



# ***XBR55***

## ***Service Manual***

**DYACO**  
Dyaco International Inc.

# -----Table of Contents-----

1. Recumbent Controllers Outlines  
Outlines  
Skeleton
2. Electronic Parts  
Upper Controllers  
Lower Controller and Driver
3. Electrical Configurations
4. Product Operation
5. Unit Block Diagrams
6. Basic Connections and Wiring
7. Product Safety Instructions
8. Error Messages / Troubleshooting
9. Troubleshooting
  - 9-1 Console Disassembling and assembling
  - 9-2 Console Mast and Cover
  - 9-3 Crank Arm and Pedal
  - 9-4 Front Shroud & Round Disk
  - 9-5 Gear Motor, Steel Cable and Reed Switch Sensor
  - 9-6 Drive Pulley Axle and Drive Pulley
  - 9-7 Flywheel and Drive Pulley
  - 9-8 Disassembling/Assembling of Seat Carriage Cover and Seat Back Bracket
  - 9-9 Release Lever and Steel Cable
  - 9-10 Gas Cylinder (Remark 8)
  - 9-11 Seat, Seat Handle Bar and Handpulse W/Cable
  - 9-11 Rear Shrouds and Harness
  - 9-12 Buttons on The Handle Bar (Remark 9)
  - 9-13 Rear Shrouds and Harness
  - 9-14 Seat Carriage
  - 9-15 Aluminum Trail and Stabilizer Cover

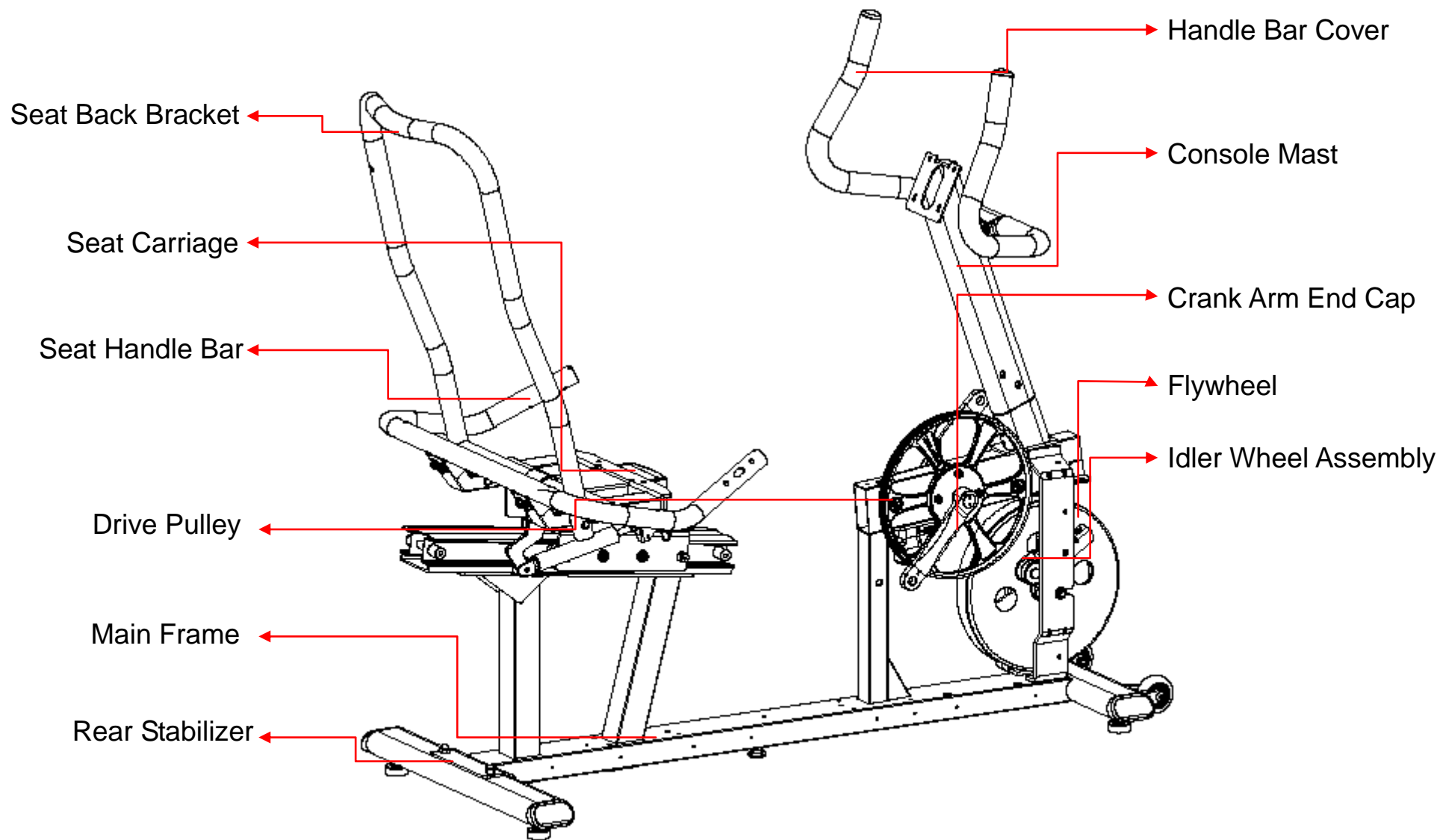
**9-16 Console**

**9-17 Belt Slipping and Falling-off**

**9-18 Noises**

# ***1. XBR55 Outlines***





## ***2. Electronic Parts***

## Upper Controllers





## Lower Controller and Driver



TENSION MOTOR



SPEED SENSOR

## ***3. Electrical Configurations***

**CONSOLE:**

Interface that controls all functions of the Bike.

**TENSION MOTOR:**

*It can change to increase or decrease resistance level of brake.*

**GENERAL INFORMATION****CONSOLE**

Contains Key controls and LCD Display.

Main controller Include power supply and motor driver control circuit .

*Tension motor*

Work voltage:DC 4.5~7.5V

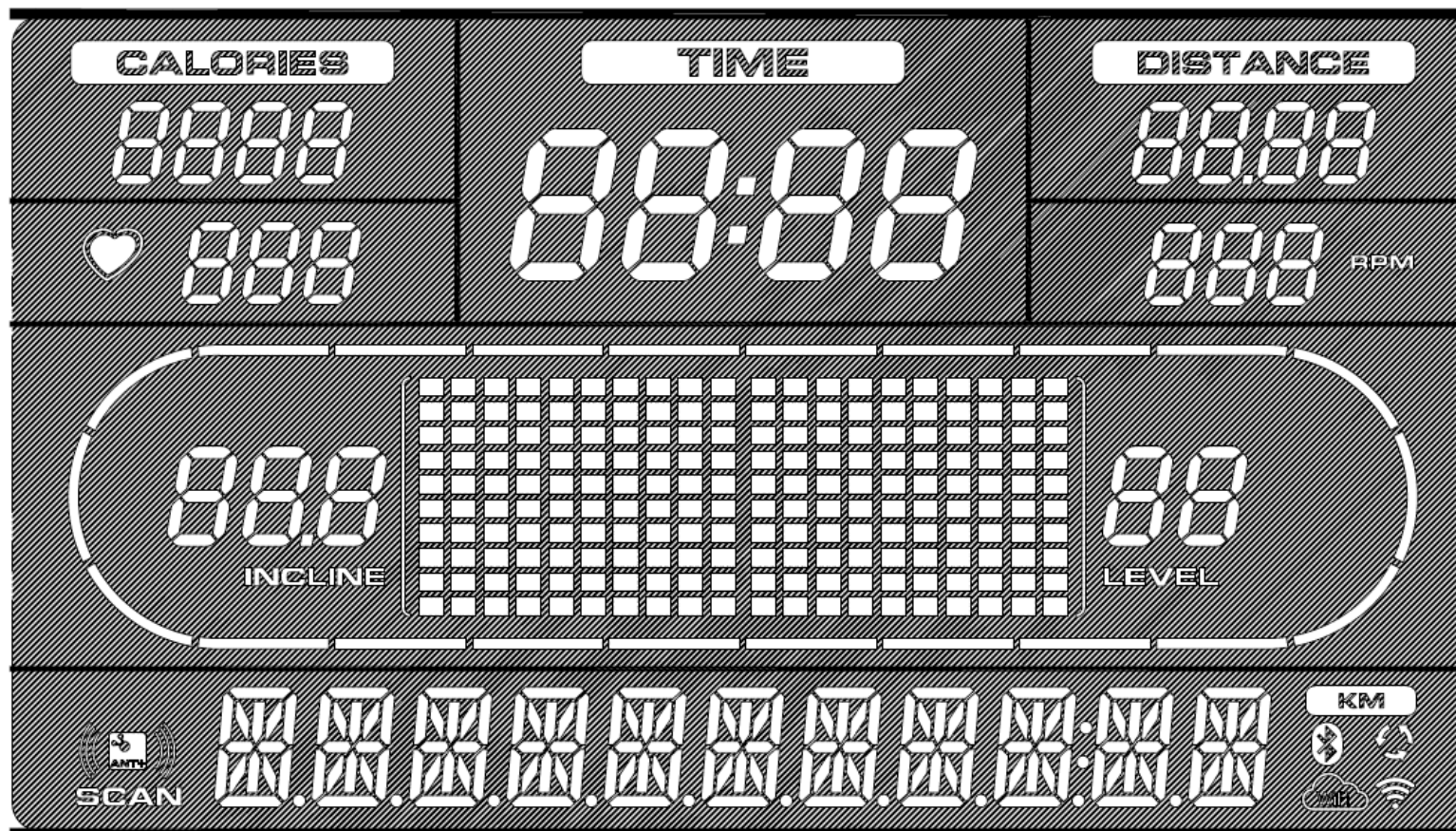
Control resistance increases and decreases.

## ***4. XBR55 Product Operation***

# Display Windows



7.5" LCD Display



**LCD Layout**

# Operation

## Window Display Mode

### IDLE MODE

- 1.1 Each program profile will be displayed on the MESSAGE WINDOW sequentially. And recycle display 『PRESS START FOR QUICK START OR PROGRAM BUTTON FOR SETUP』 at the same time.
- 1.2 Heart rate bar LED and Track LED will be display stand light.  
DATA window (7 segment display window) display RPM= 000 , CALORIES= 000 , TIME = 00:00 , DISTANCE = 0.00 , PULSE = - - - °. During 5 minutes no press any key will into IDEL MODE(no contain IDEL MODE)

### DISPLAY MODE

- 2.1 Pre-set: DISPLAY ON(DISABLE), You could set the DISPLAY ON/OFF by ENGINEERING MODE.
- 2.2 The console will not get into SLEEP MODE when the set up is “ ON ” , unless turn off the power. There is no RPM input in IDEL MODE, and enter to SLEEP MODE after 30 minutes without pressing any key.
- 2.3 In DISPLAY MODE, LCD screen will has no display, and backlit will be off. Press any key to wake up the system, and back into IDEL MODE.
- 2.4 Resistance in SLEEP MODE: Incline =1

### CHILD LOCK MODE

- 3.1 Pre-set: CHILD LOCK OFF (DISABLE). You could set the CHILD LOCK ON/OFF by ENGINEERING MODE.
- 3.2 The message window will display “ CONSOLE LOCKED ” after twice will show ” CHILD LOCK-ON PRESS START AND ENTER TO ENABLE OPERATION” , when CHILD LOCK setup is ON. You could setup the CHILD LOCK MODE OFF by pressing “ START ” and ” ENTER ” key for more then two seconds. After that it will enter to IDEL MODE.
- 3.3 All keys will be no action when CHILD LOCK MODE is active.

### EXERCISE MODE ( QUICK START )

- 4.1 In IDEL MODE, press START key enter to MANUAL MODE. The age, weight is presetting value. Time counting is count up from 00:00. All countable data will count up from “ 0 ” , and resistance is count up from “ 1 ” .



- 4.2 You could chose the program by pressing the key: MANUAL 、 PROGRAM 、 HRC . And then, press “START” key to start the workout. All parameter will be the preset value.

#### PAUSE MODE

- 5.1 Press “STOP” key enter to PAUSE MODE, and exercise parameters will be recorded. Message window will display “PAUSE”, and upper window will display the recorded exercise parameter.
- 5.2 In PAUSE MODE, it will display PAUSE. After 5 seconds, MW will show” PRESS START TO RESUME OR STOP TO END WORKOUT”
- 5.3 It will enter to IDLE MODE after waiting by five minutes without pressing any
- 5.4 The ramp incline level should back to “1” when the resistance level is “1”. The position of tension motor and ramp incline should back to the preset level before it pause when press “START” key.

## END MODE

6.1 The message window will display “ WORKOUT SUMMARY ” after end workout and display workout data 1 minutes.

6.2 END MODE :

6.2.1 Display exercise data in message window each three seconds display 『 TOTAL TIME XX:XX 』、 『 AVG SPD XX.X 』、 『 AVG WATT XXX 』、 『 AVG HR XXX 』、 『 LAPS XX 』

6.1.1 LEVEL Display exercise data in message window and show average value.

6.1.2 CALORIES ,TIME,DISTANCE display total data in message window .

6.3 When the time counting is end, and END MODE display is finished without pressing any key in 3 minutes.The system will enter IDLE MODE.

## RESET MODE

7.1 In IDLE MODE, press STOP key for more than three seconds will enter to RESET MODE and reset the system. If the system is in CONSOLE LOCK MODE you have to quit CONSOLE LOCK MODE first, and you can execute the RESET MODE.

7.2 The message window will finished the reset.After that, the system is in IDLE MODE.

## Function

### **SPEED**

Display the current speed in mile per hour.

DISPLAY range is 0.0 to 99.9

WORK range is 0.0~99.9

### **LEVEL**

Display the level position from 0 to 20.

DISPLAY range is 0 to 999.

WORK range is 0 to 20.

LEVEL preset value is 0 to 20.

Press "UP" or "DOWN" to adjust level, each increment and decrement is 1.

### **TIME**

TIME is either COUNT UP or COUNT DOWN. System preset is COUNT UP; if user sets the time then timer is COUNT DOWN.

DISPLAY range is 0:00 to 99:99.

WORK range is 0:00 to 99:59.

COUNT DOWN setup range is 10:00 to 99:00.

When TIME is set, the count will go to zero.

In RUN Mode, press "STOP" button to save value of time and enter "RUN Mode" again that value will continue count up time.

### **LAPS**

Display the total working laps quantity.

DISPLAY range is 0 to 99.

WORK range is 0 to 99.

Displays total laps quantity.

**DISTANCE**

Display the current distance in Mile.

DISPLAY range is 00.0 to 99.9.

WORK range is 00.0 to 99.9.

**CALORIES**

Displays the cumulative calories burned at any given time during your workout.

DISPLAY range is 00.0 to 999.

WORK range is 00.0 to 999.

**PULSE**

Displays the heart rate beat by using hand pulse or receiver. When use receiver, a chest belt must be worn.

DISPLAY range is 0 to 999.

WORK range is 40 to 220 BPM.

In RUN Mode, if the Bike doesn't have a signal for 8 seconds then display value will become "0".

## Function Button Locations



### PROGRAM BUTTONS

(Manual, Hill, Fat  
Burn ,Cardio,Strength,  
Interval,User1~2, HR1~2)

### CONTROL KEYS

### Fan Key

Cooling fan switch on or  
off

## Function Button In Main Mode

### READY MODE

**STOP button:** Non-function.

**START button:** Pressing “ START ” button to start Bike. In MANUAL, Bike starts at MIN LEVEL .

**LEVEL UP button:** If user doesn't enter a setting then this button is non-functional.

**LEVEL DOWN button:** If user doesn't enter a setting then this button is non- functional.

**FAN button:** It can to control ON/OFF for the fan.

**ENTER KEY :**

Press ENTER key enter to parameter setting, and confirm the every setting by pressing START key no pressing ENTER key..

Pressing ENTER key confirm the every setting or modify parameter use.

## RUN MODE

**STOP button:** press “STOP” button to stop Bike.

**START button:** non-functional.

**ENTER button:** non-functional.

**LEVEL UP button:** Press the button to increase your level and each increase is 1.

**LEVEL DOWN button:** Press the button to decrease your level and each decrease is 1.

**Fan button:** It can to control ON/OFF for the fan.

### ENTER KEY :

Press ENTER key to switch the exercise data when you are workout. If the display information is the latest data , press ENTER key the message window SCAN ICON will lightness and change to auto display every four seconds recycle. The information as below,

『 SPEED XX.X MPH 』

『 WATT XXX 』

『 LAPS XX 』

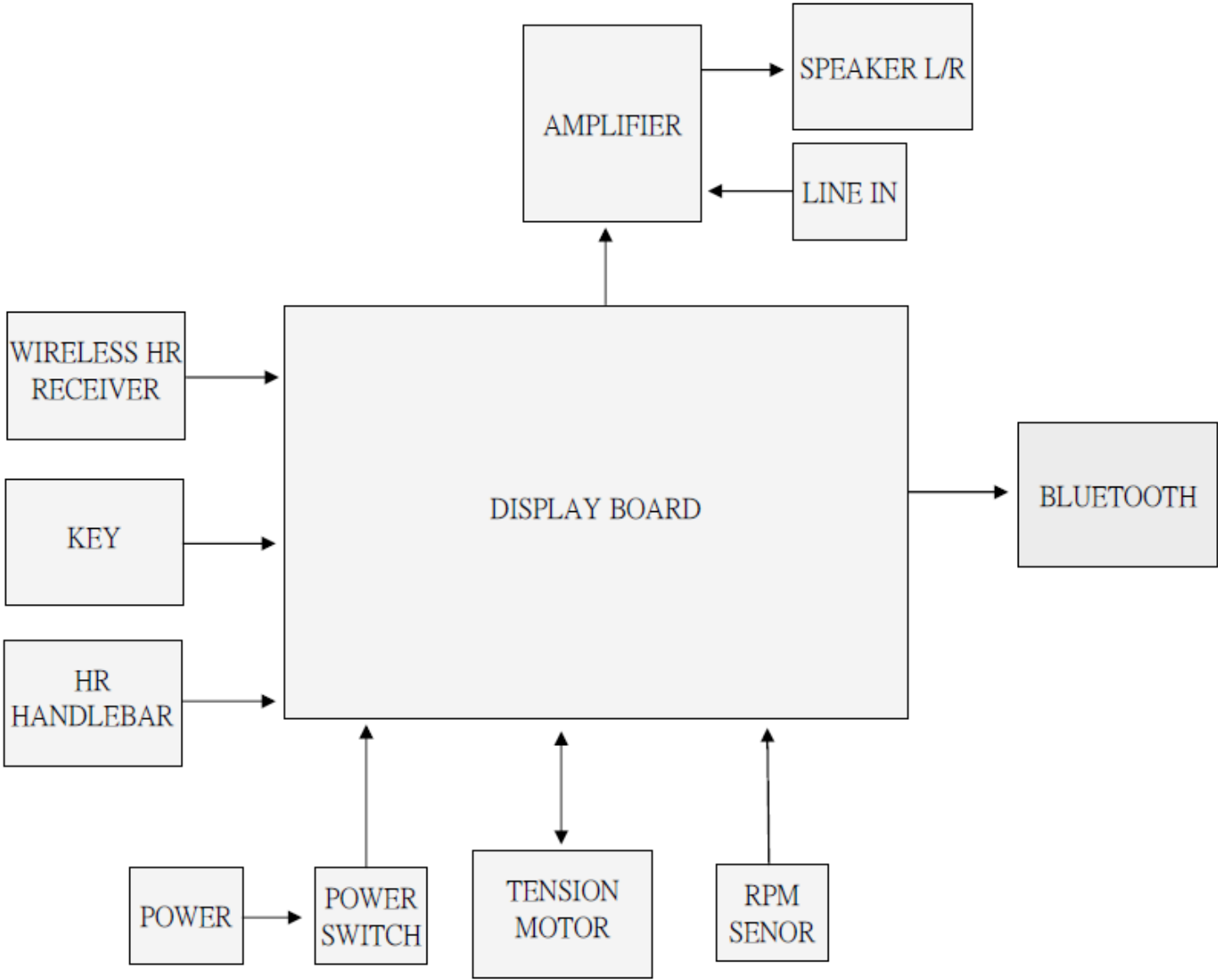
『 TIME XX:XX 』

『 MAX LV XX 』 (ONLY PROGRAM MODE DISPLAY)

## ***5. XBR55 Unit Block Diagrams***

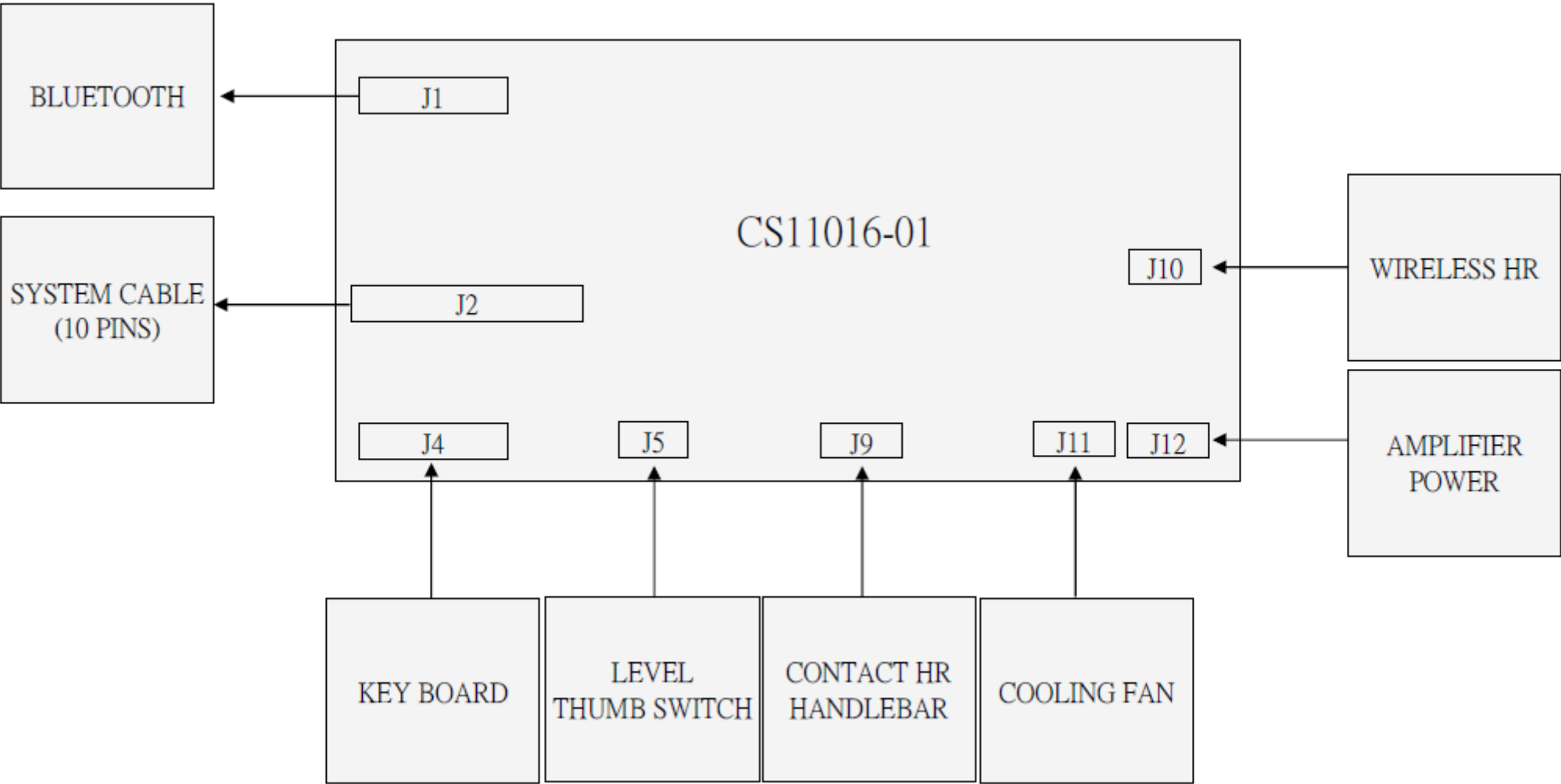


# Bike Configuration



## ***6. XBR55 Basic Connections and Wiring***

# Display Board wire Connections

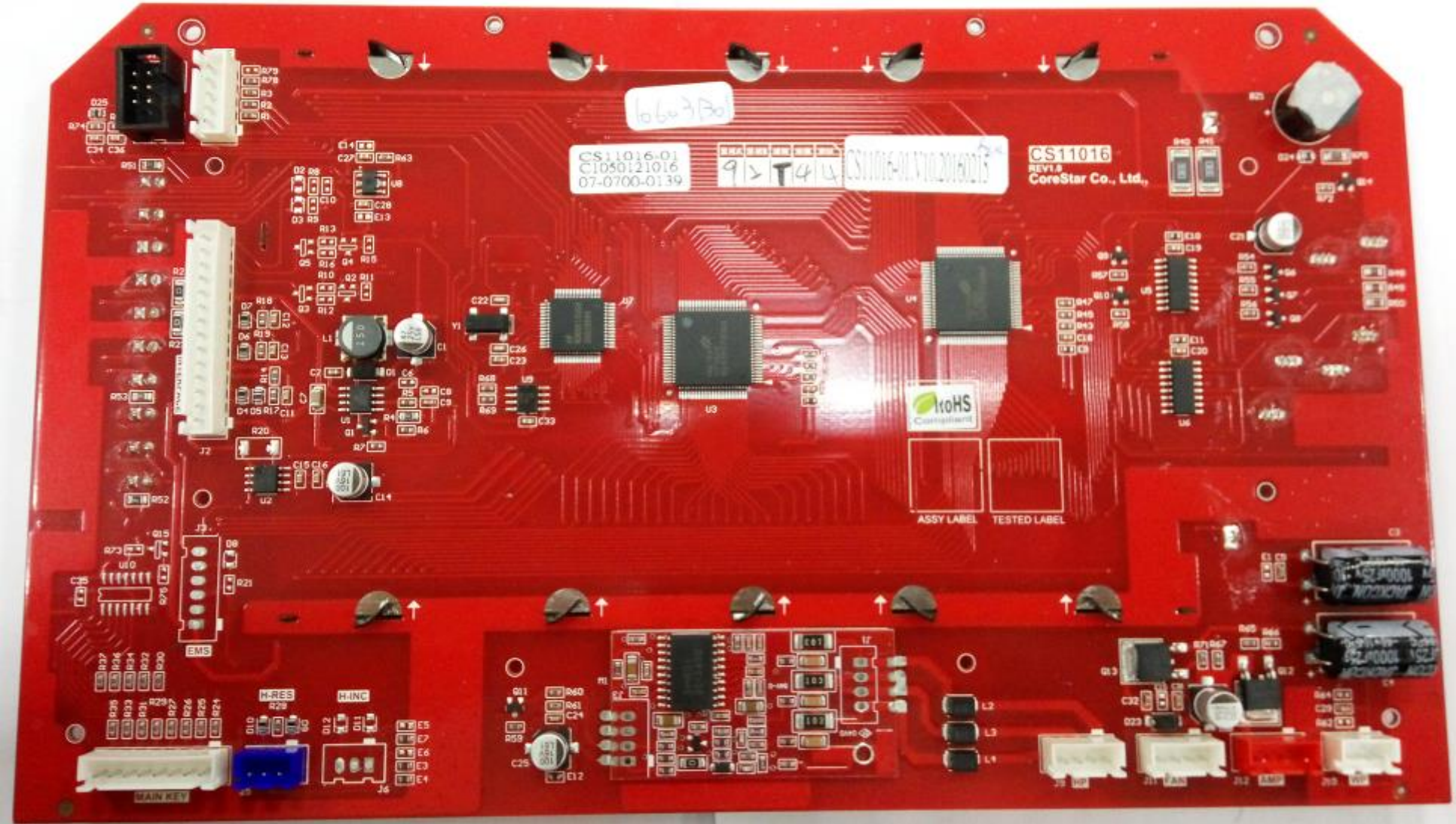


# Display Board PCB Component Locations

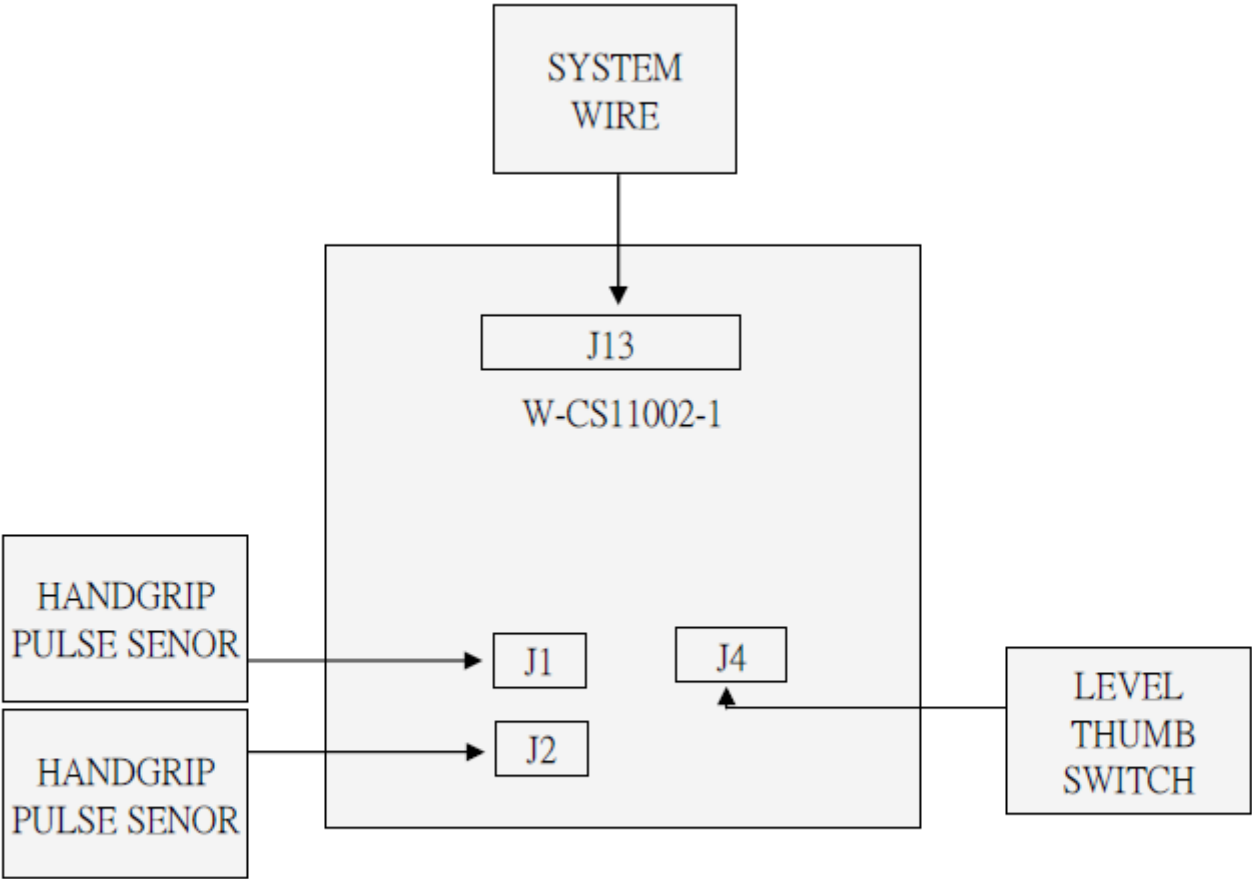
## PCB Board Top



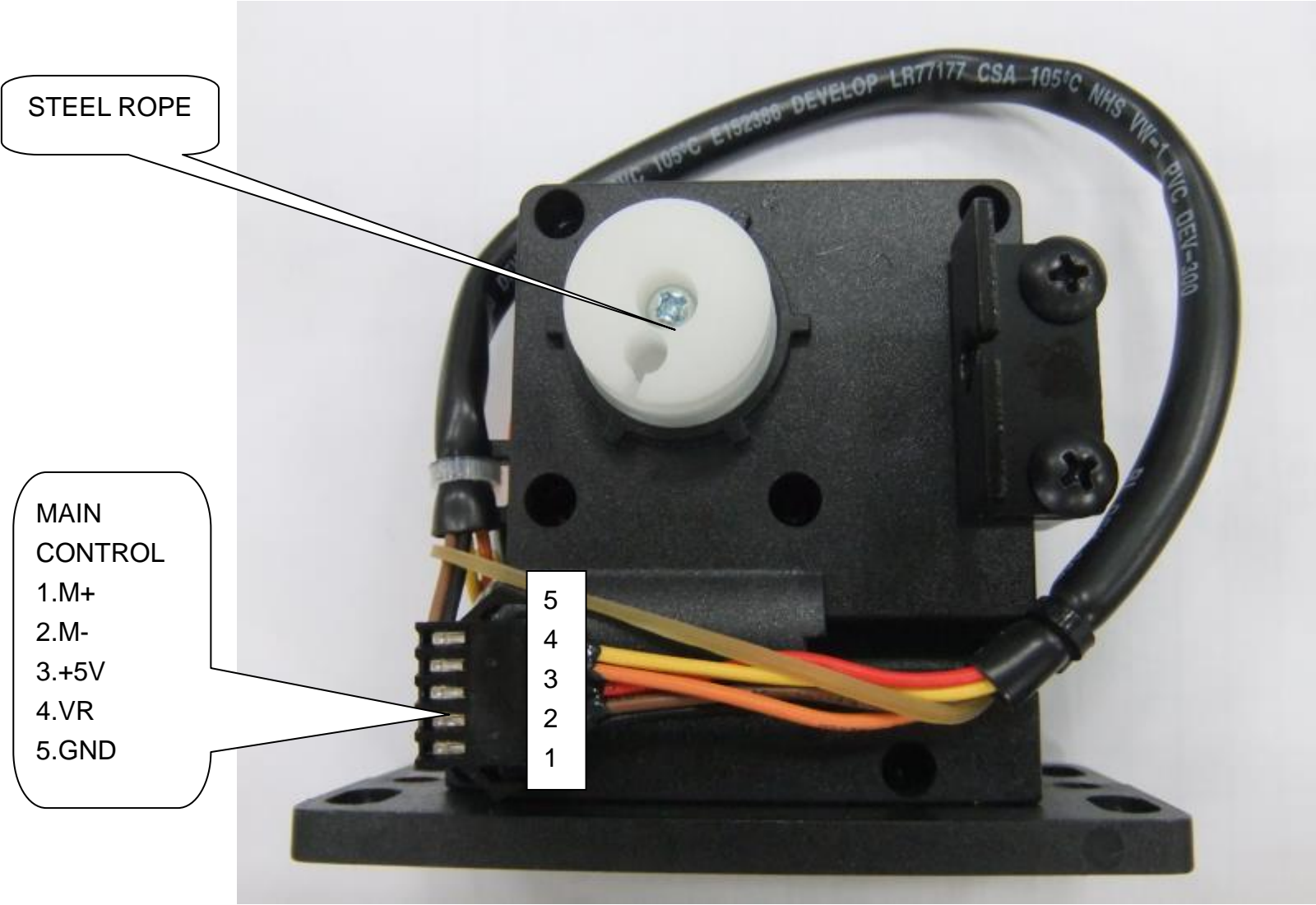




# The console Interface Board wire Connections



# Tension Motor connector definition function



## ***7. Product Safety Instructions***



## Important Safety Instructions

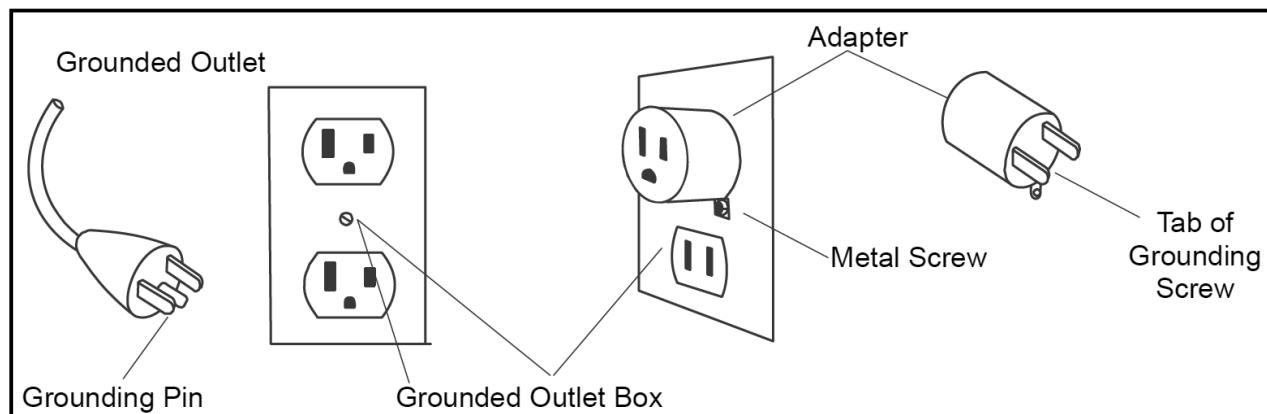
- To reduce the risk of electric shock disconnect your Bike from the electrical outlet prior to cleaning and/or service work.
- To reduce the risk of burns, fire, electric shock, or injury to persons, install the Bike on a flat level surface with access to a 115-volt, 15-amp grounded outlet with only the Bike plugged into the circuit.
- Do not use an extension cord unless it is a 16 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 Bike. As with any appliance with a large motor, the GFCI will trip often. Route the power cord away from any moving part of the Bike 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 Bike is first turned on or even during use. If your Bike is tripping the house circuit breaker (even though it is the proper current rating) but the circuit breaker on the Bike 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](http://www.squared.com) part # QO120HM.

## Important Grounding Instructions

- **This product must be grounded.** If the Bike 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 115-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 earlug, 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. XBR55 Error Messages / Troubleshooting***

Error code items :

Error Message	Explain
EEPROM ERR	EEPROM failure
- -	Tension motor is failure

● Prepare :

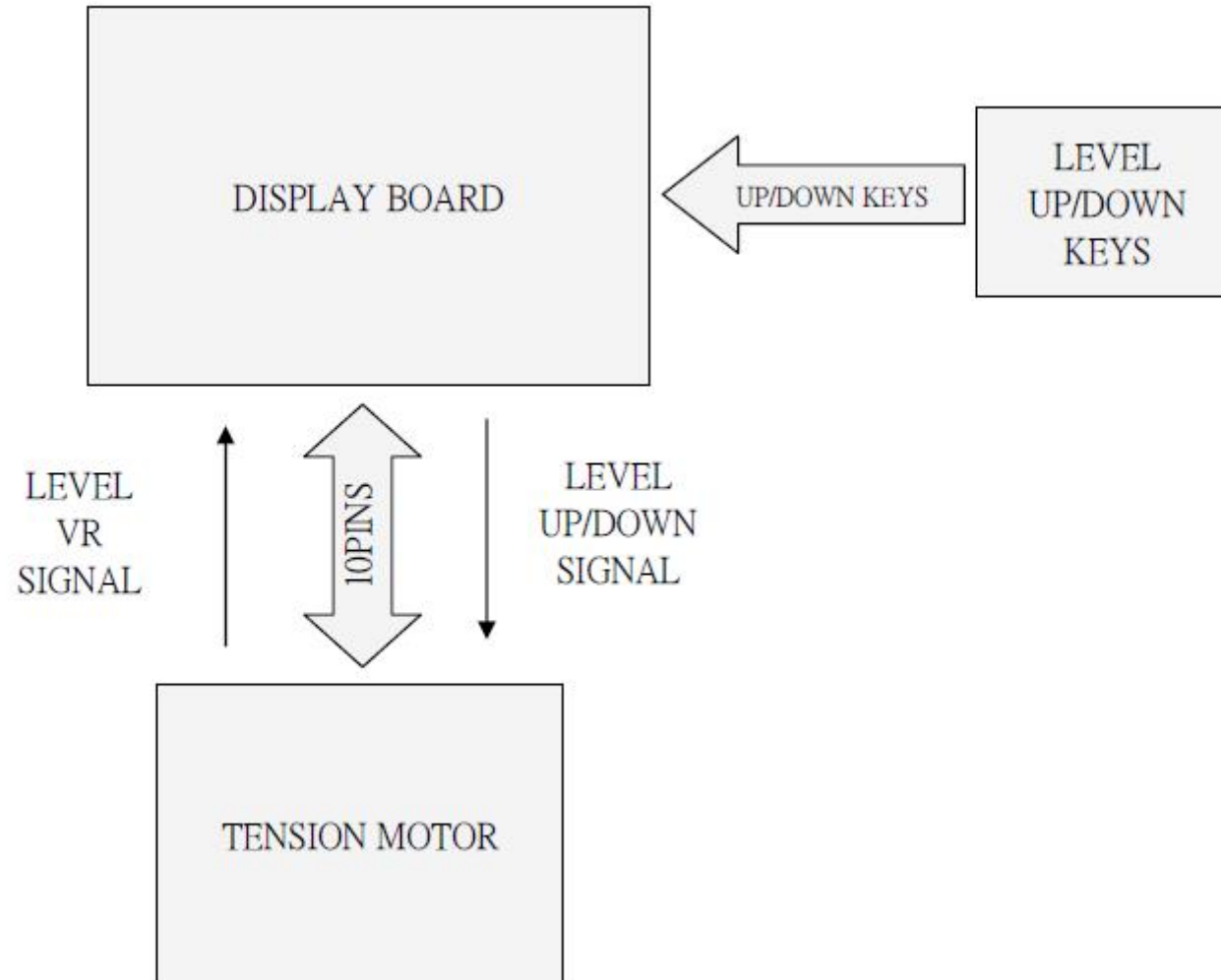
Picture	Tool name
	Multi-meter

- **Error Message : EEPROM ERR**
- **Definition: All screens are off, and outputs are stop when EEPROM damaged or malfunction. Display message will show “EEPROM ERR”.**
- **Troubleshooting: Replace upper controller.**

- **Error Message** : - -

- Definition : When you press the Level Up or Down key,the motor does not move.” --” appears on the display.

- Configuration :



## ● Tension Motor Operation

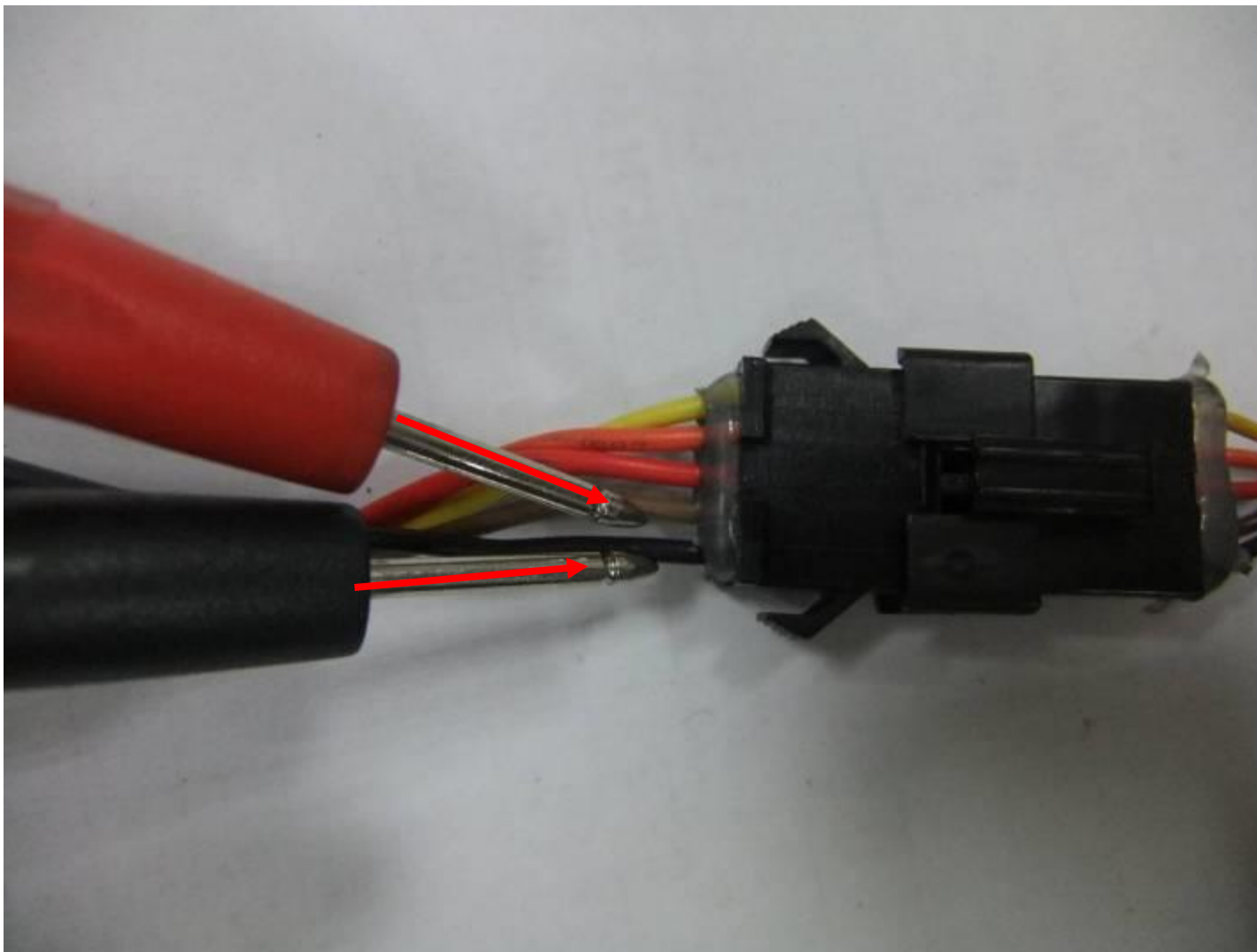
Part	Description
Display	Key signal travels to the display.The main program IC then sends a command signal to the drive board.
Drive Board	Drive board receives the signal and responds by putting out power to the motor.Level UP:+5VDC;Level DOWN:-5VDC

## ● Tension Motor Troubleshooting

Part	Description
Display	If the key beeps when pressed,assume that the signal was sent.
Data cable	Inspect the cable and connections.
Drive Board	Inspect drive board power output to the motor.Press the Level Up is +5VDC;Level DOWN is -5VDC.If there is power to the motor,but the motor does not operate,replace it.If there is no power output,inspect whether the drive board has power.

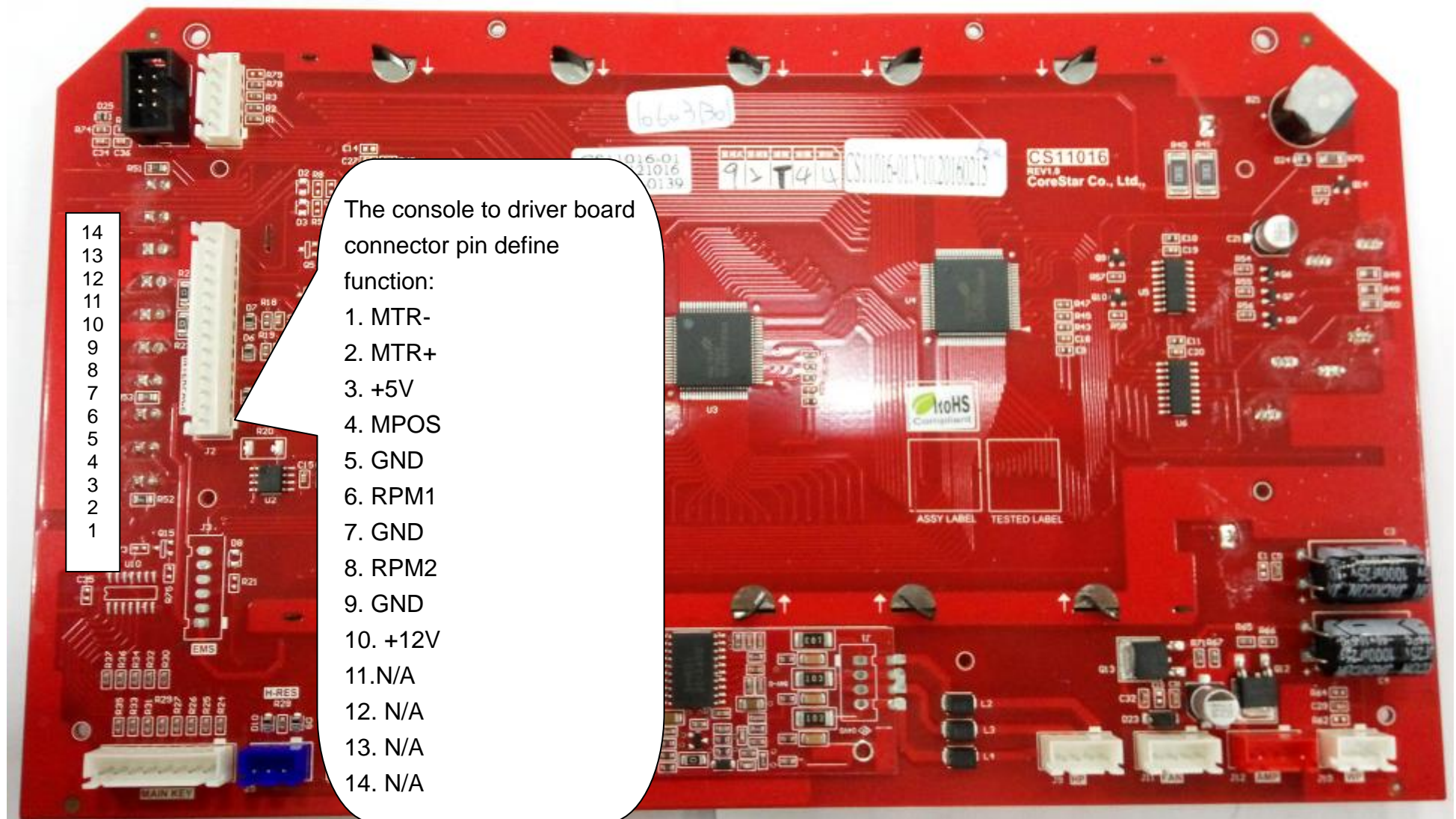
## ● Tension Motor Voltage Test Procedure

1. Put multi-meter to the 20VDC setting.Place probes on the motor control wire(Red probe in blue wire,Black probe in green wire) on the drive board.
2. Turn on unit power.The display lights up.
3. Press LEVEL UP. Normal reading : +5.5~6.0VDC.Motor operates.Resistance increases.
4. Press LEVEL DOWN. Normal reading : -5.5~6.0VDC.Motor operates.Resistance decreases.
5. If there is no voltage,inspect power socket the holder FUSE.If broke replace it.
6. Inspect the drive board POWER LED whether lit.If no lit the drive board is bad.Replace it.



Place probes on the motor control wire(Red probe in palm wire,Black probe in black wire) on the drive board.

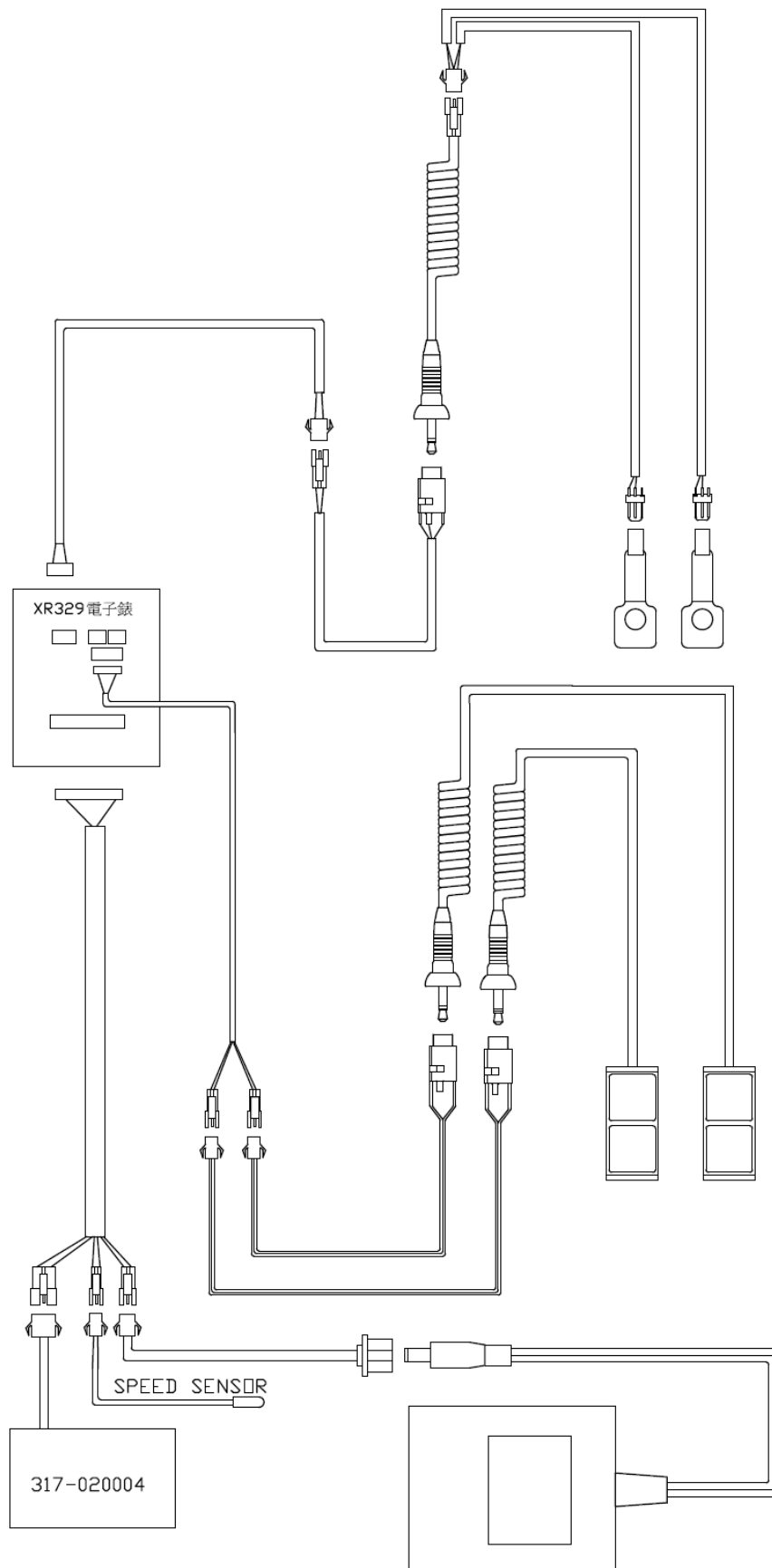
- Test configuration. The console to driver board connector pin define function





# XBR55

## BIKE CIRCUIT DIAGRAM



## Troubleshooting procedure matrix

Condition	Reason	Solve
LCDs not bright, incomplete or imperfect.	<ol style="list-style-type: none"> <li>1. LCD light is broken.</li> <li>2. Power to console too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace with new LCD or console.</li> <li>2. Check AC power is 110-120V.</li> <li>3. Check power to console.</li> <li>4. Replace lower controller.</li> </ol>
LCD displays not bright, incomplete or imperfect.	<ol style="list-style-type: none"> <li>1. LCD displays are broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace with new console.</li> </ol>
Erratic pulse display.	<ol style="list-style-type: none"> <li>1. Another chest belt in use around Bike.</li> <li>2. Other magnetic field disturbance.</li> <li>3. Receiver is broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check for other chest belt use around Bike.</li> <li>2. Change the position or direction of Bike.</li> <li>3. Replace with new receiver.</li> </ol>
Hand pulse lost its function. (No pulse displayed on monitor)	<ol style="list-style-type: none"> <li>1. Hands not on the hand pulse sensors or only one hand on sensor.</li> <li>2. The connector of HANDPULSE W/WIRE and Console not connected properly.</li> <li>3. The wires got damaged when connecting the HANDPULSE W/WIRE and Console.</li> <li>4. Hand pulse board is broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Two hands hold the hand pulse.</li> <li>2. Connect the cable again.</li> <li>3. Replace with new cable.</li> <li>4. Replace console or Hand pulse board.</li> </ol>
Wireless lost its function. (No pulse displayed on monitor)	<ol style="list-style-type: none"> <li>1. Chest belt not worn properly.</li> <li>2. Distance is too far and exceeds range of receiver.</li> <li>3. Chest belt battery is weak or dead.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check chest belt has proper contact with skin and is oriented correctly.</li> <li>2. User chest belt in front of console within 3 feet.</li> <li>3. Replace with new lithium battery type is <b>CR2032</b>.</li> </ol>
Chest belt too close to the Bike.	Weak battery.	Replace with new lithium battery with type <b>CR2032</b> .

# 9. Troubleshooting

## 9-1 Console Disassembling and assembling

1. Use Phillips Head Screw Driver (114) to release four pcs of M5 × 12 m/m\_Phillips Head Screw (99) and unplug Computer Cable (44), 2100m/m\_Handpulse Wire, Coiled (133) and 2100m/m\_Switch Cable (Upper)\_(148), and then replace the Console Assembly (19).



2. Reverse above step to return Console Assembly (19).

## 9-2 Console Mast and Cover (Take the console apart first.)

1. Take the console apart first.
2. Then use 12/14 m/m wrench (112) to release 2pcs of 5/16" x 5/8" Hex Head Screws (68), 2pcs of 5/16"x1.5T Split Washers and 2pcs of 5/16"x18x1.5T Flat Washers (76) and the Handlebar Assembly (3) can be released, as shown in figure.



3. Reverse above step to return the Handlebar (3)
4. Separate Console Mast Cover(31) from Front Shroud(L.R)(29).(30) at left and right sides of the seam with nail or something flat (figures 2.3) and release the latches which lock Console Mast Cover(31) and Front Shroud(L.R)(29).(30) together to pull up Console Mast Cover(31) 2.  
Unscrew 6pcs of 5/16" x 5/8" Hex Head Bolt(68), 4pcs of 5/16" x 18 x 1.5T flat Washer(76) and 2pcs of 5/16" x19 x 1.5T Curved Washer(83) with the 12m/m Wrench, to pull out the Console Mast (2) as shown in figure.



5. To resume Console Mast (2), guide the Computer Cable (44) and Hand Pulse Sensor Assembly W/Cable (45) through the Console Mast (2) and out of console securing plate (2~3) then tighten 6pcs of 5/16"×5/8"Hex Head Bolts (68), 6pcs of 5/16"×18×1.5T Flat Washers (76) and 2pcs of 5/16"×19×1.5T Curved Washers (83) with 12m/m open wrench.

### 9-3 Crank Arm and Pedal

1. Use 13/15mm Wrench to turn the left pedal clockwise and the right pedal counterclockwise to take off those pedals.



2. Turn Pedals reversely respectively to return them.
3. Take off the Crank Arm End Cap (28), and then use T-Wrench or Plug Wrench to release the Nut, as shown in figure 3 and 4.



4. Use proper tool to secure Crank Arms (51L&51R) and release them with Hex Wrench, as shown in figure 4. To resume the Crank Arms (51L&51R), use power tool or hammer to secure them and return the Nut (108) back to the Crank Axle (8) tighten. Return Crank Arm End Cap (28) back to Crank Arms (51L&51R).

## 9-4 Front Shroud & Round Disk

1. Dismantle and take apart Crank Arm (51L. 51R)
2. Remove the round disk (34) with fingers.
3. When assemble the round disk pay attention to the direction, because latch has different size, FRONT facing forward and then assemble.( figures 4.)



4. Dismantle and take apart Console Mast Cover (31)
5. To release Left Front Chain Cover (29), use Phillips Head Screw Driver to release 5pcs of  $\varnothing 3.5 \times 12$  Self Tapping Screws (103) and 3pcs of  $5 \times 16$  Tapping Screws (101).
6. To release Right Front Chain Cover (30), on the mainframe, unscrew 2pcs of  $\varnothing 3.5 \times 20$  Self Tapping Screws (107) with 2pcs of  $\varnothing 5 \times 16 \times 1.5$  Flat Washers (78) then, on the Right Front Chain Cover, unscrew 2pcs of  $5 \times 16$  Tapping Screws and unplug.
7. When reserve the right front shroud (30) to main frame use  $\varnothing 3.5 \times 16$  Sheet Metal Screw(103),  $3/16" \times 15 \text{mm} \times 1.5$  Flat Washer(78) to slightly fixed and combined with left shroud(29) and right shroud(30) and use  $\varnothing 3.5 \times 16$  Sheet Metal Screw(103)\*7pcs to lock and then adjust crank axle(8) & bottom cover to relative position and use  $5 \times 16$  tapping screw to fixed .



## 9-5 Gear Motor, Steel Cable and Reed Switch Sensor

1. Take both left and right front shrouds apart. (29)。
2. Remove the Steel Cable (62) on the Flywheel (55). Be careful to treat the aluminum plate gently as it deforms easily to cause scratching noises as shown in figure.



3. Use Phillips head screw driver to remove two M5 × 12m/m\_Phillips Head Screws (99) on the Gear Motor (43) and take it apart as shown in figure.



4. Use Phillips head screw driver to remove M5 × 12mm Phillips Head Screw (99) and take the Reed Switch Sensor (46) apart, as shown in figure.



5. To adjust the cable range with the Console (19) when reassembling the Steel Cable (62), increase the resistance to max. level with the console and tighten the Steel Cable with screw. The aluminum plate is at lowest position when the resistance is the maximum. Use two 8 mm open end wrench to secure, as shown in figure.



## 9-6 Drive Pulley Axle and Drive Pulley

1. Disassemble Front Shrouds (29.30) and the Drive Belt (54).
2. Use C-ring pliers to release Ø 20\_C-ring (86) to take apart Crank Axle (8), as shown in figure 1.



3. Use 11mm\_wrench to to unscrew Crank Axle (8) and Drive Pulley (20), 4 pcs of 1/4" x 3/4"\_Hex Head Bolts (66) together with 8 pcs of 1/4" x 13 x 1T\_Flat Washers (72) and 4 pcs of 1/4" x 8T\_Nuts (90), and take apart Drive Pulley (20), as shown in figure 2.



4. Reverse procedures to return parts.

## 9-7 Flywheel and Drive Pulley

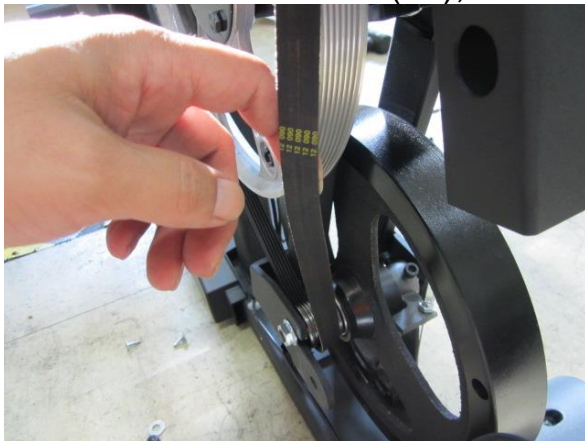
1. Take both left and right front shrouds(29)(30).
2. Use 13 mm open end wrench to loosen the Nyloc Nut (88) on the J Bolt (87) and remove the J Bolt (87), as shown in figure.



3. Use 6 mm Allen wrench and 14 mm open end wrench to release 3/8" x 3/4" Button Head Socket Bolt (81), 3/8" x 7T\_Nyloc Nut (89) and 3/8" x 19 x 1.5T\_Flat Washer (77) then take the Idler Wheel Assembly (10) apart.



4. Remove the Drive Belt (54), as shown in figure.



5. Remove the steel cable on the Flywheel (55) and use 15 mm open end wrench to release 3/8"-UNF26\_Nut (121) on the Flywheel (55) to remove the Flywheel (55), as shown in figure.





6. To resume, hang the Drive Belt (54) on the Flywheel (55) then install the Flywheel on the Mainframe (1). Try to align the Flywheel with the Pulley (20) in line and turn the Nut (120) outward till it touches the Mainframe (1) then use 15 mm and 17 mm open end wrenches to tighten the Nut (120) and 3/8"-UNF26\_Nut (121). Tighten the Nut (119) and 3/8"-UNF26\_Nut (121) at the other side, as shown in figure.



7. Use 6 mm Allen wrench and 14 mm open end wrench to tighten 3/8" x 3/4"\_Button Head Socket Bolt (81), 3/8" x 7T\_Nyloc Nut (89) and 3/8" x 19 x 1.5T\_Flat Washer to secure Idler Wheel Assembly on the Mainframe (1) then turn reversely 1/4 turn to release a little then install J-Bolt (87) with M8 x 7T\_Nyloc Nut (88) onto the Idler Wheel Assembly (10) and the Mainframe (1), as shown in figure.



8. Return the Drive Belt (54) back to Drive Pulley (20) and the Flywheel (55), then turn the Drive Pulley to make sure the belt turns smoothly in the center. Loosen the 3/8"-UNF26\_Nut (121) on the Flywheel (55) and adjust both Nuts (119) and (120) if the Belt is not in the center. Secure when alignment is done. Use 13 mm wrench to tighten M8 × 7T\_Nyloc Nut (88) on the J-Bolt until Idler Wheel (10) pressing the belt tightly. Use belt tension gauge to make sure the tension reads 450N. (Note 1). Turn the Drive Pulley (20) to make sure that the Drive Belt (54) is in the center without falling apart, as shown in figures 1 & 2).



9. Assemble the Steel Cable (62) to the Flywheel (55) at the end.

Note: If the Drive Belt (54) were new, it has to adjust the tension of value to be 540N, because the belt has ductility and the tension of value will be decreased while using a period of time.

## 9-8 Disassembling/Assembling of Seat Carriage Cover and Seat Back Bracket

1. Use Phillips Head Screw Driver to release 4 pcs of  $\text{Ø}4 \times 16\text{mm}$  Sheet Metal Scre (105).



2. Use two 14mm Wrenchs to release 2 pcs of  $\frac{3}{8} \times 4$  Hex Screw (67) and 2 pcs of  $\frac{3}{8} \times 7\text{T}$  Nyloc Nut(89).





3. Use a 12 mm and 13 mm Wrench to release a 5/16" x 1- 1/4" \_Hex Screw (70) and a 5/16" x 18mm x 1.5T \_Flat Washer (76), and then you could take Seat Back Assembly (5) and Mesh Seat Back (63) off.



4. Loose the cable from the Mesh Seat Back (63).
5. Reverse above step to resume

## 9-9 Release Lever and Steel Cable

### Steel Cable (58):

Use the 8m/m\_Wrench to fix the Nut of Gas Cylinder (See figure 1). Use the Wrench to release the Head Bolt of Release Lever (40) (See figure 2) and also remove the Steel Cable (280L) (58). Reverse above steps to resume.



### Release Lever (40):

Remove the Steel Cable (280L) (58) first and use 12/13m/m\_Wrench to release the 5/16" x UNC18 x 1-1/2" \_Hex Head Bolt (188) x1pc, Ø5/16" x Ø18 x 1.5T\_Flat Washer (76) x1pc, 5/16" x 6T\_Nyloc Nut (91) x1pc. (See figure 3) and the Release Lever (40) & Chen Chin Torsion-Spring (186) can be released from the Seat Carriage (4). Put the Chen Chin Torsion-Spring (186) on the Release Lever (40) while assembling. Reverse above steps to resume. Check for the Release Lever (40) if machine motion feels unsmooth. If it feels unsmooth, please adjust the Screws. (See figure 3)

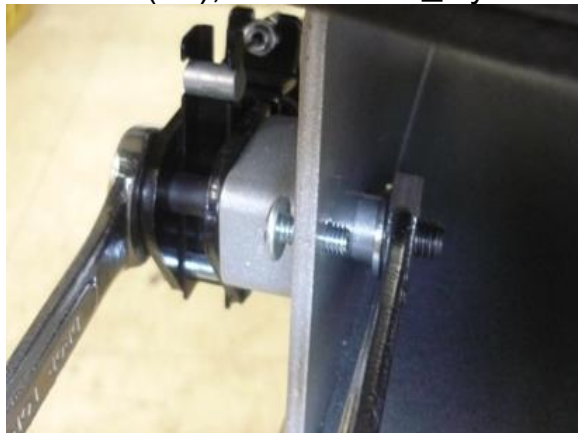


## 9-10 Gas Cylinder (Remark 8)

1. Use Phillips Head Screw Driver to loosen 2 pcs of M5 × 12\_Phillips Head Screw (99), and then take off the Seat Carriage Cover (125), as shown in figure 1.



2. Use 2 pcs of 13mm\_wrenchs to release a 5/16" × 2- 1/2"\_Hex Head Screw (69), a 5/16" × 18mm × 1.5T\_Flat Washer (76), and a 5/16"\_Nyloc Nut (91), as shown in figure 2.



3. Use a 12 mm and a 13mm wrench to release a 5/16" × 1- 1/4" \_Hex Head Screw (70), a 5/16" × 18mmx1.5T\_Flat Washer (76), and a 5/16" \_Nyloc Nut (91), as shown in figure 3.



4. Use 8 mm Wrench to release the screws Secured on the steel cable, and then take Steel Cable (58) and Gas Cylinder (57) apart, and take Gas Cylinder (57) off, as shown in figure 4.



5. Reverse the above steps to return parts.

## 9-11 Seat, Seat Handle Bar and Handpulse W/Cable Assembly

1. Take Left and Right Bottle Holder (38, 39) and Release Lever (40) off.
2. Use Phillips Head Screw Driver to release four M6 × 15mm Phillips Head Screws (98) and take the Seat (61) apart, as shown in figure 1.



3. Use two 14mm Open End Wrenches to release two 3/8" × 2 3/4" Hex Head Bolts (175) four 3/8" × 2" Hex Head Bolts, six 3/8" × 7T Nyloc Nuts (89) and six 3/8" × 19 × 1.5T Flat Washers, which secure Seat Carriage (4), to take apart Seat Handle Bar (6), as shown in figures 2.



4. Take apart HGP Wire Grommet (126) which secure Handpulse Assemblies (27). Use Phillips Head Screw Driver to release four Ø3 × 20m/m\_Tapping Screws and take Handpulse Assemblies (27) apart, as shown in figure 3 and 4.



5. Reverse above steps to return parts.



## 9-12 Buttons on The Handle Bar (Remark 9)

1. Use your hand or the tool with flat bead to take the Handgrip End Cap (144) off and get Resistance Button W/Cable (145) out, as shown in figure 1.



2. Take apart Resistance Button W/Cable (145) and Switch Cable (lower) (151), as shown in figure2.



3. Tear Up/Down Handgrip Resistance Lable (146 and 147), and then take off Handgrip Button W/Cable (145).

4. Pay attention to reverse the Headgrip End Cap's direction. Must match the raised part on Handlegrip End Cap (144) with the concave part on Handbar (6).



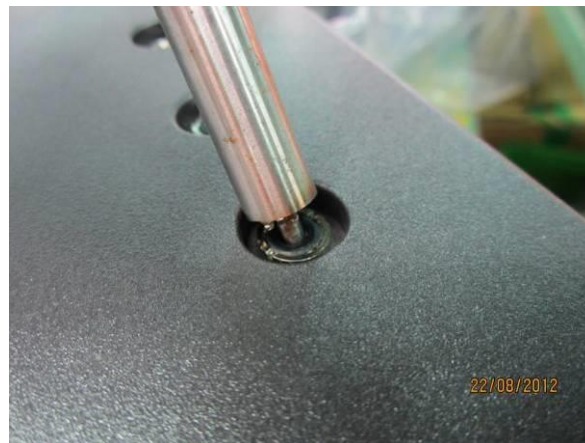
## 9-13 Rear Shrouds and Harness

1. Use Phillips Head Screw Driver to release 7 pcs of  $\text{Ø}3.5 \times 16\text{m/m}$  Sheet Metal Screws (103) and 2 pcs of  $5 \times 16\text{m/m}$  Tapping Screws (101) which are on left Rear Shroud (35). Unplug 300m/m\_Handpulse Wire, Coiled (26), 2100m/m\_Handpulse Wire, Coiled (133), and 2100m/m\_Switch Cable (Upper)\_(148), and then left Rear Shroud (35) can be taken apart.





2. On the Right Rear Chain Cover (36), unscrew Ø 3.5x16 Self Tapping Screws (103) with 3/16" × 15mm × 1.5T\_Flat Washers (78) and 2pcs of 5x16 Tapping Screws (101) and the Right Rear Chain Cover (36) can be released as shown in figure).



3. Use special tools to remove nut from hand pulse cable sensor assembly(26) and handle switch bracket and then could separate right/left rear shroud.  
When reserve the rear shroud use flat washer 5/16"×16×1T(127) place on rear shroud (R) plastic column and then through a hole of plastic column to main frame (1) and use Ø3.5 × 16m/m\_Sheet Metal Screw x 1pc, 3/16" × 15mm × 1.5T\_Flat Washer (78) slightly fixed and then combines left & right rear shroud(35)(36), and locked with Ø3.5 × 16m/m\_Sheet Metal Screw\*6pcs,and adjust bottom cover position and use 5 × 16m/m\_Tapping Screw(01110) x4pcs to fixed on the main frame.

## 9-14 Seat Carriage

1. Disassemble Rear Shrouds (35, 36).
2. Use Phillips Head Screw Driver to 2 pcs of M6 × 15\_screws (98) and Seat Stop Axles (11) can be taken apart, as shown in figure 1. Pull up Release Lever (40) to take Seat Carriage (4) apart.



3. Use Phillips Head Screw Driver to release four M6 × 10L\_Flat Phillips Head Screws (161), 4 pcs of 1/4" × 16 × 1.0T\_Flat Washer and four Sleeve (162). Then use 13 mm Open End Wrench to release four M8 × 7T\_Nyloc Nuts (88) and four Ø8 × Ø18 × 3T\_Knurled Lock Washers (79) and take apart Seat Wheel Adjustment Plate (9L, 9R), as shown in figures 2 and 3.



4. Disassemble Rear Shrouds (35, 36).
5. Use Phillips Head Screw Driver to 2 pcs of M6 × 15\_screws (98) and Seat Stop Axles (11) can be taken apart, as shown in figure 1. Pull up Release Lever (40) to take Seat Carriage (4) apart.

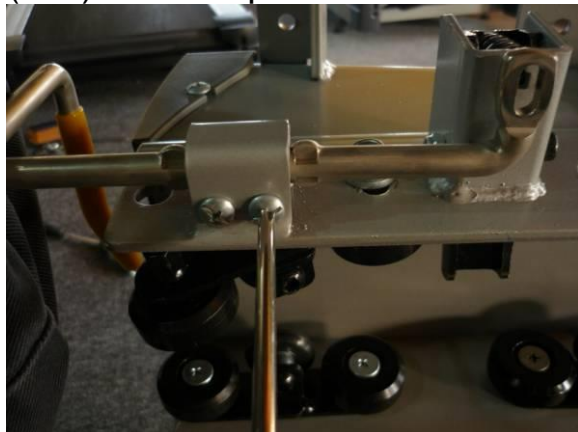
6. Use Phillips Head Screw Driver to release four M6 × 10L\_Flat Phillips Head Screws (161), 4 pcs of 1/4" × 16 × 1.0T\_Flat Washer and four Sleeve (162). Then use 13 mm Open End Wrench to release four M8 ×7T\_Nyloc Nuts (88) and four Ø8 × Ø18 ×3T\_Knurled Lock Washers (79) and take apart Seat Wheel Adjustment Plate (9L, 9R), as shown in figures 2 and 3.



7. Use M4 Allen wrench and 10m/m Wrench open end wrench to release M5×45m/m Socket Head Cap Bolt (171) and M5×5T Nyloc Nut (173) as shown in figure.



8. Use Phillips Head Screw Driver to release two M5x25m/m Flat Head Socket Screws (169) then pull out Lever Anchor (168) to take apart Seat Front/Aft Adjustment Lever (167) as shown in figure.

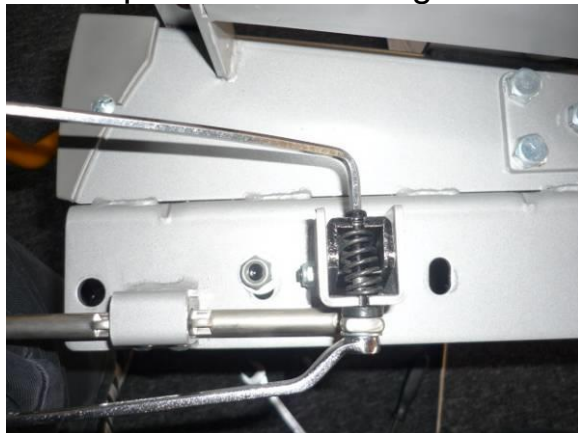


9. Use M5 Allen wrench and 11mm Open End Wrench to take apart M6 x 38m/m\_Socket Head Cap Bolt (93), 1/4" x 13 x 1T\_Flat Washer (72) and M6\_Nyloc Nut (129), and then take off Seat Position Latch (12), as shown in figure 5.

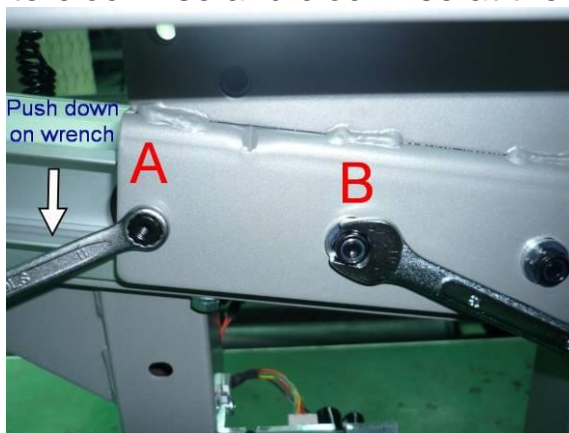
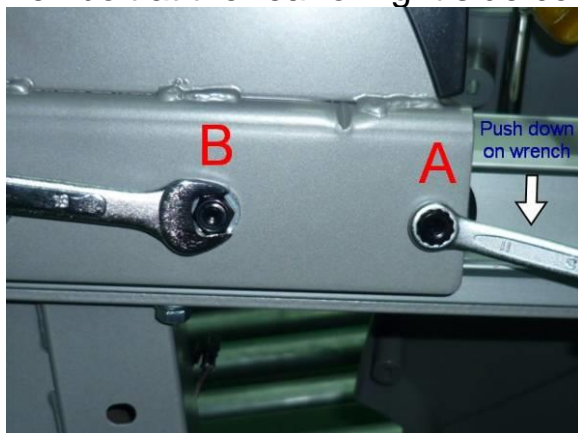




10. To install Seat Front/Aft Adjustment Lever (167), consolidate Seat Front/Aft Adjustment Lever (167) and Lever Anchor (168) and secure with two M5x25mm Flat Head Socket Screws (169) then place Spring (104) in Seat Position Latch (12) and secure with a M5x45mm Socket Head Cap Bolt (171) by going through Seat Position Latch (12), Spring (104),  $\phi 15 \times 6 \times 4$ T Nylon Washer(170), Seat Front/Aft Adjustment Lever(167) and  $\phi 3/16 \times 10 \times 1$ T Flat Washer (172), from top to bottom and tighten with M5x 5T Nyloc Nut (173).



11. Use 13mm Open End Wrench to slightly tighten 4 pcs of M8 x 7T\_Nyloc Nut, 4 pcs of  $\phi 8 \times \phi 18 \times 3$ T\_Knurled Lock Washer (79) , and 4 pcs of Seat Wheel Adjustment Plate (9L&9R) on Seat Carriage (4).
12. Install the completed Seat Carriage (4) onto the Aluminum Track (14) and adjust the position of Seat Wheel Adjustment Plate (9L.9R) with 11 and 13mm Wrenches by using 11mm Wrench at front of left side and turn counterclockwise first, then using 13mm Wrench to tighten M8 x 7T Nyloc Nut (88) (Figure 1). At the front of right side, use 11mm Wrench by turning clockwise and use 13mm Wrench to tighten M8x7TNyloc Nut (88). (Figure 2). Turning hex bolt at the rear of right side counterclockwise and clockwise at the rear of left side to secure.



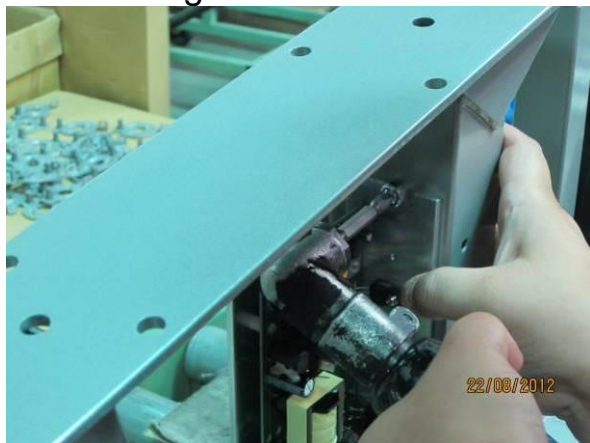
13. To test the smoothness, if seat carriage is too tight, reversely adjust four screws until the smoothness is acceptable. Tighten four Sleeves (163) with four 1/4" x 16 x1.0T\_Flat Washers, M6 x 10L\_Flat Phillips Head Screws (161) to secure. Seat Stop Axle (11) and Rear Shrouds (35, 36) can be installed.



## 9-15 Aluminum Trail and Stabilizer Cover

### Induction Brake Controller

After taking Rear Chain Cover (L/R)\_ (35, 36), unplug the cables on the Induction Brake controller (43), and then use Phillips Head Screw Driver to release 2 pcs of 5 × 19\_Tapping Screws and take apart Induction Brake Controller (43), as shown in figure 1.



### Aluminum

Take apart Rear Shrouds (35,36) and Seat Carriage (4), and then use 12mm Open End Wrench to release 6 pcs of 5/16" × 3/4" \_Hex Screws (94), 5/16" × 3/4" \_Flat Washers (160), and 5/16" × 1.5T \_Spilt Washers (82), and then take apart Aluminum (14), as shown in figure 2.



### **Step Cover**

Take apart Rear Shroud (35, 36) and Front Shroud (29, 30), and then use Phillips Head Screw Driver to release 4 pcs of M5 x12\_Head Screws (99), and then take apart Step Cover (33), as shown in figure 3.





## 9-16 Console

### **Q Display won't come on:**

**A:**

1. Follow procedures below for checking when your display couldn't show anything.
2. Make sure that Console (19) and computer cable (44) are connected properly, as shown in figure 1.
3. Use multi-meter to check output voltage at each connect contact.

### **Q No speed readout:**

**A:**

1. If the display is on but without speed readout, disassemble Front Shroud (29) and make sure 9P computer cable (44) and Hall Sensor (46) are properly connected, as shown in figure 2.
2. If there is no problem with the connection, there is problem with either Hall Sensor (46) or the magnet. (56). Use another magnet to test Hall Sensor (46), replace it when necessary.

### **Q No pulse displayed**

**A:**

1. When the console displays but is without heart beat. Check if Hand Pulse Sensor Assembly W/Cable (45) is properly connected to Console assembly (19) (Figure 1), or if Handpulse W/Cable Assemblies (21.27) are properly connected with Hand Pulse Sensor Assembly W/Cables (26), as shown in figure.
2. If there is no problem with installation, dismantle Rear Shroud (L) (35) and check if Handpulse W/Cable Assemblies (26) are properly installed with Hand Pulse Sensor Assembly W/Cable (45), as shown in figure.  
If all are connected properly, use multi meter to check cable continuity.

### **Remark:**

Console and related parts were factory tested and it is rare that the unit fails at this part.

## 9-17 Belt Slipping and Falling-off

### **Q:**Slippage

#### **A:**

1. Disassemble Front Shrouds
2. Use 13m/m Wrench to turn M8×7T Nyloc Nut (88) clockwise until sound wave frequency falls between 450N. However, since the machine is with drive belt, slippage is possible depending on the weight of the user or the way the user uses. Generally, slippage is rare, as shown in figure.
3. Since Drive Belt (54) stretches and wears, it is normal that Drive Belt (54) gets loose as time lasts.

### **Q:** Drive Belt falling off

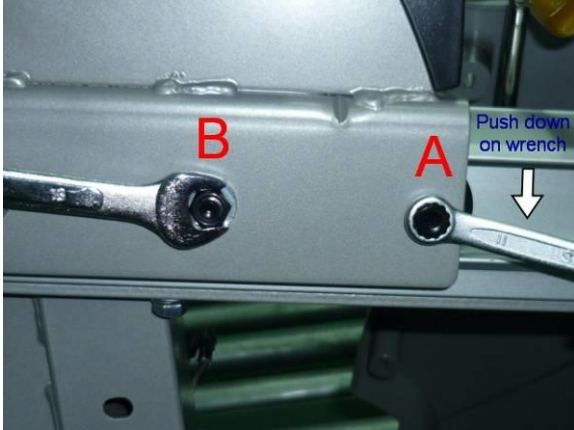
#### **A:**

Follow Procedure #5 in section I to install, Drive Belt (54) requires to turn back and forth to see if it falls off. Adjust Drive Belt (54) on notch beyond against the side it falls off. If it still keeps falling off, try to replace Drive Pulley (20), Idler Wheel Assembly (10) or Induction Brake (55). If it still keeps falling off, the unit might have been seriously dropped and the frame were deformed and the whole unit requires to be replaced. It is rare that the unit fails at this part because it would be tested in the factory before shipping. This problem will occur when the unit drops from a high and incorrect way to put on the ground.

**Q: Noises**

**A:** Noises are mostly caused by loose screws/bolts, sometimes rubbing or poor smoothness due to mechanical deformity/shifting may also causes noises:

1. Noises at Seat Carriage (4) are mostly caused by loose Seat Wheel Adjustment Plate due to long time usage and usually accompanied with serious play. Procedures 10 in section I could re a remedy, as shown in figure 1.



2. Noises at left/right Pedals (116) (117): Pedals wear out could cause poor smoothness and noises. Replacing Pedals (116) (117) as shown in figure 2.



3. Crank Arm (51L.R) loose can also cause poor smoothness and noises, although the chance is low. Tighten, as shown in figure 3, to remedy noises



4. If noises still persists after disassembling Front Shrouds (29, 30), find the spot where noises initiate and replace parts when necessary.