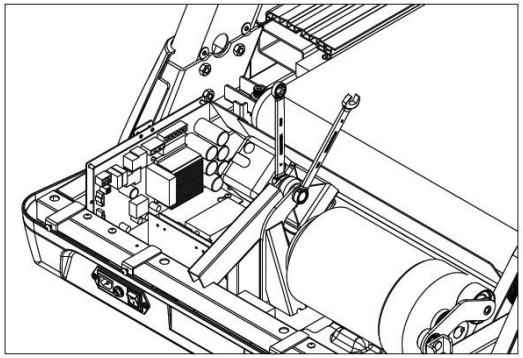


Figure 4.7.3

4.7.3 As shown in Figure 4.7.4, the lifting motor should be adjusted to a minimum stroke of 315 mm to be set up (about five turns in the end).

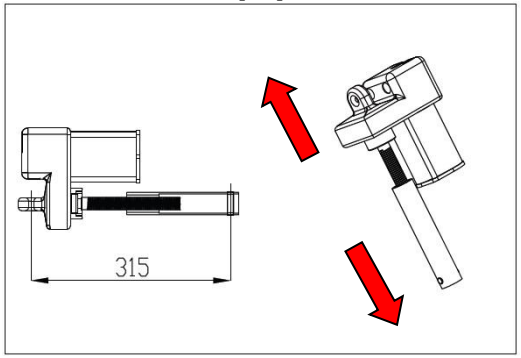


Figure 4.7.4

4.7.4 As shown in Figure 4.7.5, the assembly of the lifting motor should be replaced in the order of removal and connected to the control and grounding lines.

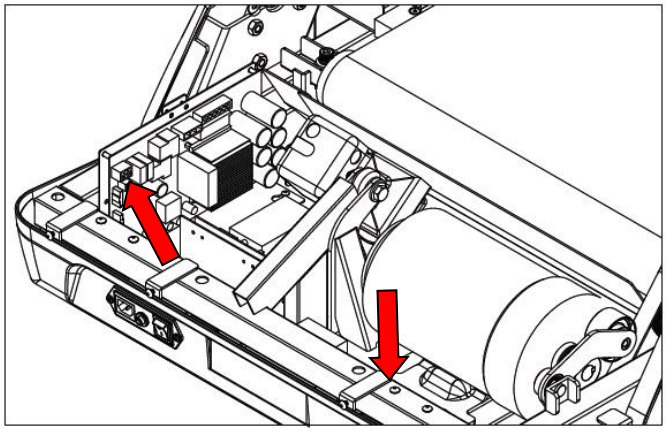


Figure 4.7.5

4.8 Idler Replacement

4.8.1 Refer to Step 4.3.1 to Step 4.3.5 and remove the motor.

4.8.2 As shown in Figure 4.8.1, remove the press pulley by removing the C with the tool.

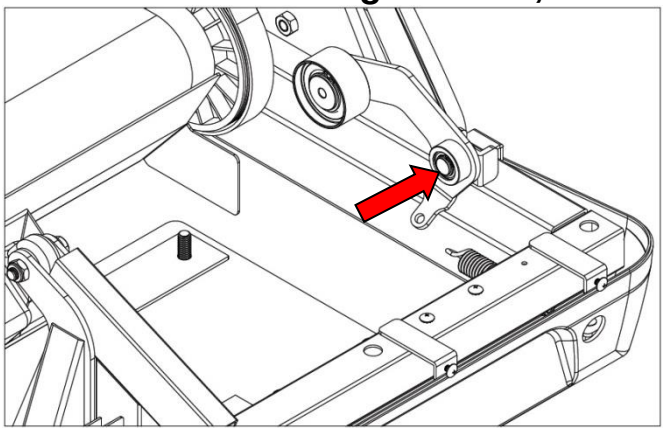


Figure 4.8.1

4.8.3 Replace the new product, and then replace the assembly in the order of removal.

4.9 Hand Pulse Control Board and Hand Pulse Set Replacement

4.9.1 Refer to Step 4.1.1 and Step 4.1.2 to remove the electronic watch group.

4.9.2 As shown in Figure 4.9.1, remove the 18 screws from the upper bracket of the fixed bracket with a screwdriver to remove the bracket cover.

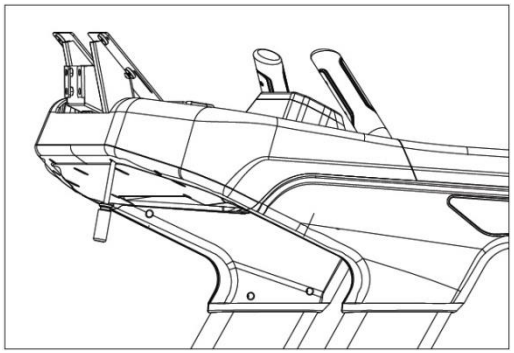


Figure 4.9.1

4.9.3 As shown in Figure 4.9.2, remove the 12P control cable connector and remove the core module wire to remove the new product.

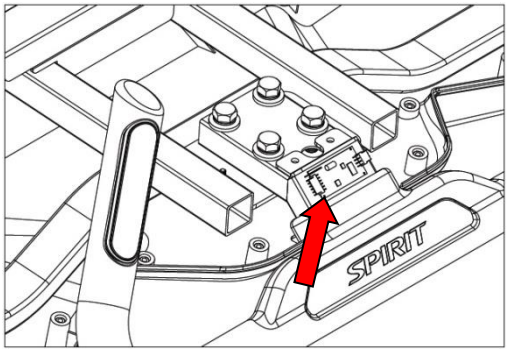


Figure 4.9.2

4.9.4 As shown in Figure 4.9.3, use the hexagonal wrench to remove the four hexagonal screws, you can replace the hand-held group, assembled and then removed in order to replace.

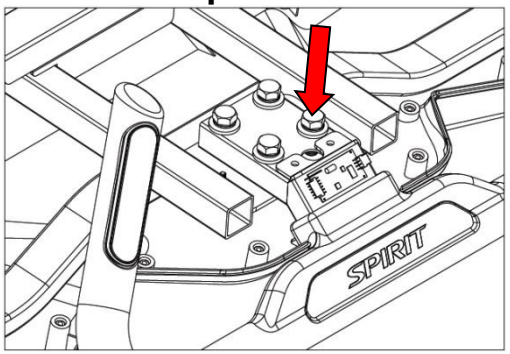


Figure 4.9.3