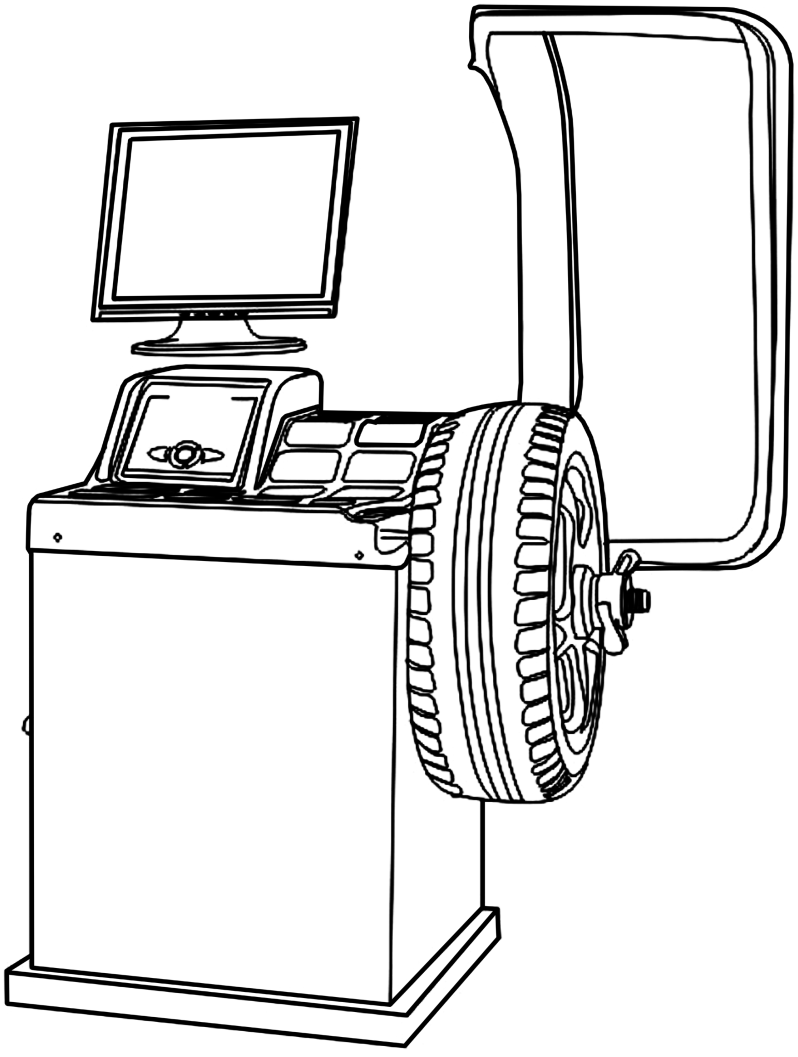
Wheel Balancer

INSTRUCTION & MAINTENANCE MANUAL

We follow the way the wheel is moving!



Read this entire manual carefully and completely
before installation or operation of the tire changer

CATALOGUE

1. Introduction

An imbalanced wheel will make the wheel jump and steering wheel wobble while driving. It can baffle the driver to drive, aggrandize the cleft of combine area of steering system, damage the vibration damper and steering parts, and increase the probability of the traffic accidents. A balanced wheel will avoid all these problems.

This equipment adopts the new LSI (Large Scale Integrated circuit) to constitute the hardware system that acquires processes and calculates information at a high speed.

Read the manual carefully before operating the equipment to ensure normal and safe operation. Dismantling or replacing the parts of equipment should be avoided. When it needs repairing, please contact with technique service department. Before balancing, ensure the wheel fixed on the flange tightly. Operator should wear close-fitting smock to prevent from hanging up. Non-operator does not start the equipment.

No use while beyond the stated function range of manual.

2. Specification and Features

2.1 Specification

Max wheel weight: 65kg
Motor power: 200W
Power supply: 220V/50Hz
Rotating speed: 200r/min
Cycle time: 8s
Rim diameter: 10″~24″(256mm～610mm)
Rim width: 1.5″~20″(40mm～510mm)
Noise: ＜70dB
Net weight:105kg
Dimensions: 960mm×760mm×1160mm

2.2 Features

Adopt 6 LED display, it has flexible indicator operating function.
Various balancing modes can carry out counterweights to stick, clamp and etc.
Intelligent self-calibrating.
Self fault diagnosis and protection function.
Applicable for various rims of steel structure and duralumin structure.

2.3 Working Environment

Temperature: 5~50℃
Altitude: ≤4000m
Humidity: ≤85%

3. The Constitution of Dynamic Balancer

Two major components of the dynamic balancer are: mechanic part and electric system

3.1 Mechanic part

The part consists of support, swing support and rotary main axis; they are together fixed on the frame.

3.2 Electric system

1. The microcomputer system consists of LED display, keyboard, and LSI circuit such as new MCU CPU.
2. Testing speed and positioning system consists of gear and opto-electronic coupler.
3. Two-phase asynchronous motor supplies and controlling circuit.
4. Horizontal and vertical pressure sensor.

5. Hood protection: machine can not start if protection hood is not put down.

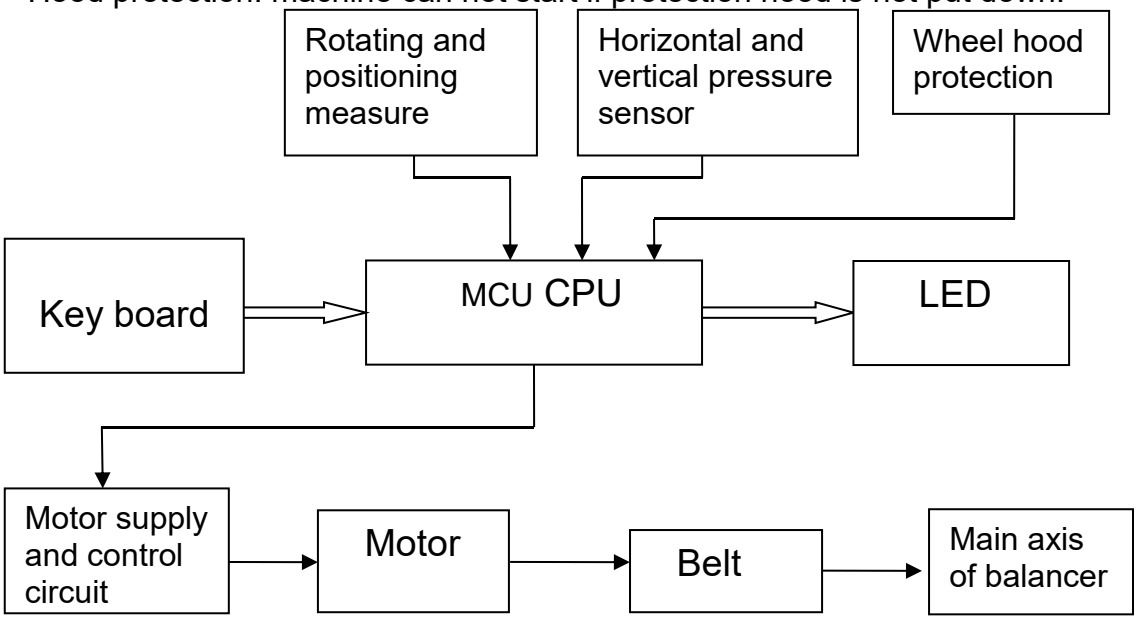


Figure 3-1 electric system

4. Installation of Dynamic Balancer

4.1 Opening and Checking

Open the package and check whether there are damaged parts. If there are any questions, please do not use the equipment and contact the supplier. Standard accessories with equipment are shown as follows:

Screw stud of drive axis	1
Balancing pliers	1
Allen wrench	1
Measure caliper	1
Quick release nut	1
Adapter (cone)	4
Counter weight (100g)	1
Protection hood (optional)	1

4.2 Installing machine

4.2.1The balancer must be installed on the solid cement or similar ground. Unsolidified ground can bring measuring errors.

4.2.2 There should be 500mm around the balancer in order to operate conveniently.

4.2.3 Nail anchor bolts on the base's mounting hole of balancer to fix the balancer.

4.3 Installing hood (optional)

Install the wheel hood on the equipment by insert the pipe of protection hood into the hood shaft behind the cabinet, then fasten them with M10×65 screws in spare parts box

4.4 Installing screw stud of drive axis

Install screw stud of drive axis on the main axis with M10 × 150 socket bolt, then screw the bolt. (Refer to figure 4-1)

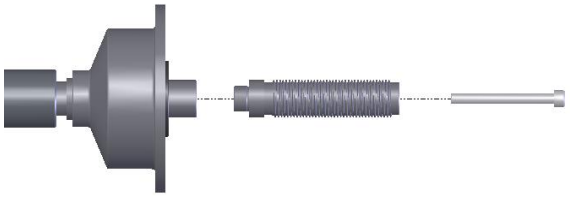


Figure 4-1

(**Notice**: a wheel can be installed on the main axis before screwing bolt, then hold the wheel by hands in order to prevent the main axis from revolving together with the bolt.)

5. LED display and function keys

5.1 LED display and key board function introduction.

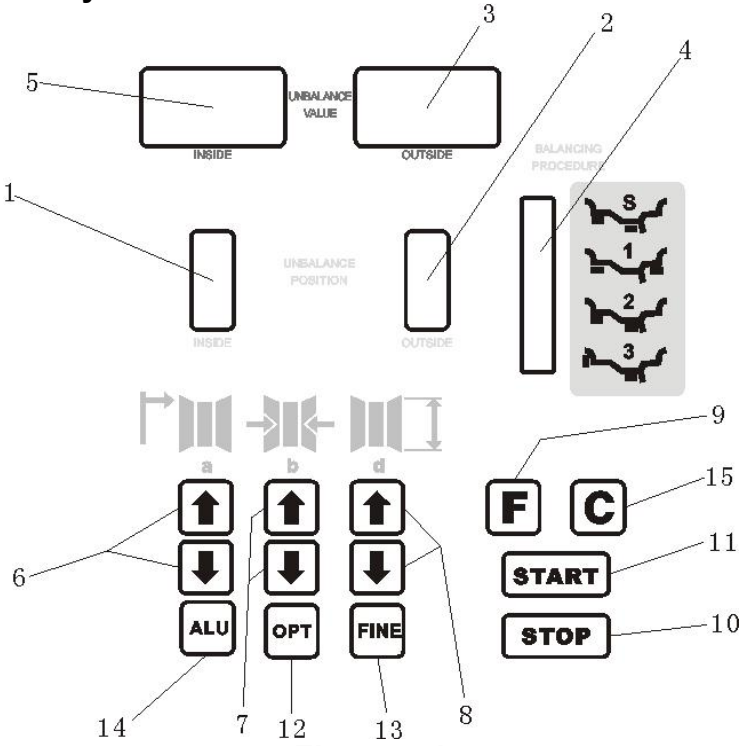


Figure 5-1

1-Digital readout, position of imbalance, inside
2-Digital readout, position of imbalance, outside
3-Digital readout, amount of imbalance, outside
4-Indicator, “ALU” correction mode selected
5-Digital readout, amount of imbalance, inside
6-Push buttons, manual DISTANCE (a) setting
7-Push buttons, manual WIDTH (b) setting
8-Push buttons, manual DIAMETER (d) setting
9-Push button for “STATIC” or “DYNAMIC” shift and function combination
10-Push button, emergency stop setting
11-Push button, machine start
12-Push button, optimization of imbalance
13-Push button, real imbalance amount display
14-Push button , selection of “ALU” mode of correction
15-Push button for recalculation of imbalance amount

NOTE: Only use the fingers to press buttons. Never use the counterweight pincers or other pointed objects to press buttons.

5.2 Combination function keys introduction

[F] + [C]: Push buttons for self-calibration
[F] + [FINE]: Push buttons for self-checking
[F] + [STOP]: Push buttons for protection hood function setting
[F] + [a-] + [a+]: Push buttons for shift of gram and ounce
[STOP] + [C]: Push buttons for machine setting

6. Installing and Demounting the Wheel

6.1 Checking the wheel

The wheel must be clean, without sand or dust on it, and remove all the previous counterweights of the wheel. Check the tyre pressure whether up to the rated value. Check whether positioning plane of rim and mounting holes deformed.

6.2 Installing the wheel

6.2.1 Select the optimal cone for the center hole if there is center hole on the rim.

6.2.2 Two ways of installing the wheel: A. positive positioning; B. negative positioning.

6.2.2.1 Positive positioning (refer to figure 6-1):

Positive positioning is commonly used. It operates easily, and it is applicable for steel and thin duralumin rims with small inner hole.

Installing process: main shaft → install suitable cone (small end towards outside) → install wheel → (installing plane of rim towards inside) → install quick release nut

6.2.2.2 Negative positioning (refer to figure 6-2):

If rim inner hole is big and biggest cone is adopted, negative position is suitable so that rim can match shaft flange tightly. Installing process: main shaft → install wheel → install suitable cone （ big end towards outside ）→ quick release nut

6.2.3 Install wheel and cone on main shaft. Ensure the cone can clamp the wheel before screwing handle. Wheel can rotate after screwing tightly.

6.3 Demounting the Wheel

6.3.1 Demount the quick clamp

6.3.2 Raise the wheel and then take it down from main axis.

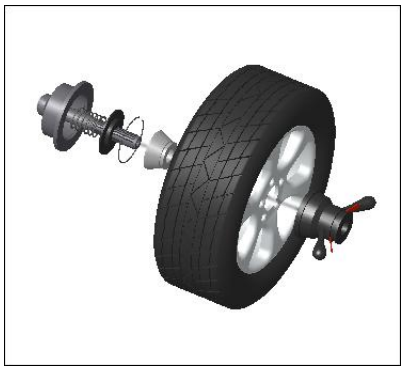


Figure 6-1

Figure 6-2

Note: do not slide wheel on main shaft to prevent main shaft from scuffing while installation and demounting the Wheel

7. The input methods of rim data and the wheel balance operation

7.1 The power-on state of the machine

After the machine is powered on, it starts initialization automatically. The initialization will be completed after two seconds. Then the machine enters normal dynamic (clamp counterweights on the correction plane of the both edged sides of rim) mode automatically (Figure 7-1), ready for input data of rim.

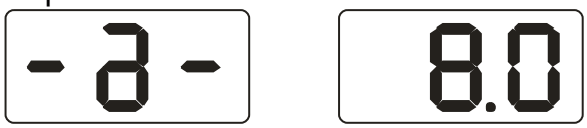


Figure 7-1

7.2 Data of wheel input method and wheel balance operation for normally dynamic balance mode

7.2.1 After the machine is powered on, it enters the normal balance mode

7.2.2 Input data of rim

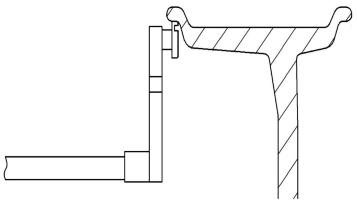


Figure 7-2

Move the measure scale, pull the ruler head to the edge of the rim inside (Figure 7-2), and get the readout of value “a” indicated by ruler, then put ruler back. Press [a-] or [a+] to input value “a”.

7.2.3 Input data of rim width

Get the width value indicated on rim or measured by ruler, then press [b+] or [b-] key to input value “b”.

7.2.4 Input data of rim diameter.

Get the diameter value indicated on rim or measured by ruler, then press [d+] or [d-] key to input value “d”.

7.2.5 Normal dynamic balance mode operation process

Input data of rim, lay down protection hood, press START key to make wheel rotate. After stop, both sides LED displays show imbalance weight between both sides.

Slowly rotate wheel. When inside position indicator lights (figure 5-1(1)) are all on, clip corresponding counterweight, showing by left side LED displays, on 12 o’clock position on inside of rim (figure 7-3). Again slowly rotate wheel. When outside position indicator lights (figure 5-1(2)) are all on, clip corresponding counterweight, showing by right side LED displays, on 12 o’clock position on the outside of rim (figure 7-4). Then lay down protection hood and press START key to make wheel rotate. After stop, both side LED displays show “0”. Balance process is completed.

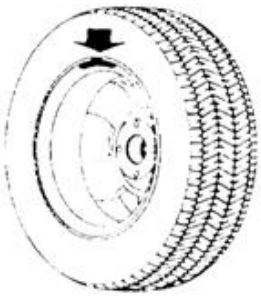


Figure 7-3

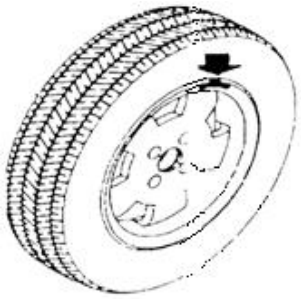


Figure 7-4

7.3 The data input method of ALU-1 mode and balance operation process

Follow **7.2** to input data of rim. Press ALU key to make ALU-1 indicating light on so as to balance wheel at ALU-1 mode.

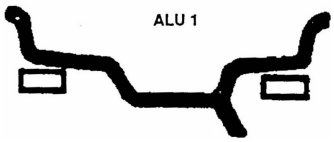


Figure 7-5

Input date of rim, lay down protection hood and press START key to make wheel rotate.

After stop, both side LED displays show wheel both sides imbalance weight

7.3.3 Slowly rotate wheel, when inside counterweight position indicator light (figure 5-1(1)) all on, clip correspond counterweight on 12 o'clock position on inside of rim (ect figure 7-3)

7.3.4 Slowly rotate wheel, when outside counterweight position indicator light(figure 5-1(2)) all on, clip correspond counterweight on 12 o'clock position on outside of rim (ect figure 7-4)

7.3.5 Lay down protection hood, press START key, rotate wheel, after stop both side LEDs display Zero. Balance is completed

7.4 The data input method of ALU-2 balance mode and wheel balance operation process

Follow 7.2 to input data of rim, press ALU key to make ALU-2 indicating light on. Then wheel can be balanced in ALU-2 mode.

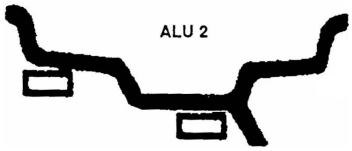


Figure 7-6

Input data of rim, lay down protection hood, press START key, rotate wheel. After stop, both sides LED displays show imbalance weight between both sides. Slowly rotate wheel. When inside position indicator lights (figure 5-1(1)) are all on, clip corresponding counterweight, showing by left side LED displays, on 12 o'clock position on inside of rim (figure 7-6). Again slowly rotate wheel. When outside position indicator lights (figure 5-1(2)) are all on, clip corresponding counterweight, showing by right side LED displays, on 12 o'clock position on the outside of rim (figure 7-6). Then lay down protection hood and press START key to make wheel rotate. After stop, both side LED displays show "0". Balance process is completed.

7.5 The data input method of ALU-3 balance mode and wheel balance operation process

Follow 7.2 to input wheel data, press ALU key to make ALU-3 indicating light on, then wheel can be balanced in ALU-3 mode.

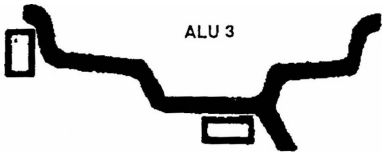


Figure 7-7

Slowly rotate wheel. When inside position indicator lights (figure 5-1(1)) are all on, clip corresponding counterweight, showing by left side LED displays, on 12 o'clock position on inside of rim (figure 7-7). Again slowly rotate wheel. When outside position indicator lights (figure 5-1(2)) are all on, clip corresponding counterweight, showing by right side LED displays, on 12 o'clock position on the outside of rim (figure 7-7). Then lay down protection hood and press START key to make wheel rotate. After stop, both side LED displays show "0". Balance process is completed.

7.6 The data input method of ALU-S balance mode and wheel balance operation process

These three kinds of ALU mode above are not suitable for all shape tyre. And some tyres can't be balanced well. So ALU-S mode may be adopted in this situation. The data input method is as follow:

Press ALU key, make the ALU-S LED light on (figure 7-8 or 7-9), move the measure ruler, pull the ruler head to inside of the rim (al), measure distance (al) inside of the rim, press [a-] or [a+] to input value "al".

Move the measure ruler, pull the ruler head to outside of the rim (aE), measure distance (aE) outside of the rim, and press [b-] or [b+] to input value “aE”.

Use caliper to measure diameter (dI) of inside (aI) of the rim, press [d-] or [d+] to input value “dI”

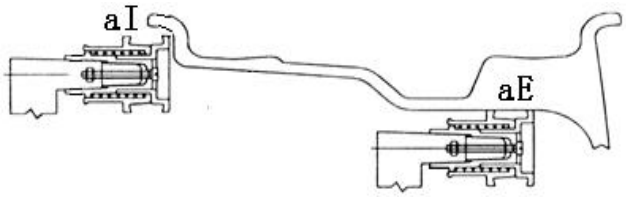


Figure 7-8

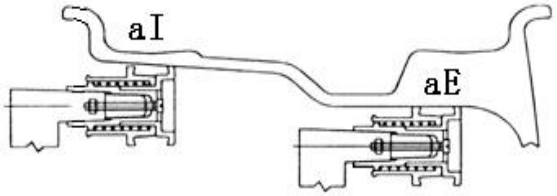


Figure 7-9

Use caliper to measure diameter (dE) of outside (aE) of the rim, hold pressing [FINE] key and press [d-] or [d+] to input “dE” value.

Input data of rim, lay down protection hood, press START key to make wheel rotate. After stop, both sides LED displays show imbalance weight between both sides. Slowly rotate wheel. When inside position indicator lights (figure 5-1(1)) are all on, clip corresponding counterweight, showing by left side LED displays, on 12 o’clock position on inside of rim (figure 7-8). Again slowly rotate wheel. When outside position indicator lights (figure 5-1(2)) are all on, clip corresponding counterweight, showing by right side LED displays, on 12 o’clock position on the outside of rim (figure 7-9). Then lay down protection hood and press START key to make wheel rotate. After stop, both side LED displays show “0”. Balance process is completed

7.7 Static balance (ST) operation process

ST mode is only suitable for rim, on which counterweight can be clipped on the middle position, such as motorcycle rim.

In the normal mode, measure diameter “d” of the position with counterweight (figure 7-10), then press [d+] or [d-] to input value “d”. (value “a” and value “b” can be random value). Press [F] to enter ST mode.

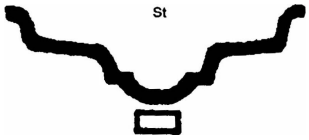


Figure 7-10

Input rim data, lay down protection hood, press START key to make wheel rotate. After stop, left side display shows ST, right side display shows imbalance amount (figure 7-11). Slowly rotate wheel. When inside position indicating lights (figure 5-1(1)) and outside position indicating lights (figure 5-1(2)) are all on, stick corresponding counterweight, showing LED displays, on 12 o’clock position on the rim (figure 7-10). Lay down protection hood, press START key to rotate the wheel. After stop, LED displays show “0”. Balance process is completed.

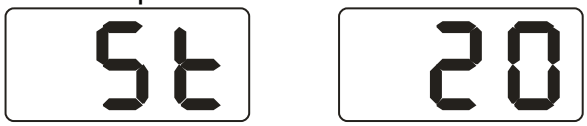


Figure 7-11

7.8 Recalculation function

Before wheel balance testing, sometimes input of current data of rim is forgotten. You can input date of rim after wheel balance testing. No need to press START key. Only press recalculation key (C), system will follow new data of rim to calculate imbalance amount. Press C key against the interface currently showing imbalance value, currently rim data of input can be checked.

8. The Self-calibrating of Dynamic Balancer

The self-calibrating of dynamic balancer has been finished before ex-factory. But the system parameter may vary because of long-distance transportation or long-term use, which may cause error. Therefore, users can make self-calibrating after a period of time.

Process is as follows:

8.1 Power on machine. After the initialization (figure 8-1)， install a middle size and comparatively balanced wheel on which counterweight can be clipped. Then follow step 7.2 input data of rim

8.2 Press F key and C key, (figure 8-1), lay down protection hood, press START key for next step, press STOP key or C key to exit;

Figure 8-1

8.3 After main shaft stop (figure 8-2), open up protection hood, clip a piece of 100 gram counterweight on anywhere of outside of rim, lay down protection hood, press START key for next step, press STOP key or C key to exit;

Figure 8-2

8.4 After main shaft stop (figure 8-3), Self-calibration is completed. Demount wheel, then balancer is ready to work.

Figure 8-3

NB：In the process of self-calibration, data of rim for input must be correct. 100 gram counterweight must be accurate. Otherwise self-calibration result will be wrong. And wrong self-calibration will make balancer measure precision decline.

9. Imbalance optimization

Imbalance optimization can be carried out When wheel imbalance amount is over 30 gram. And optimization can reduce usage quantity of counterweight.

Imbalance optimize have two operation methods:

9.1 Already display balance value

If balance testing has been completed and imbalance optimization needs to be carried out, press OPT key (figure 9-1);

Figure 9-1

Use chalk to mark a same point on the flange plane, rim and tyre. Use tyre changer to demount tyre, turn tyre by 180°, and mount tyre to rim；Reinstall wheel on the balancer and make sure mark points on flange and rim must be aligned. Press START key (figure 9-2);

Figure 9-2

As per Figure 9-2, left display shows percent of optimization. If static value is 40 gram before optimization, optimized by 85%, static value remains only 6 gram (15%×40gram=6gram) after optimization;

Slowly rotate wheel manually, when both ends side position indicating lights flash (figure 11-3)，use chalk to mark on top side of the tyre;

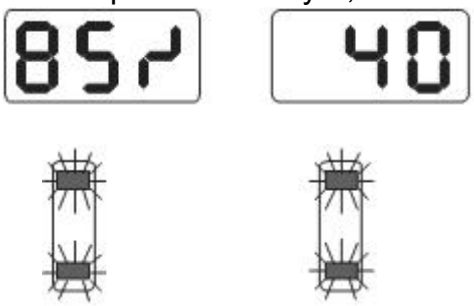


Figure 9-3

Again slowly rotate wheel by hand. when both middle position indicating lights flash (figure 9-4)，use chalk to mark on top side of the rim;

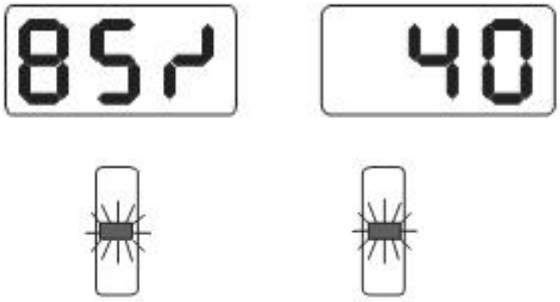


Figure 9-4

Demount the wheel from balancer, use tyre changer fit tyre on the rim and align marks on the tyre and rim. Optimization is completed.

9.2 Imbalance optimization before balance testing after machine power on

Turn on the power, install wheel, press OPT key. Left side displays OPT. Press START key and display as per figure 9-1. Then follow 9.1 to operate. Press STOP key to pause operation.

10. Gram-Oz conversion operation

This operation for counterweight maund conversion (gram-Oz).

10.1 Press [F] key, [a+] key and [a-] key, display as per figure 10-1, denoting currently maund is gram.

Figure 10-1

10.2 Press [b+] key or [b-] key, display as per figure 10-2, denoting currently maund is Oz;

Figure 10-2

10.3 Press [b+] key or [b-] key again to shift maund between gram and Oz;

10.4 Press [a+] key to save setup and exit. The setup is still remained after power off.

11. Protection hood function setting

This function setting is for machine start directly after protection hood laid down or machine start by laying down protection hood and press START key.

When function is on, after laying down protection hood, wheel rotates directly, then machine enters measure state.

When function is off, after laying down protection hood, START key should be pressed for entering measure state.

Operation process is as follows:

Press [F] key and STOP key (figure 11-1), right display shows currently state. On denotes function on. OFF denotes function off.

Press [b+] or [b-] key to shift protection hood function between “ON” and “OFF”;

Press [a+] key to save currently settings and exit. The setup is still remained after power off.

Figure 11-1

12. Machine settings

12.1 Minimum value display settings

After selection of minimum value display, displayed value is Zero when wheel imbalance amount is less than setting value. Press FINE key to show real imbalance amount.

Press STOP and [C] key (figure 12-1), denoting display is Zero when imbalance value is less than 5 gram. Press [b+] key or [b-] key to set minimum value. There are three levels: 5,10 and 15. Press [a+] key to save settings and enter next step;

Figure 12-1

12.2 Key-tone function settings

This function can turn on or turn off key-tone. When function is turned on, system will make a sound “di” for every time key press. If the function is turned off, there will be no sound for key press.

Follow 12.1 to press [a+] (figure 12-2). Right side display shows ON, denoting function is on. Right side display shows OFF, denoting function off. Press [b+] key or [b-] key to shift between “ON” and “OFF”. Press [a+] key to save settings and enter next step;

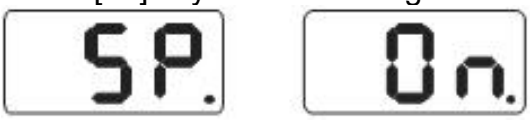


Figure 12-2

12.3 Display monitor brightness settings

This function will allow to set display brightness as per environment and user’s need,

Follow 12.2 to press [a+] for enter setting (figure 12-3), Right side display shows brightness level. Totally there is 8 levels. Level 1 is dimmest and level 8 is brightest. Default level is 4. Press [b+] key or [b-] key to select brightness level. Press [a+] key to save settings and enter next step;

Figure 12-3

12.4 INCH and MM conversion operation

Data on most rims is of INCH unit. If the unit is MM, length unit for system can be set to MM. Before unit setting, if the displayed value is fraction, current unit is INCH. If the displayed value is a whole number, current unit is MM. System default length unit is INCH. Setting of unit will not be maintain remained after power off.

Follow 12.3 to press [a+] for entering setting (figure 12-4). Right side display shows ON, denoting unit is INCH. Right side display shows OFF, denoting unit is MM. Press [b+] or [b-] to shift setting between ON and OFF. Press [a+] to save setting and exit.

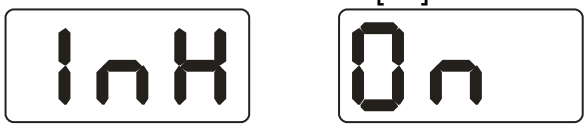


Figure 12-4

13. Machine self test function

This function is for checking whether various input signals are ok or not, and provides gist for error analysis.

13.1 LED and indicating light checking

Press [F] key and FINE key, all the LEDs and indicating lights will flash in turn. This function is for checking fault LEDs or indicating lights. Press [C] key to exit. Then display figure 13-1 and enter position sensor checking. Press [C] to exit.

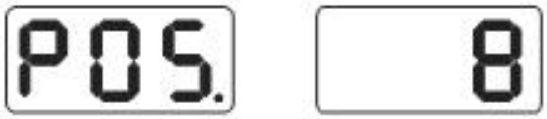


Figure 13-1

13.2 Position sensor signal check

This function is for checking whether position sensor, main shaft and main board circuit are ok or not.

As per figure 13-1, slowly rotate main shaft, the displayed value on the right side LEDs should change. Value increases for clockwise turn and decreases for. anticlockwise turn. Normally the value changes from 0 to 63. Press ALU key, enter piezoelectric sensor checking. Press [C] key to exit.

13.3 Piezoelectric sensor signal checking

This function is for checking whether piezoelectric sensor, main board signal processing circuit and power are ok or not.

Follow 13.2 to press ALU key for entering (figure 13-2). Then gently press main shaft. Normally, the values on two sides LEDs will change. Press ALU or [C] key to exit.

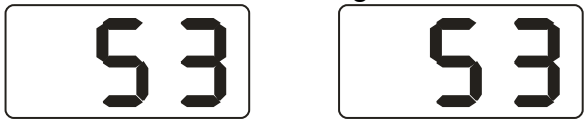


Figure 13-2

14. Safety Protection and Trouble Shooting

14.1 Safety protection

14.1.1 Under the circumstance of operation, if the machine does not operate

normally, Press STOP key, the rotating wheel will stop immediately.

14.1.2 If protection hood is not laid down, press START key, the wheel will not rotate, displays Err-5-

14.1.3 Under the circumstance of operation, if protection hood is opened up, the rotating wheel will stop immediately, display OFF.

14.2 Trouble shooting

14.2.1 Press START key, main shaft not rotate, LED display shows Err-1-. Please check motor, power supply board, computer board and cable connections;

14.2.2 Press START key, main shaft rotate, LED display shows Err-1-. Please check position sensor, computer board and cable connections;

14.2.3 If main shaft still rotates for a long time without braking after balance test finish, please check brake resistance, power supply board, computer board and cable connections;

14.2.4 Power on machine and no display, please check whether power swich indicating light is flashing. If not, it is the power supply problem. Otherwise please check the power supply board, computer board and the cable connections;

14.2.5 Usually precision problem is not caused by the balancer machine. It is probably because of wrong wheel installation, or inaccurate counterweight, or inaccurate counterweight of 100 gram for balance self-calibration. Please reserve the original equipped 100 gram counterweight properly, which is for self-calibration only.

14.2.6 Instability and poor repeatability of data are not usually caused by the balancer machine. It is probably because of wrong wheel installation, or not firm or level-off ground. Please fix the machine by anchor bolts. Sometimes no connected earth wire may cause this phenomenon.

Hint: right method to check precision:

Input right date of wheel(a. b. d value),consult instruction do a self-calibration, press START process balance operation, note down date of first time, clip 100 gram counterweight on the outside edge of wheel(when outside indicator light all on is top zenith position),press START key again process balance operation, this date of outside display addition date of first time, should amount 100±2,manually slowly turn the wheel, when light of outside all on, check 100 gram counterweight whether at 6 o'clock position, if not amount 100 gram or 100 gram counterweight not at 6 o'clock position, indicate balancer precision have problem, if amount is 100 gram, follow same method check inside, check inside whether amount is 100 gram and at 6 o'clock.

15. Maintenance

15.1 The daily maintenance by non – professionals

Before the maintenance, please switch off the power-supply.

15.1.1 Adjust the tension of the belt.

15.1.1.1 Dismantle the top cover hood.

15.1.1.2 Unscrew motor screw, move the motor till the belt's tension is proper, and emphatically press the belt downwards about 4mm.

15.1.1.3 Screw motor screw and install the top cover hood.

15.1.2 Check whether the wires of electricity part connects are reliable.

15.1.3 Check whether the screw stud of the main shaft is loose.

15.1.3.1 Locking nut can not fix wheel tighten on main shaft
15.1.3.2 Use hexagonal wrench to tighten the screw stud of the main shaft.

15.2 The maintenance by professionals

The professionals should be from the machine suppliers.

15.2.1 If the imbalance amount of tested wheel has obvious error (amount is too big) and can be improved after self-calibrating, it proves the parameter in the machine has changed and needs professionals to correct it. .

15.2.2 The replacing and adjusting for pressure sensor should be operated by professionals as per the following methods:

1. Unscrew the No.1, 2,3,4,5 nuts.
2. Dismantle the sensor and screw stud.
3. Replace No.6, 7 the sensor components.
4. Install the sensor and the screw stud as per Figure 12-1. (Pay attention to the sensor's direction.)
5. Screw No.1 nut emphatically.
6. Screw the No.2 nut to make the main shaft and the flank of cabinet vertical, and then emphatically screw the No.3 nut.
7. Screw the No.4 nut (not so emphatically), then screw No.5 nut.

15.2.3 The replacing of circuit board and its components should be operated by professionals.

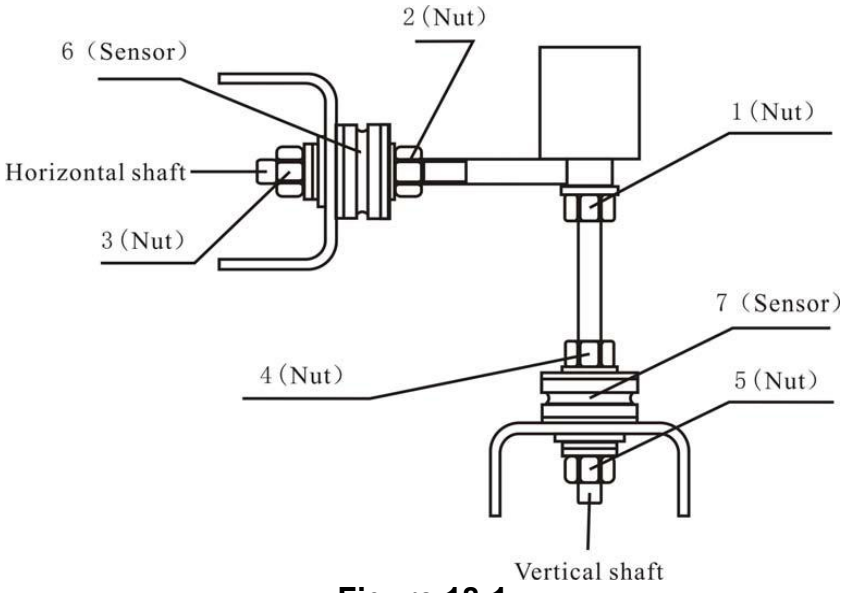
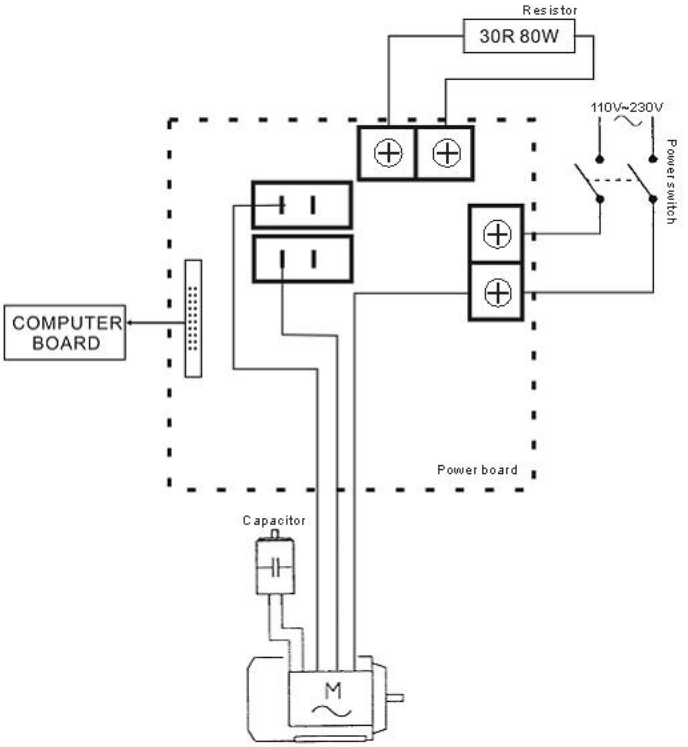


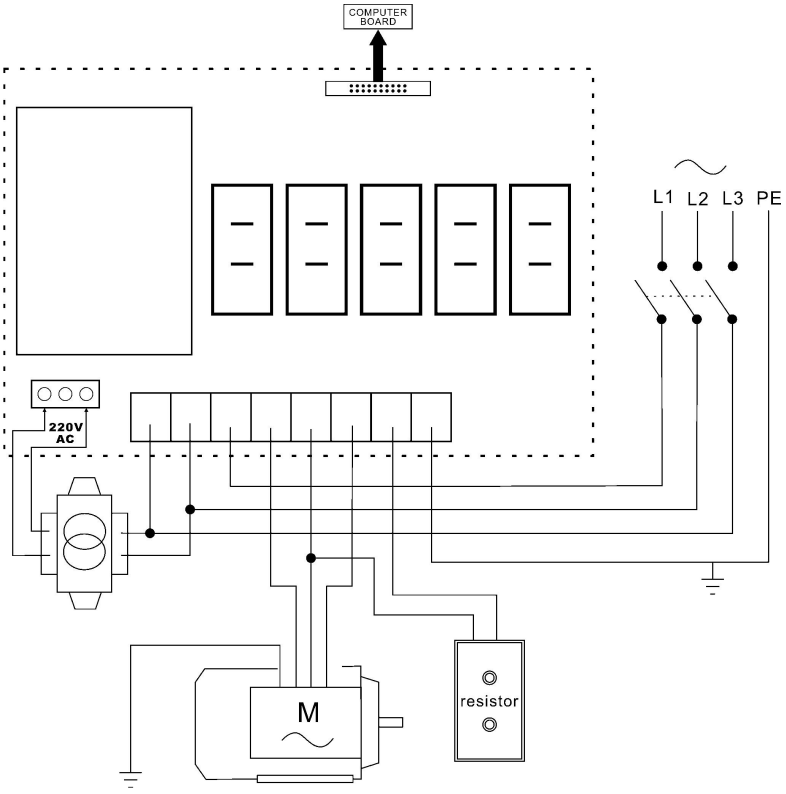
Figure 18-1

16. Power supply layout diagram

16.1 220 V Connection



16.2 380 V Connection

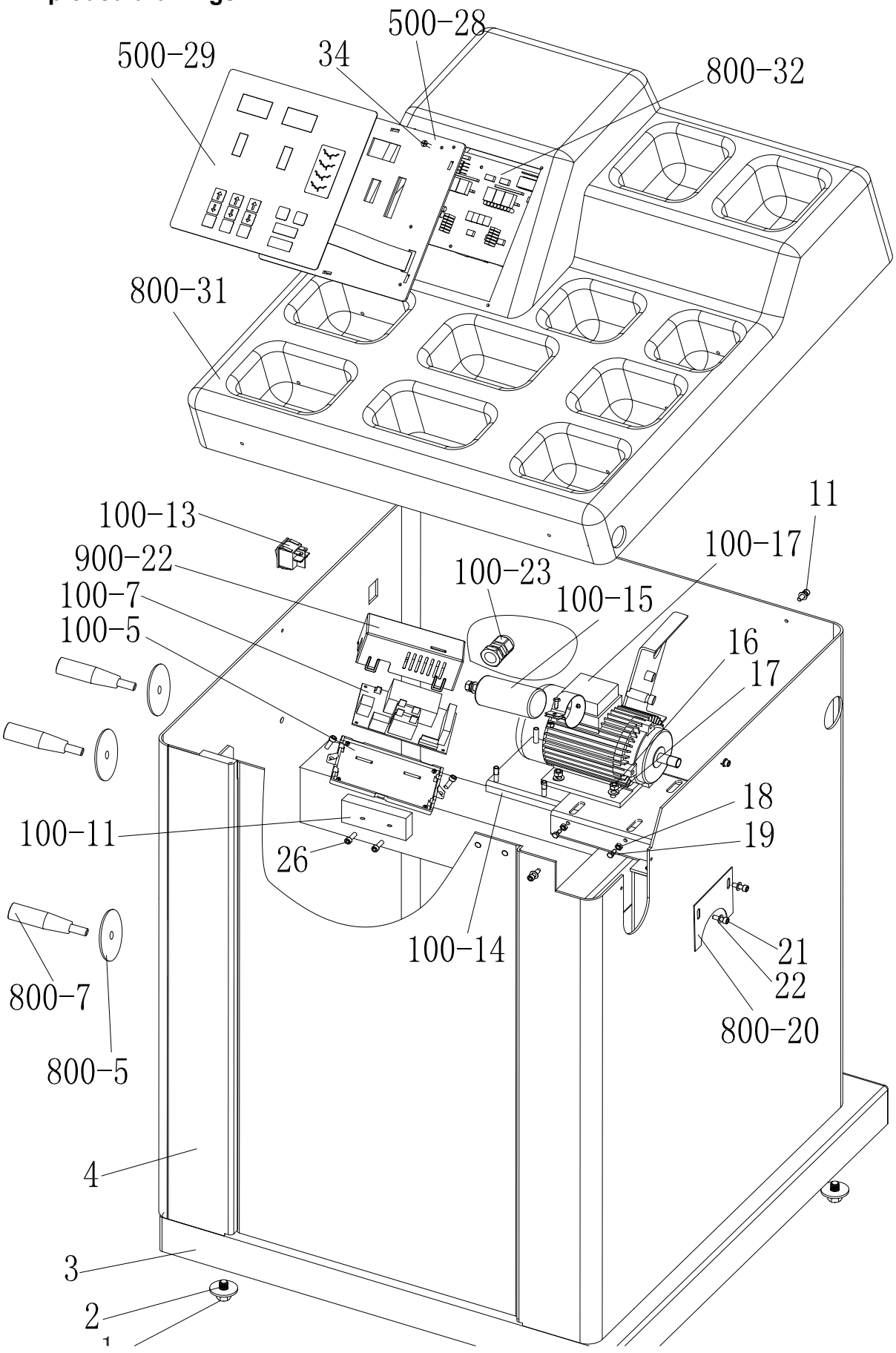


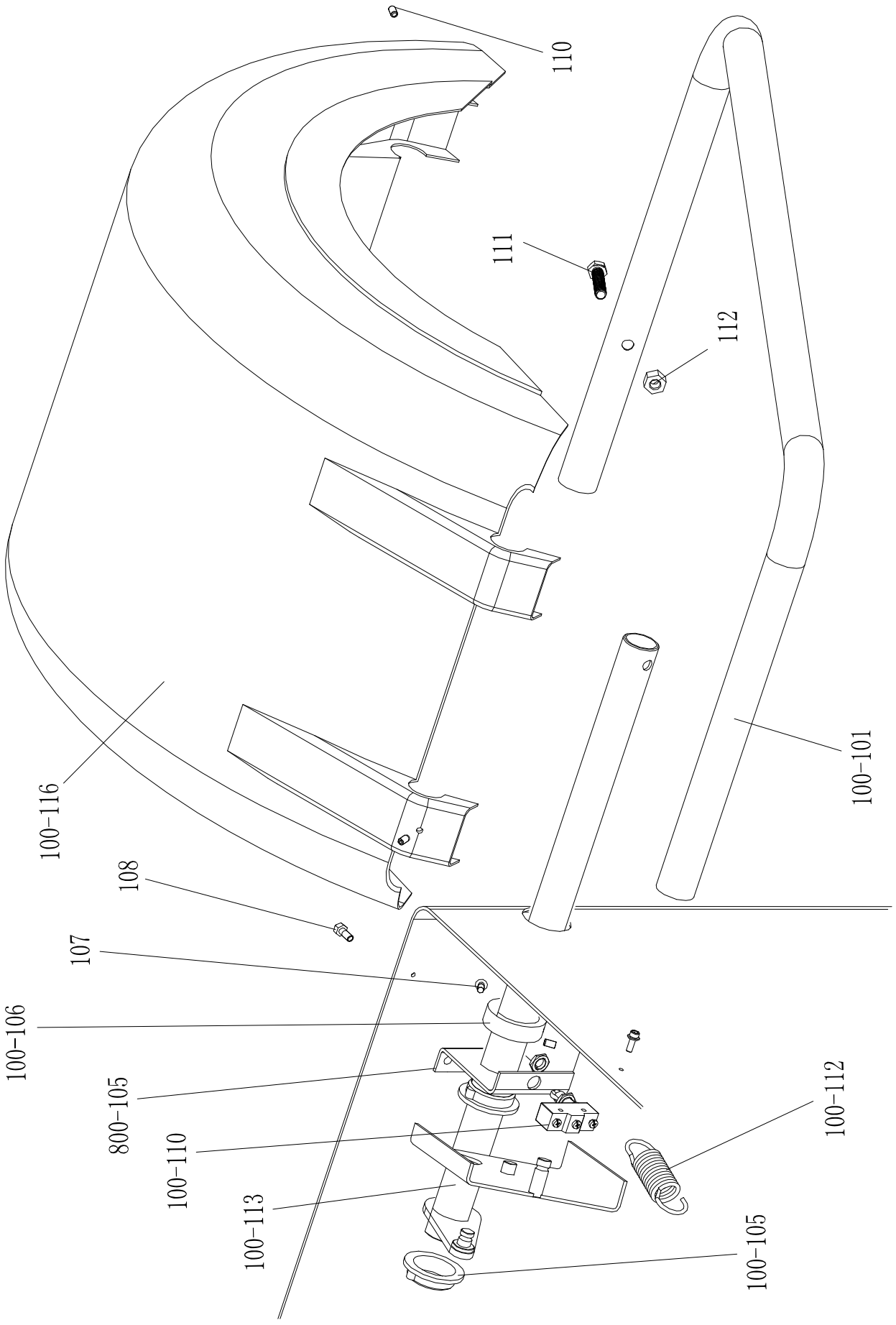
17. Trouble-error code table

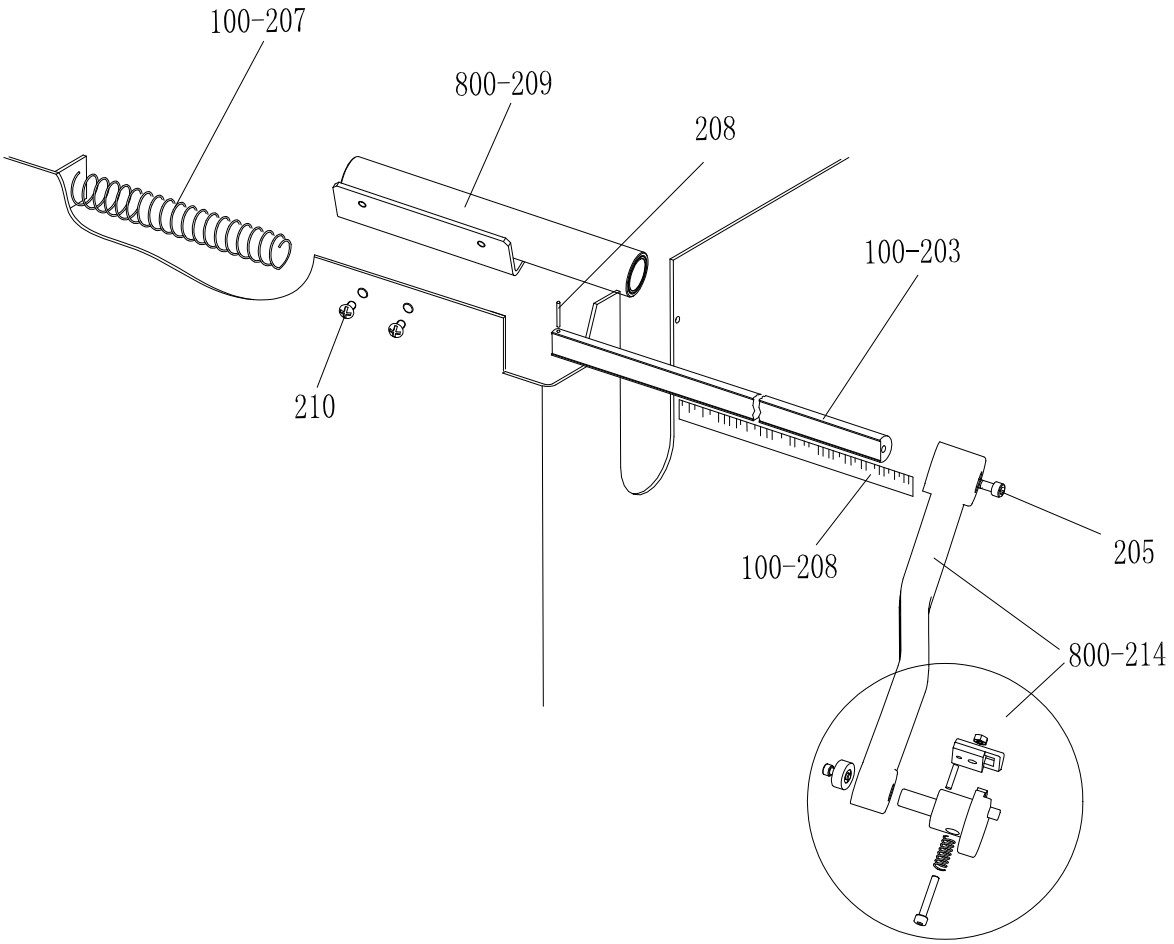
When balancer displays hint of error, please refer to below table to shoot troubles:

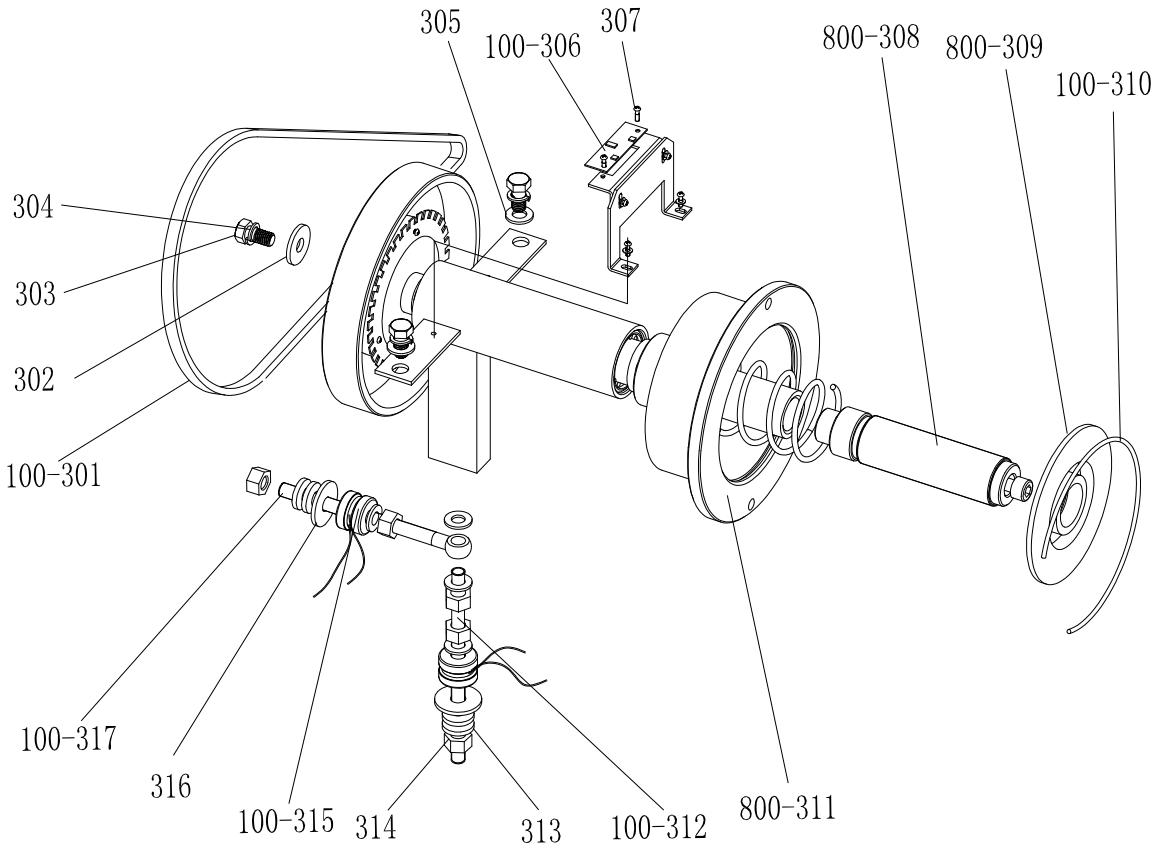
Code	meanings	cause	remedy
Err 1	Main shaft not rotate or have no rotate signal	1.motor fault 2.position sensor fault 3.power supply board fault 4.computer board fault 5.connection-peg untouched	1.change motor 2.change position sensor 3.change power supply board 4.change computer board 5.check cable connections
Err 2	The rotation speed low	1. position sensor fault 2. wheel not installed tightly or wheel too light 3. motor fault 4. driving belt too loose or too tight 5. computer board fault	1. change position sensor 2. re-install wheel tightly 3. change motor 4.adjust driving belt elasticity 5. change computer board
Err 3	Miscalculation	imbalance amount beyond calculation range	Repeat self-calibration or change computer board
Err 4	Main shaft rotation backwards	1. position sensor fault 2. computer board fault	1. change position sensor 2. change computer board
Err 5	Protection hood not lay down	1.before pressing START key，protection hood not lay down 2. jiggle switch fault 3. computer board fault	1.follow right method operation 2.change jiggle switch 3. change computer board
Err 6	Sensor signal transact circuit not work	1. power supply board fault 2. computer board fault	1.change power supply board 2. change computer board
Err 7	Lose data of interior	1. self-calibration failure 2. computer board fault	1. Repeat the self-calibration 2. change computer board
Err 8	Self-calibration memory failure	1. not clip 100 gram on the rim when self-calibration 2. power supply board fault 3. computer board fault 4. press sensor fault 5. connection-peg untouched	1.follow right method to repeat self-calibration 2.change power supply board 3. change computer board 4.change press sensor 5.check cable connection

18. Exploded drawings




110
111
112
100-116
100-101
108
107
100-106
800-105
100-110
100-113
100-112
100-105


100-207
800-209
208
100-203
210
100-208
205
800-214

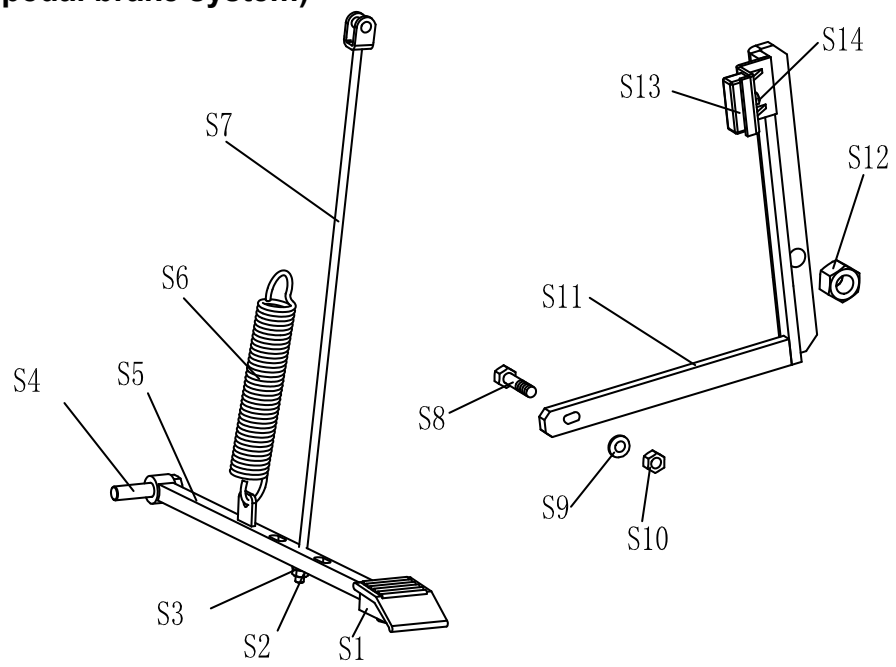

305
100-306
307
800-308
800-309
100-310
304
303
302
100-301
100-317
316
100-315
314
313
100-312
800-311

19. Spare parts list

No.	Code	Description	Qt.
1	B-014-100251-0	Screw	4
2	B-040-103030-1	Washer	2
3	PX-800-020000-0	Base	1
4	PX-800-010000-0	Body	1
800-5	P-000-009002-0	ABS Washer	3
800-7	P-000-009000-0	Tools hang	3
100-13	S-060-000210-0	Power switch	1
100-23	S-025-000135-0	Cable circlip	1
100-14	PX-100-010920-0	Motor adjust board	1
11	B-024-050161-1	Screw	4
100-15	S-063-002000-0	Capacitor(depends)	1
100-17	S-051-230020-0	Motor(depends)	1
16	B-004-060001-1	Nut	4
17	B-040-061412-1	Washer	4
18	B-004-050001-1	Nut	2
19	B-014-050351-1	Screw	2
800-20	PX-100-110000-0	Plate	1
21	B-024-050061-0	Screw	2
22	B-040-050000-1	Washer	2
100-7	PZ-000-020822-0	Power board	1
100-5	P-100-120000-0	Electric Board Support	1
26	B-024-050251-0	Screw	2
100-11	D-010-100300-1	Resistor	1
900-22		Box	1
800-31	P-800-190000-0	Head with tools-tray	1
800-32	PZ-000-010800-0	Computer board	1
500-28	P-500-100000-0	Key fixed plate	1
34	B-017-030251-0	Screw	8
500-29	S-115-008000-0	Key board	1
100-112	P-100-210000-0	Spring	1
100-105	P-800-180000-0	Sheath	2
100-113	PX-800-040000-0	Shaft	1
100-110	S-060-000400-0	Micro switch	1
800-105	PX-100-200200-0	Shaft support	1

No.	Code	Description	Qt.
100-106	PX-800-050000-0	Shaft sheath	1
107	B-024-060061-0	Screw	1
108	B-010-080201-1	Screw	2
100-116	P-100-200100-0	Hood	1
110	B-007-060081-0	Screw	3
111	B-014-100451-0	Screw	1
112	B-001-100001-0	Nut	1
100-101	PX-100-200200-0	Shaft	1
800-214	PW-109-082800-0	Handle Bar	1
205	B-010-060161-0	Screw	2
100-208	Y-004-000070-0	Graduated strip	1
100-203	P-100-090000-0	Rim distance gauge	1
208	B-040-050000-1	Pin	1
800-209	PX-820-570000-0	Gauge support	1
210	B-024-050101-0	Screw	2
100-207	P-100-210000-0	Spring	1
100-301	S-042-000380-0	Belt	1
302	B-040-103030-1	Washer	1
303	B-014-100251-0	Screw	3
304	B-050-100000-0	Washer	3
305	B-040-102020-1	Washer	6
100-306	PZ-000-040100-0	Position Pick-up Board	1
307	B-024-030061-0	Screw	4
800-308 Tr36	P-100-400000-0	Thread SHAFT Tr36	1
800-308 Tr40	P-828-400000-0	Thread SHAFT Tr40	1
800-309	P-100-420000-0	Plastic Lid	1
100-310	P-100-340000-0	Spring	1
800-311	S-100-000800-0	Complete Shaft	1
100-312	P-100-080000-0	Screw	1
313	B-048-102330-1	Washer	4
314	B-004-100001-2	Nut	5
100-315	S-131-000010-0	Sensor Assembly	2
316	B-040-124030-1	Washer	2
100-317	P-100-070000-0	Screw	1

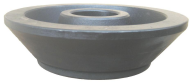
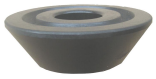
S Version Exploded drawings and spare parts list
(Optional pedal brake system)



No.	Code	Description	Qt.		No.	Code	Description	Qt.
S1	C-221-640000-A	Rubber cover	1		S8	B-010-060301-0	Screw	1
S2	B-001-060001-0	Nut	1		S9	B-040-061412-1	Washer	1
S3	B-040-061412-1	Washer	1		S10	B-004-060001-1	Nut	1
S4	B-014-100251-0	Screw	1		S11	PX-100-020200-0	Brake lever	1
S5	PX-800-020300-0	Foot lever	1		S12	B-001-120001-0	Nut	1
S6	C-200-380000-0	Spring	1		S13	P-000-002001-1	Brake pad	1
S7	PX-100-020400-0	Connecting rod	1		S14	B-004-060001-1	Nut	2

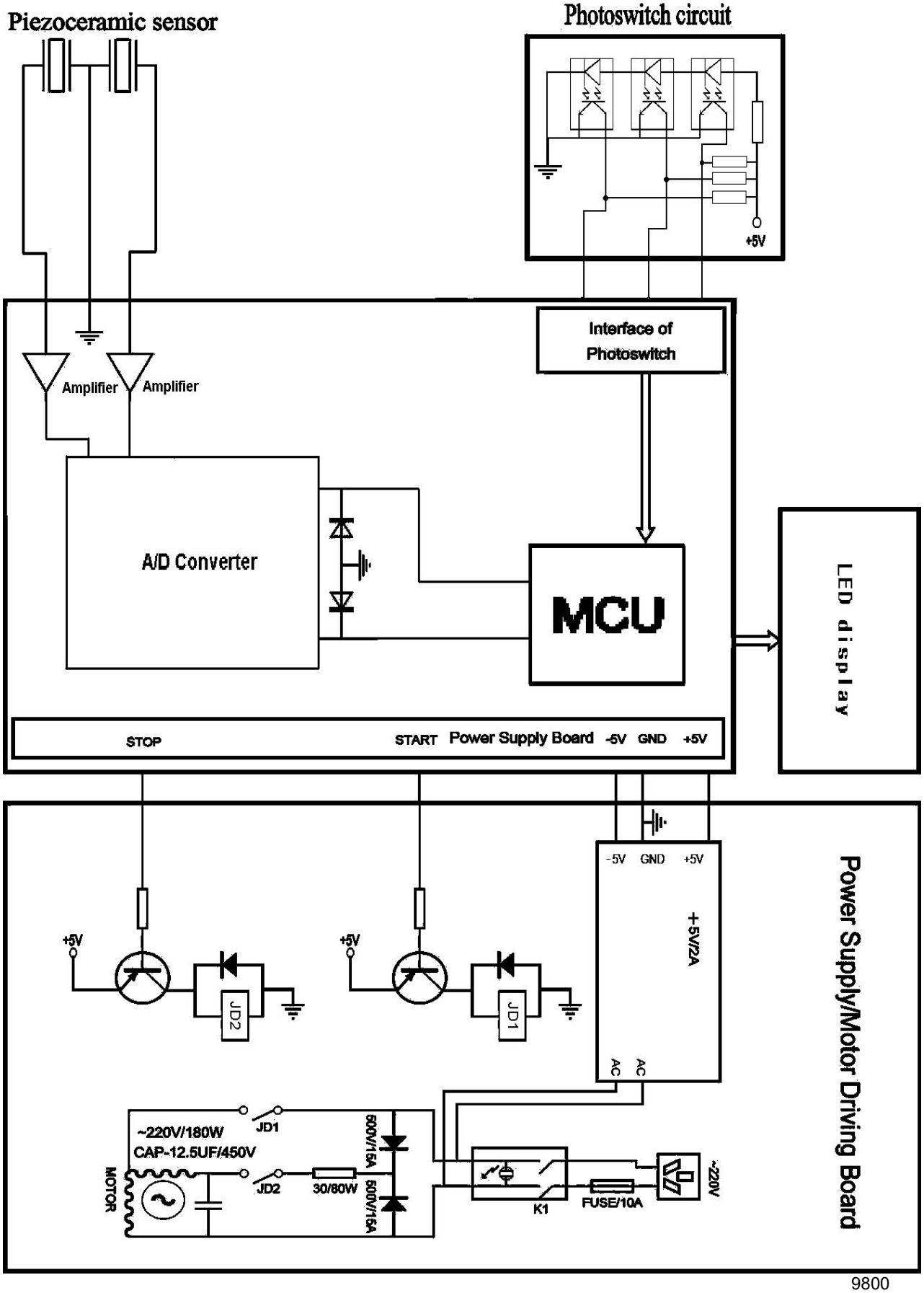
Accessories list

Specification options 1: 36 2: 40

CODE	ITEM	QTY	PHOTO	
1:S-100-036000-1	1# CONE	1		1: ϕ 36
2:S-100-040000-1				2: ϕ 40
1:S-100-036000-2	2# CONE	1		1: ϕ 36
2:S-100-040000-2				2: ϕ 40
1:S-100-036000-3	3# CONE	1		1: ϕ 36
2:S-100-040000-3				2: ϕ 40
1:S-100-036000-4	4# CONE	1		1: ϕ 36
2:S-100-040000-4				2: ϕ 40
1:P-005-100000-0	COMPLETE QUICK RELEASE NUT	1		1: ϕ 36
2:P-005-100040-0				2: ϕ 40
1:P-100-400000-0	THREADED SHAFT	1		1:Tr36
2:P-828-400000-0				2:Tr40
Y-032-020800-0	MANUAL	1		
PX-100-200400-0	WRENCH	1		
S-105-000080-0	HEX WRENCH	1		
S-105-000060-0	HEX WRENCH	1		
S-110-001000-0	STANDARD WEIGHTS 100G	1		
P-000-001-008-0	CALIPER	1		
S-108-000010-0	PLIER	1		
P-100-490000-0	PLASTIC LID	1		
P-000-001002-0	RUBBER BUFFER	1		

For one item with two codes, please select as per Specification Options, or select by measuring real object.

Attach figure 1 System circuit diagram



9800