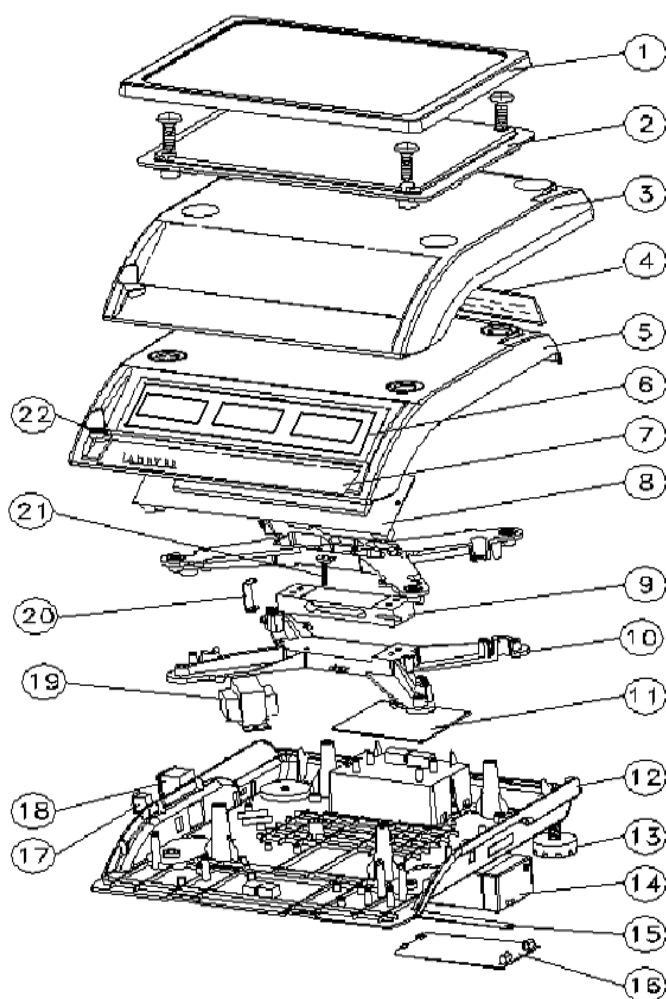


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# 1. Assembly Drawing

## 1-1 Explosive view



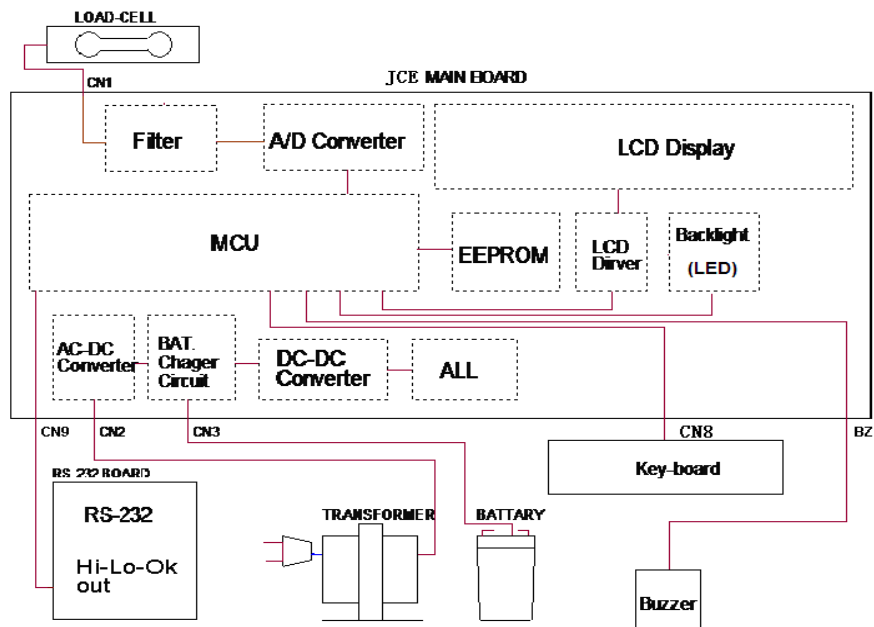
## 1-2 Part list

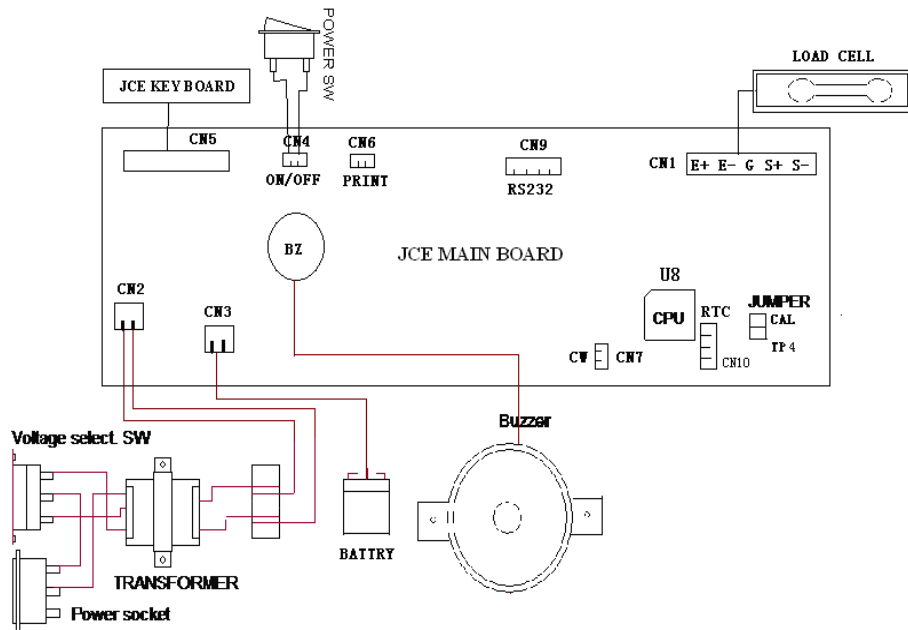
No.	Name	Quantity	Part Number	Material Number
1	Stainless steel weighing pan	1	JCE-1	12-0003-0000XM
2	Plastic base	1	JCE-2	02-0000-1520XM
3	Dust cover	1	JCE-3	02-0007-0000XM
4	Rear panel	1	JCE-4	20-1010-0300XM
5	Upper cover	1	JCE-5	02-0000-1500XM
6	Front panel	1	JCE-6	.....
7	Keypad	1	JCE-7	21-0011-0010XM
8	LCD board	1	JCE-8	80-0135-0010XM
9	LOAD-CELL	1	JCE-9	.....
10	Aluminum support	2	JCE-10	10-0406-0000XM
11	Main board	1	JCE-11	80-0135-0010

12	Lower cover	1	JCE-12	02-0000-1510XM
13	Adjusting foot	4	JCE-13	01-0100-0006XM
14	Rechargeable battery	1	JCE-14	61-0201-0100XM
15	Battery plate	1	JCE-15	12-0700-0001XM
16	Battery cover	1	JCE-16	02-0000-1530XM
17	Switch	1	JCE-17	60-0000-0000XM
18	Socket	1	JCE-18	60-0503-0001XM
19	Transformer	1	JCE-19	61-0003-0101XM
20	Pull down protection	1	JCE-20	12-0700-0001XM
21	Overload protection	2	JCE-21	.....
22	Leveler	1	JCE-22	02-0108-0004XM

## 2. Electronic Construction

### 2-1 PCB board wiring



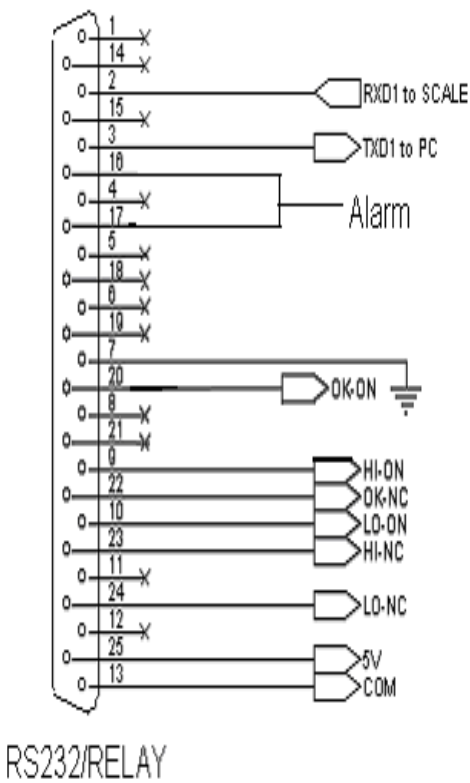


## 2-2 Circuit diagram



### 3. RS-232 Communication

3-1 RS-232 connector



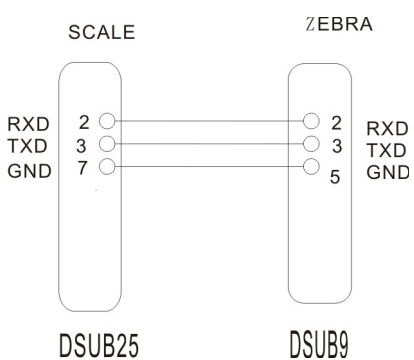
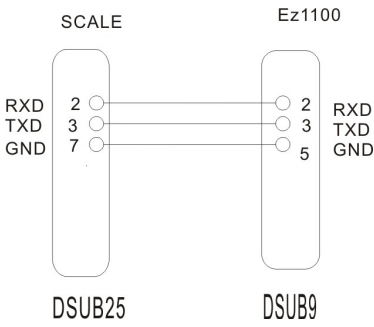
3-2 Option

- 1. RS-232+RTC+Relay+ ( TDP / SH-24 ( TP ) / ZEBRA / GODEX )
- 2. RS-232+RTC+Relay+Light tower
- 3. RS232+RTC+Relay+PC

Note: Please choose RTC-RS232 -Relay board when external interface is needed. Only this board is used, the three functions can be available.

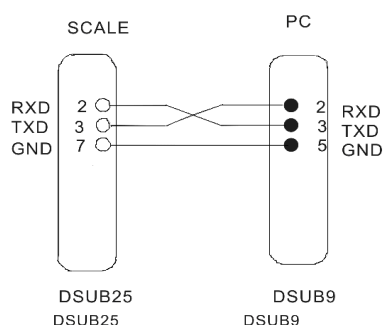
Scale to printer

Scale to BP545D(TDP) printer	Scale to SH-24 ( TP ) printer
<div><p>SCALE                      BP545D</p><p>RXD 2 TXD 3 GND 7</p><p>RXD 2 TXD 3 GND 5</p><p>DSUB25                      DSUB9</p></div> <p>Universal 25 pin (male) to 9 pin (male) RS-232 connecting cable.</p>	<div><p>SCALE                      SH</p><p>RXD 2 TXD 3 GND 7</p><p>RXD 2 TXD 3 GND 7</p><p>DSUB25                      DSUB25</p></div>

Scale to ZEBRA printer	Scale to EZ printer
 <p>Universal 25 pin(male) to 9 pin(male) RS-232 connecting cable.</p>	 <p>Universal 25 pin(male) to 9 pin(male) RS232 connecting cable.</p>

## Scale to PC

1. Get receiving program ready on your computer.
2. Please set the print mode as "Prt.Co"(the scale will output the data to the PC continuously)



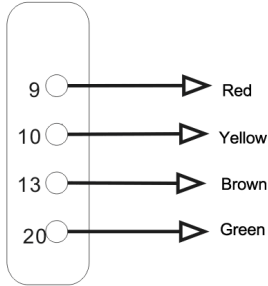
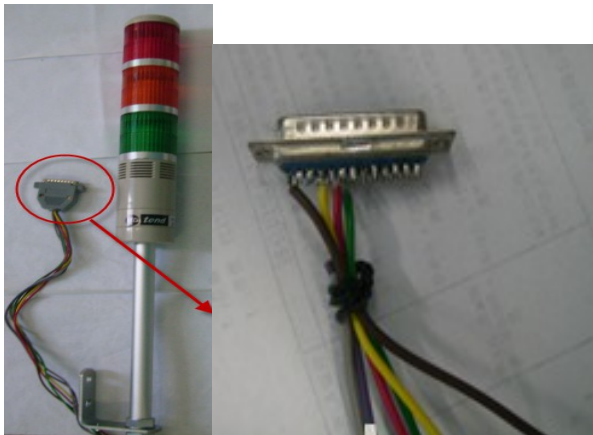
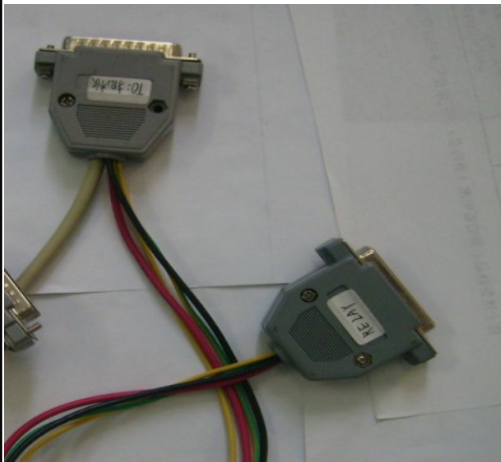
Commonly used 9 female ~25male RS232 connecting wire.

Note: The hollow dots represent male connectors and the black dots represent female connector.

## Scale to light tower

The pin of light tower	Picture
------------------------	---------



<div><p>RELAY</p><p>DSUB25</p></div>																										
The light tower should be connected to the 25-pin (male) socket.																										
Light tower to scale	Picture																									
<div><table><tr><th></th><th>SCALE</th><th></th><th>RELAY</th><th></th></tr><tr><td>Red</td><td>9</td><td>—</td><td>9</td><td>Red</td></tr><tr><td>Yellow</td><td>10</td><td>—</td><td>10</td><td>Yellow</td></tr><tr><td>Brown</td><td>13</td><td>—</td><td>13</td><td>Brown</td></tr><tr><td>Green</td><td>20</td><td>—</td><td>20</td><td>Green</td></tr></table><p>DSUB25                  DSUB25</p></div> <p>That is commonly used 25pin port (male) ~ 25 pin port (female) RS232 connecting wire.</p> <p><b>Note:</b> The hollow dots represent the male connectors, while the black dots represent female connectors.</p>		SCALE		RELAY		Red	9	—	9	Red	Yellow	10	—	10	Yellow	Brown	13	—	13	Brown	Green	20	—	20	Green	
	SCALE		RELAY																							
Red	9	—	9	Red																						
Yellow	10	—	10	Yellow																						
Brown	13	—	13	Brown																						
Green	20	—	20	Green																						

Scale to PC and Light tower

Scale to PC and Light tower	Picture
-----------------------------	---------

SCALE

2

3

7

9

10

13

20

Red

Yellow

Brown

Green

DSUB25

PC

2

3

5

DSUB9

RELAY

9

10

13

20

Red

Yellow

Brown

Green

DSUB25







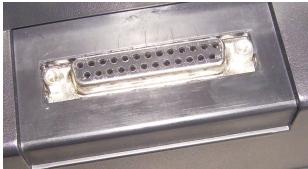

**Note:** the hole dots represents the male connectors, while the black dots represent the female connectors.

Scale to Printer and light tower

<p>Scale to PC and ZEBRA/GODEX(EZ)/BP545 D ( TDP )</p>	<p>Picture</p>
<div><div><div><div><div>ZEBRA/GODEX(EZ)/BP545D</div><div><div>SCALE</div><div><div>2</div><div>3</div><div>7</div><div>9</div><div>10</div><div>13</div><div>20</div></div><div>Red</div><div>Yellow</div><div>Brown</div><div>Green</div></div><div>DSUB25</div></div><div><div>RELAY</div><div><div>9</div><div>10</div><div>13</div><div>20</div></div><div>Red</div><div>Yellow</div><div>Brown</div><div>Green</div></div><div>DSUB25</div></div></div></div>	

Example

	Option	External device	Output format
AP1	RS232+RTC+Relay	<div><div>TDP</div></div>	<div><div>® 2008/06/25 17:30:44</div><div>WEIGHT: + 0.0 g</div><div>U.W.: 0.g/pcs</div><div>TOTAL: 0pcs</div></div>

AP2	RS232+RTC+Relay + 	 SH-24 ( TP )	® 2008-06-26 10:42:30 G.W.: +4.994kg U.W.: 20.000g/pcs Total: 250pcs
AP3	RS232+RTC+Relay + 		® 2000-00-00 00:00:00 G.W.: + 0.0 g U.W.: 0.g/pcs Total: 0pcs
AP4	RS232+RTC+Relay + 	ZEBRA 	® Applicable to quantity or weight control
	RS232+RTC+Relay + 	 EZ	® 2008/06/25 16:01:57 G.W.:+ 500.0 g U.W.:1.2300g/pcs Total:406pcs

	<b>RS232+RTC+Relay</b> 	+  ®	2008-06-28 14:47:25 G.W.:+ 4.000kg U.W.: 20.000g/pcs Total: 200pcs
	<b>PC</b>		

### 3-3 RS-232 output format

Baud Rate : 2400、4800、9600

Data Bit : 8

Parity : N ( None )

Stop Bit : 1

Code : ASCII

Bit Format :

	LSB							MSB		
	0	1	2	3	4	5	6	7	8	
Start Bit									Parity	Stop Bit

Data Format :

Kg

G/N	.	W	.	:	+/-								k	g	CR	LF		
						weight												
U	.	W	.	:								g	/	p	c	s	CR	LF
					Unit weight													
T	o	t		a	l	:						p	c	s	CR	LF		
						pcs												

Example

G.W. : + 2.2352 kg

U.W. : + 0.5352 g/pcs

Total : 4176 pcs

Lb

<b>G/</b>	.	<b>W</b>	.	:	<b>+/-</b>							<b>l</b>	<b>b</b>	<b>C</b>	<b>LF</b>
-----------	---	----------	---	---	------------	--	--	--	--	--	--	----------	----------	----------	-----------

N																		R	
weight																			
U	.	W	.	:															
Unit weight																			
T	o	t	a	l	:														
pcs																			

Example

G.W. : + 2.2352 lb

U.W. : + 0.5352 lb/pcs

Total : 4pcs

**G = GROSS      N = NET**

## 4. Adjustments and Settings

### 4-1 Model setting

1. Press **SMPL** while turning on the scale
2. Use numeric key to input the code "1130".
3. Press **SMPL** again, then press numeric key "1" to choose the model.
4. Press **SMPL** to save.
5. Press **ZERO** to return to normal weighing mode.

### 4-2 Initialization

1. Press **TARE** while powering on the scale
2. Press **2** while the window will show **In0**
3. Press **CK** and wait for **PrEE** appears
4. After the window shows **OK**, it means the initialization is finished.

### 4-3 Resolution setting

1. Press **SMPL** while powering on the scale.
2. Input "1123" via numeric keys.
3. Press **SMPL**. Then press **1** to select the resolution.
4. Press **SMPL** to save and **ZERO** to return to normal weighing mode.

### 4-4 Calibration

- 1) For best results, calibrate the scale at regular intervals. Temperature changes, geographic


gravity variations, altitude changes and abuse are few reasons why a scale may need recalibration.

2) Here we take JCE-6K as an example.

#### 4-4-1 Single Point Calibration

1) Press and hold key **SMPL** while powering on the scale. 

2) Input 11 with numeric keys 

3) Again press key **SMPL** to enter the zero point calibration modes. 

4) Wait till "**CAL**" flashes, press numeric key "**1**" to select calibration weight. Options are 1/3 of full load, 2/3 of full load and full load. E.g., options for JCE-6K are 2, 4 and 6(kg). Put the corresponding weights on the weighing pan.


5) Press key "**.•**" to confirm 


6) The calibration procedure is completed with a "**PASS**" flashing on the weight screen. Now, remove all the weights.

7) Press key **SMPL**, then key **ZERO** to return to the weighing mode.

#### 4-4-2 Linear Calibration

1) Press and hold key **TARE** while powering on the scale 

2) Again press key **TARE** to enter zero point calibration mode, with "**On 0**" flashing on the weight screen. 

3) Wait till "**On 1**" appears and flashes on weight window, put weights of 1/3 of full load on (e.g. 6k model, 1/3 of full load is 2kg.) 

4) Wait till "**On 2**" appears and flashes on total weight screen, put weights of 2/3 of full load on (for 6k model, 2/3 of full load is 4kg)

5) Wait till "**On 3**" appears and flashes on total weight screen, put weights of full load on (for 6k model, full load is 6kg)



- 6) The calibration Procedure is finished with a symbol of **"PASS"** flashing, and then take away the weights.
- 7) Press key **TARE** to return to weighing mode.

## 4-5 Setting Mode

- 1) Turn on the power while pressing key **ZERO** and setting mode starts.



Note: The following Steps (2) ~ (11) do not require to operate in order.

- 2) Press numeric key **"0"** to shift backlight modes. Options are On, OFF and OnOFF.

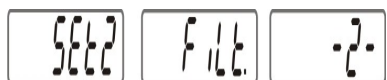


**OnOFF**=Auto-on with items greater than 9d placed on the pan.

**OFF**= No backlight

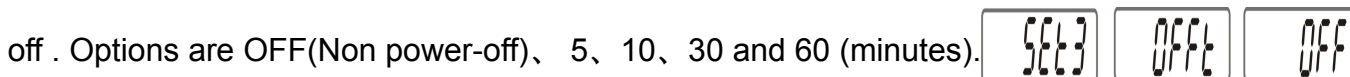
**On**= Backlight

- 3) Press numeric key **"2"** to set the level in which the stable indication turns on (filtering) .The lower the setting, the faster stabilization time.



- 4) Press numeric key **"3 "** to set the period of inactivity before the scale automatically turns

off . Options are OFF(Non power-off)、 5、 10、 30 and 60 (minutes).



- 5) Press numeric key **"4"**to set the range in which the zero indication turns on .Options are d0,

d1, d2, d3, d4 and d5. (d= scale division)



- 6) Press numeric key **"5"** to set serial transmission rates. Options are 9600, 4800 and 2400.



- 7) Press numeric key **"7"**to set buzz sounds. Options are Un , In , no , Lo and nbEEP.



**Un**=There will be a warning sound when the quantity of the articles exceeds upper limit.

**In**=There will be a warning sound when the quantity of the articles is between the upper and lower limit (including the upper and lower limits).

**no**= There will be a warning sound when the quantity of the material exceeds the upper and

lower limits, and the weight of the material is more than 20 divisions.

**L<sub>0</sub>**= There will be a warning sound when the quantity of material is less than the preset lower limit and the weight of the material is more than 20 divisions.

**noEEP**= No sound alarm.

8) Press numeric key **"8"** to select whether to save the upper & lower limit of quantity checking.



**noFF**= Previously set quantity checking values are not retained when the unit is turned on.

**noOn**= Previously set quantity checking values are retained when the unit is turned on.

9) Press numeric key **"9"** to shift print modes .Options are Prt.Pr, Prt.Co and Prt.St. If PrtCo is chosen as the print mode, PC will be automatically selected as the external devices.



**Prt.Pr**= manual print

**Prt.Co**= continuous print

**Prt.St**= Stable printing (the weight of weighted articles should be more than 9 divisions. Weighted articles should be removed and the scale goes back to zero before print out the next record.)

10) Press key **CK** to select external devices. Options are PC , AX , TP , Godex ,SH , EZ , TDP and ZEBRA.



11) Press **MR** to switch On or OFF RTC function.



12) When setting is completed, press **ZERO** to save and return to weighing mode.

#### 4-6 Offset value and compensation method

- 1) Press and hold key **ZERO** while powering on the scale
- 2) Press **ZERO** again to enter the testing
- 3) OFFSET value appears in Weight and Unit Weight display and the key number appears in the Total Count display

#### Preliminary checks when the offset value is out of the normal range:

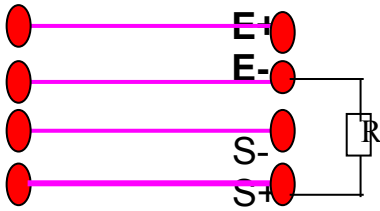
- 1) Is the scale is placed at a flat and stable surface?



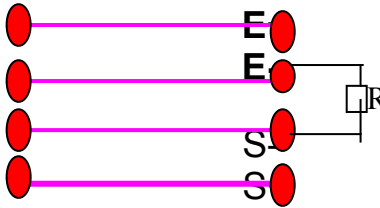
- 2) Is there an overload situation?
- 3) Is the shipping protection screw removed?
- 4) Is there anything under the weighing pan?
- 5) Is the battery electricity capacity ok?
- 6) Please refer to 2-2 to see if the fault is due the power circuit failure.

## Compensation method

**A** If the offset value is too high, please install a Resistor between S+ and E- or S- and E+. The higher resistance, the lower the offset value becomes.



**B** If the offset value is too low, please install a Resistor between S+ and E+ or S- and E-. The lower resistance, the higher the offset value becomes.



## 5. Trouble shootings

### 5-1 Preliminary checks

- Is the bubble of the level indicator at the center?
- Is the battery electricity capacity ok?
- Is power cord connected both with the scale and with the outlet properly?
- Is the weighing pan the right one?
- Is there anything under the weighing pan?
- Is the scale at a flat and steady base?
- Are there any vibrating, rotating, and/or reciprocating equipment around?


## 5-2 Problems and solutions

Problem	Possible Cause	Basic Inspection and troubleshooting
Power on failure	Lead-acid battery defective	Make sure there is no bad connection of the battery connection and the voltage is above 5.8V. Remove battery and power on by using charging transformer to see if the failure is due to battery defect.
	Charging transformer problem	Please try a normal charging transformer to see if the scale can be powered on.
	LCD or related LCD circuit fault	After confirming that there is no broken board line or short circuit of connection between LCD and other conducting objects, please replace LCD.
	CPU / Crystal11.0592M (oscillating circuit) fault	Replacement is needed.
	Power circuit fault	Please check the working voltage of CPU (pin 44) / LM2930 / B857 / Q7 / U4*S80841AL, then replace the one which working voltage is abnormal.
	I/O switch fault	Replacement is needed
Charging Failure	Lead-acid battery defective	Remove battery and power on by using charging transformer to see if the failure is due to battery defect.
	Charging transformer problem	Please try a normal charging transformer to see if the scale can be powered on.
	Components or power circuit defective	1. Fuse burn down, replacement is required.
		2. Please check D2/D313/LM723/ rectifier, then replace the defective one.
		3. Charge lamp defective, replacement is required.
		4. The polarity or the charging lamp is reversed.
Poor LCD Display	LCD defective	After confirming that there is no broken board line or short circuit of connection between LCD and other conduction objects, please directly replace LCD.
	Component or part defective	Please check / replace U10(HT1621B)
Incorrect	Component or part defective	Please check / replace AD5530/4.9152M

weighing	Load cell Malfunction	Replacement is required
Buzzer does not work	Component or part defective	Please check / replace CPU/Q7
	BUZZER defective or buzzer circuit fault	Replacement is required
Keypad dysfunction	Keypad or keypad circuit fault	Check/replace keypad or keypad circuit.
	CPU/CPU program effective	Check/replace CPU
Memory dysfunction	Power circuit fault	Please check R28/29/30/CP18 and make sure there is no shortcut
	CPU/CPU program effective	Check/replace CPU
	Component or part defective	Please check / replace U7
Print dysfunction	Wrong setting	Please check /reset external device/ baud rate/print mode
	RS-232 board defective	Please check/replace RS-232 board.
	Bad connection between RS-232 board and main board	Please check/replace the wire connection
	Defective in external device	Maintenance/replacement is need.
Battery symbol	Insufficient cell voltage	Please recharge the battery
	Rechargeable battery failure	If the voltage of the battery is lower than 5.7V and the battery indication lamp is still in green color, please immediately replace the rechargeable battery.
	Component defective	Please check/replace R3/R4/AD5530
	CPU/CPU program effective	Check/replace CPU
LCD backlight no function	Wrong setting	Please check/ reset the backlight function
	LCD backlight defective	Replacement is required
	Component defective	Please check/replace Q9 / Q11

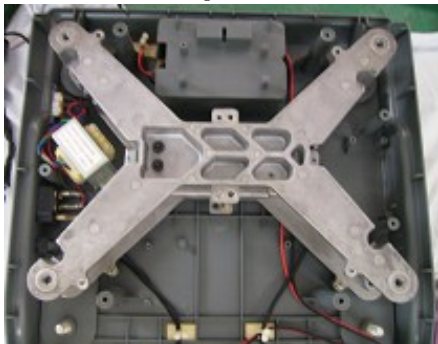
### 5-3 Error Message

Error Message	Problems	Solutions
<i>Err2</i>	Initial zero point exceeds + /-30% (take 30% as reference basis)	1. To check whether there are other alien articles on the scale pan, remove those articles. 2. LOAD CELL failure, which

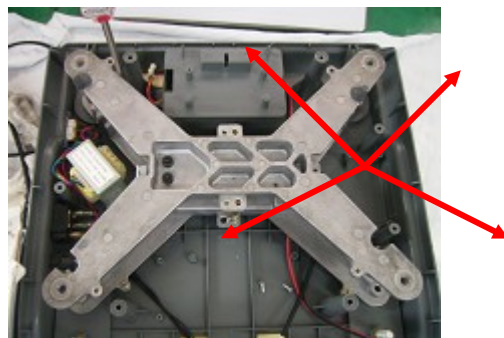
		requires to be changed or to contact our Service.
<i>Err 3</i>	Higher or lower than A/D resolution range.	1.Check whether it is A/D failure, if yes, please replace AD. 2. LOAD CELL failure, replacement is required or contacts our Service.
<i>Err 4</i>	EEPROM Chksum failure	Re-sold EEPROM or contact our Service.
<i>Err 5</i>	The weighed articles are overload.	Remove weight that is greater that the scale capacity from the pan.
<i>Err 7</i>	The accumulated number of weighments, weight and quantity exceed display range.	No more accumulations.
<i>OVER</i>	The unit weight exceeds the display range during sampling.	-----
	Low battery	Recharge the battery, the scale can be used while it is charging.

## 6.Parts replacement

### 6-1 Load cell replacement



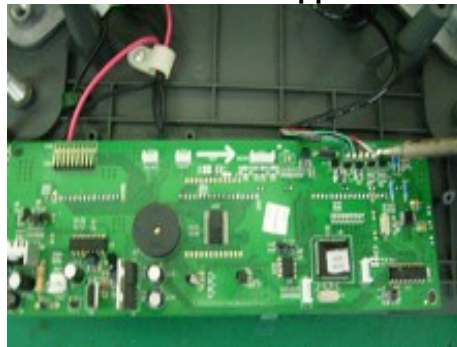
1. Remove the upper cover



2. Remove the 4 fixing screws of the L/C support



3. Remove the L/C support



4. Disconnect the L/C wire by soldering iron



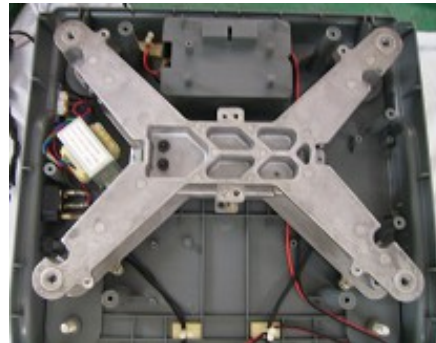
**5. Remove the fixing screws on the upper support**



**6. Remove the upper support**



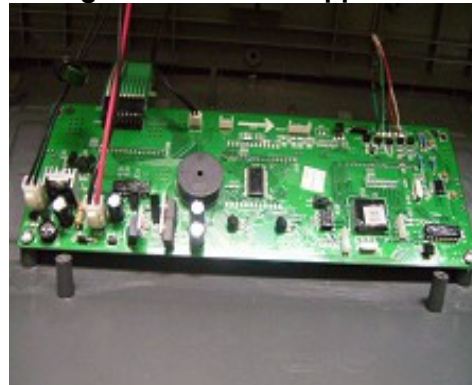
**7. Remove the fixing screws of the lower support**



**8. Replace the new L/C and tighten the fixing screws of the support**



**9. Soldering the L/C wire**



**10. Insert all the connectors**

### **11. Scale grinding**

A. First switch on the scale and conduct a calibration.

B. Use weights of 1/3 full load to test the 4 corners and record the shown values.

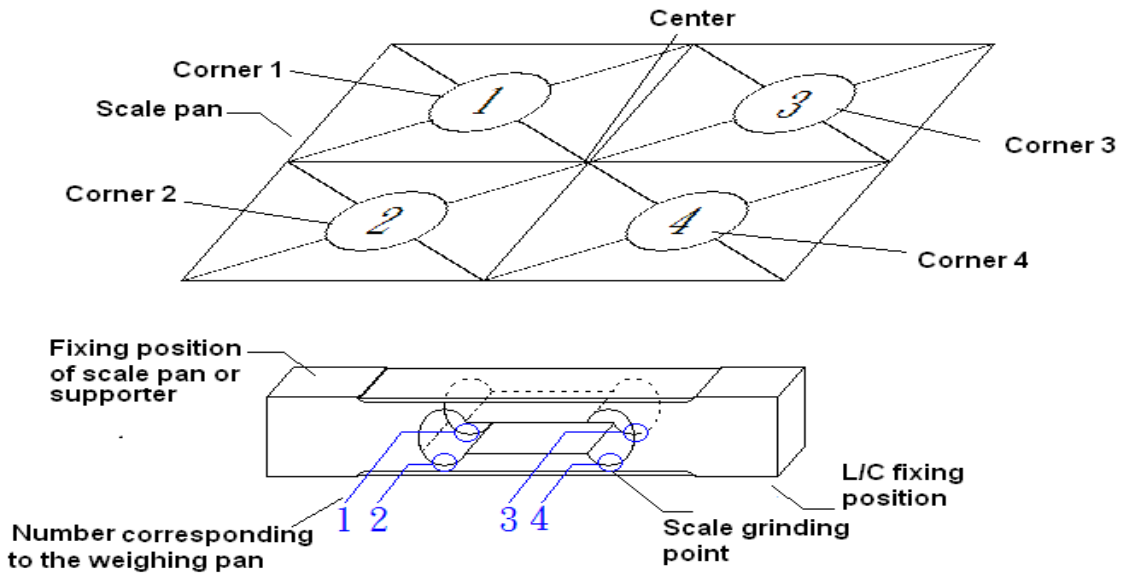
C. Use a file to grind the "Scale grinding point" corresponding to the lowest display value out of the four corners. (when grinding for the first time, please test force by means of trial grinding with small strength so as to avoid damage to L/C), after grinding, press ZERO key to measure the four corners again.

D. Repeat step B-C until the difference between the four corners and the center is  $\pm 1$  division, then recalibrate the scale.

E: After grinding the scale, if there are still big differences in the displayed weighing between the 4 corners and center of the scale, it means malfunction in L/C.

F: Pay attention to L/C specification when grinding, the smaller max. Capacity, and the weaker grinding force.



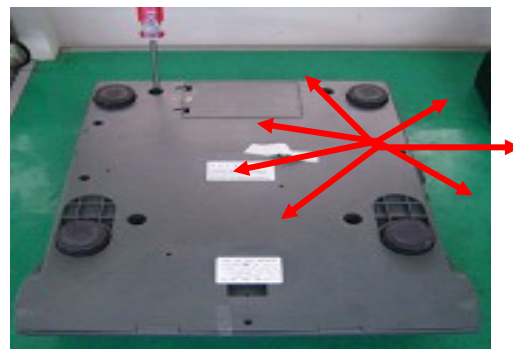


Model	LC Capacity (ZEMIC)	LC Capacity (TEDEA)	LC Capacity (MAVIN)
JCE-3K	5Kg	5 Kg	4.5Kg
JCE-6K	10Kg	10 Kg	7.5Kg
JCE-15K	20Kg	20 Kg	20Kg
JCE-30K	40Kg	50 Kg	45Kg

## 6-2 Main board replacement



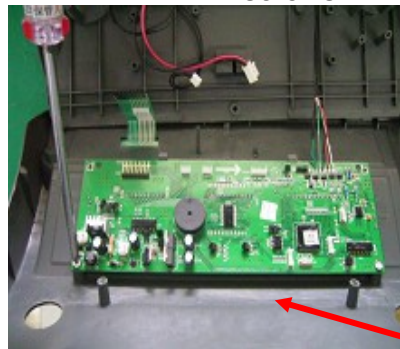
1. Remove the weighing pan



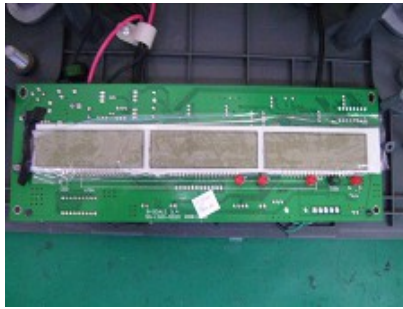
2. Up side down the scale and remove the 7 fixing screws



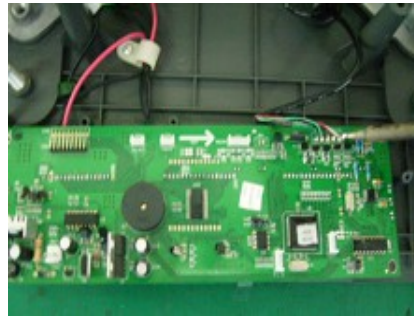
3. Remove the upper cover. Disconnect the power, switch and charging wires



4. Remove the 2 fixing screws of the main board



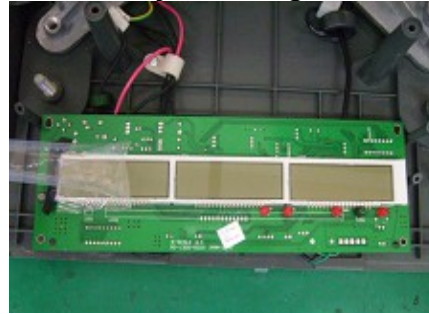
5. Paste a protective film on the LCD



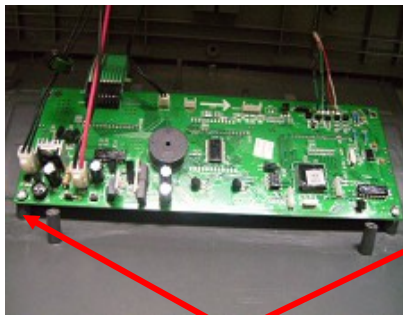
6. Put the main board upside down.  
Disconnect the L/C wire by soldering iron



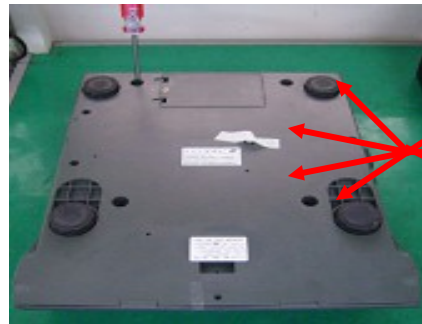
7. Replace the main board and solder the L/C wire



8. Tear away the LCD protective film



9. Tighten the 2 fixing screws and connect all the connectors



10. Put on the upper cover and tighten the 7 fixing screws.



11. Put on the weighing pan.

#### Note:

- 1) ZEMIC and MAVIN Load cell: "E+" in red, "E-" in black "S+" in green, and "S-" in white
- 2) TEDEA load cell: "E+" in green, "E-" in black "S+" in red, and "S-" in white

12. Switch on the scale, conduct calibration then check weighing functions.

### 6-3 Rechargeable battery replacement



1. Remove the weighing pan screws of the battery cover



2. Put the scale upside down and remove the fixing



3. Remove the battery cover



4. Remove the battery wire and battery



5. Replace the battery and connect the wire.



6. Put the battery back into the scale



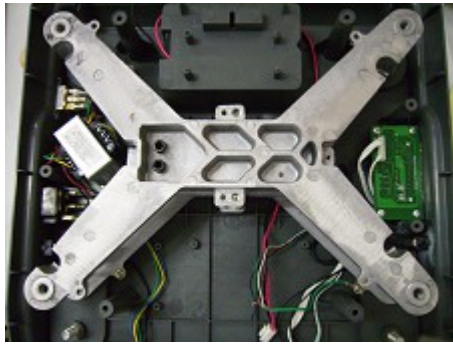
7. Put on the battery cover and tighten the screws



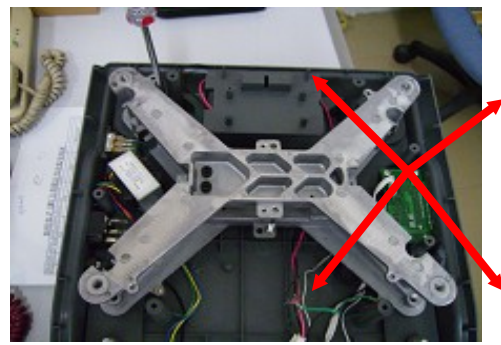
8. Put on the weighing pan

## 6-4 RS232 replacement





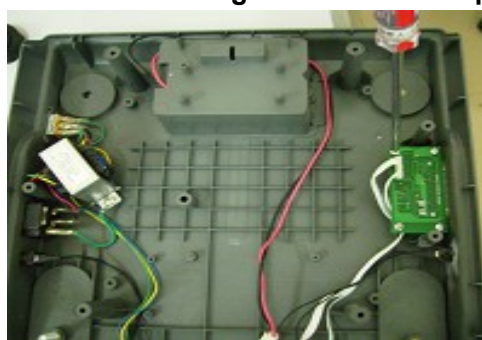
1. Remove the upper cover



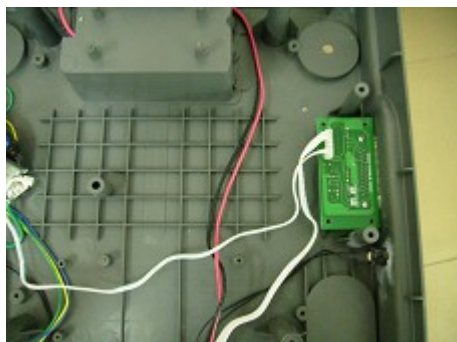
2. Remove the 4 fixing screws of the support



3. Remove the L/C module



4. Remove the fixing screws of the RS232 board



5. Replace the RS232 and connect the wire



6. Tighten the RS232 fixing screws and connect to the main board

7. Put the L/C module back, then tighten the fixing screws and put on the weighing pan.

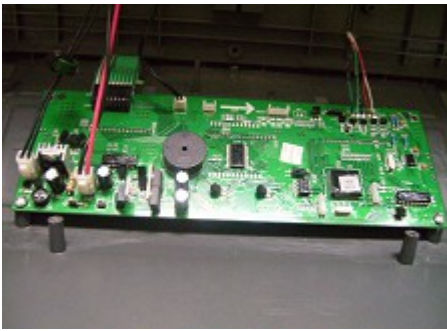
## 6-5 Keypad replacement



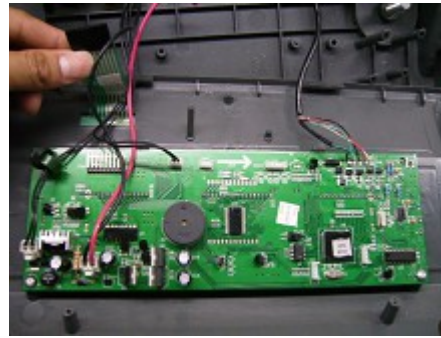
1. Remove the weighing pan



2. Put the scale upside down and remove the 7 fixing screws



3.Remove the upper cover



4. Disconnect the keypad



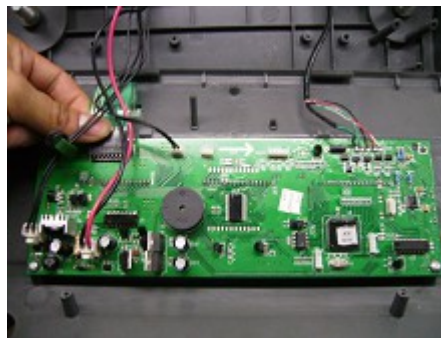
5.Remove the upper cover and tear down the keypad



6.Clear the glue and remove the release paper of the new keypad



7. Paste the new keypad



8. Insert the wire connection to the main board



9.Put on the upper cover

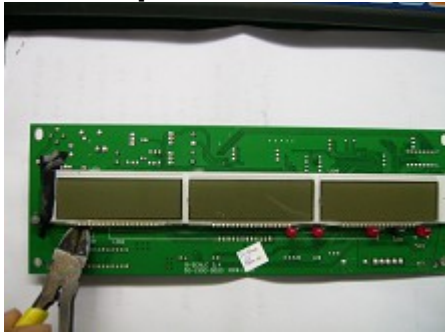


10. Put the scale upside down and tighten the 7 fixing screws

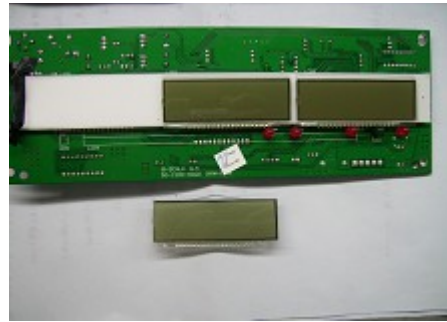


11. Put on the weighing pan

## 6-6 LCD replacement



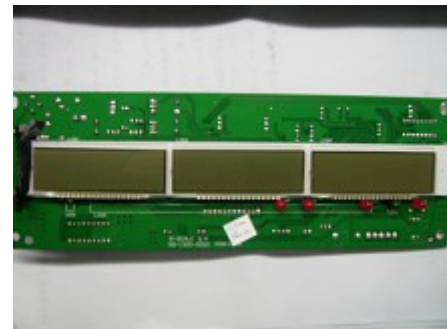
1.Cut off the bad LCD



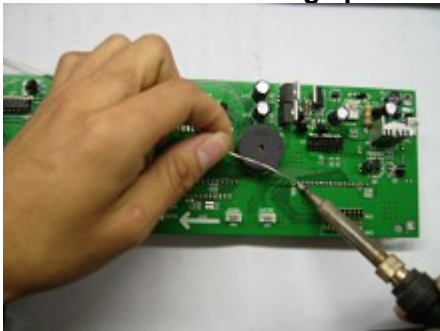
2.Remove the bad LCD



3.Punch the LCD welding spots



4.Install the new LCD



5.Solder the LCD



6. The replaced LCD

## 7. Applicable Version and Software

Version:02

Revision date: May 20, 2010