BRUKS

OG

VEDLIKEHOLDS

MANUAL

GM – U94C

GM-U94C

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
Balancing precision: ±1g
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×560mm×1080mm

2.2 Features

Adopt 9 LED display, it has flexible indicator operating function.
Various balancing modes can carry out counterweights to stick, clamp, or hidden stick etc.
Input data of rim automatically by measure scale.
Intelligent self-calibrating and measure scale self-labeling function.
Self fault diagnosis and protection function.
Applicable for various rims of steel structure and duralumin structure.

2.3 Working Environment

Temperature: 5~50℃
Height above sea level: ≤4000m
Humidity: ≤85%

3. The Constitution of Dynamic Balancer

Two major components of the dynamic balancer are: machine and electricity:

3.1 Machine

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

3.2 Electricity system

1. The microcomputer system is made up of the LSI such as new high speed MCU CPU system and keyboard.

2. Automatic measure scale, width measuring scale is optional.
3. Testing speed and positioning system consists of gear and opto-electronic coupler.
4. Two-phase asynchronous motor supplies and control circuit.
5. Horizontal and vertical pressure sensor.
6. Hood protection.

Measure scale	Rotating and positioning measure	Horizontal and vertical pressure	Wheel hood protection

Key board	MCU CPU	LED

Motor supply and control circuit	Motor	Belt	Main shaft of balancer
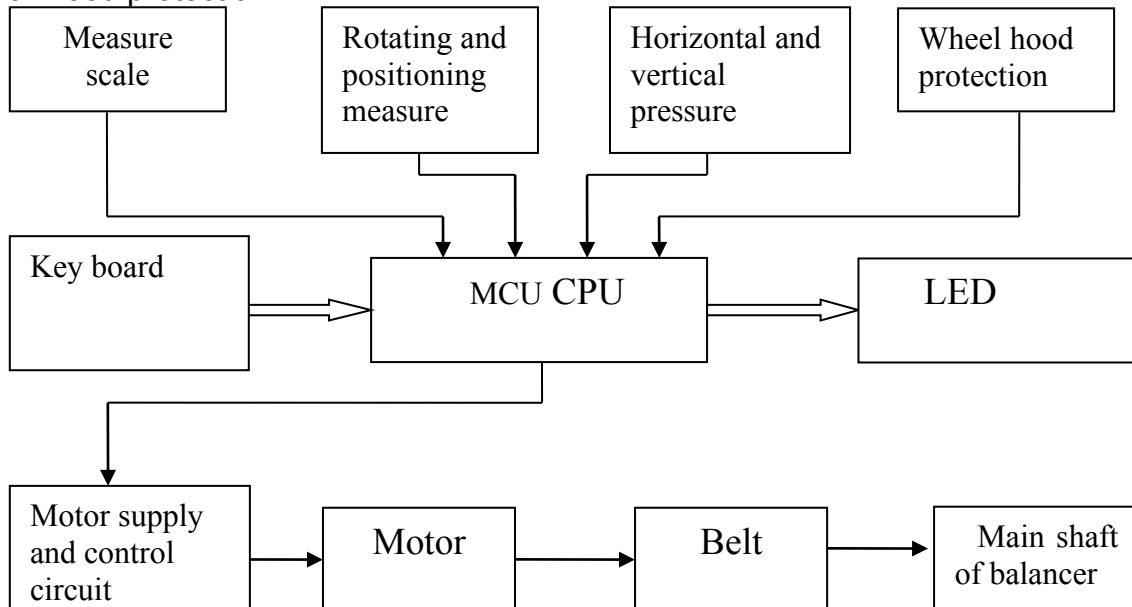
Figure 3-1

4. Installation of Dynamic Balancer

4.1 Opening and Checking

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

Screw stud of drive shaft   1
Balancing pliers   1
Allen wrench   1
Measure caliper   1
Locking nut   1
Adapter (cone)   4
Counterweight (100g)   1
Protection hood (optional)   1

4.2 Installing machine

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

4.2.2 There should be 50cm 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

Install the frame of hood on the equipment (optional): plug the pipe of protection hood into the hood shift (behind the cabinet), then fix with M10×65 screws.

4.4 Installing screw stud of drive shaft

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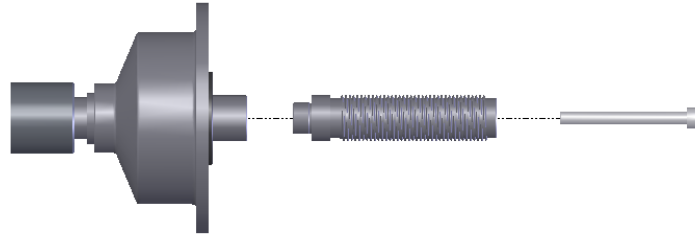
Figure 4-1

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

5. LED control panel and function keys

5.1 LED display content

LED 5: when you input dimension date, LED will display 'a' value; and when you after measure will display inside imbalance weight

LED 6: when you input dimension date, LED will bases differ mode display 'b' value or 'aE' value, and when function setting will display select menu

LED 7: when you input dimension date, LED will display 'd' value; and when you after measure will display outside imbalance weight

Part name of control panel

1. Balance mode indicator light
2. Inside stick position indicator light
3. LED 6 display content light
4. Outside stick position indicator light
5. LED 5
6. LED 6
7. LED 7
8. Inside balance weight position light
9. Outside balance weight position light

Figure 5-1 displaying on the LED control panel
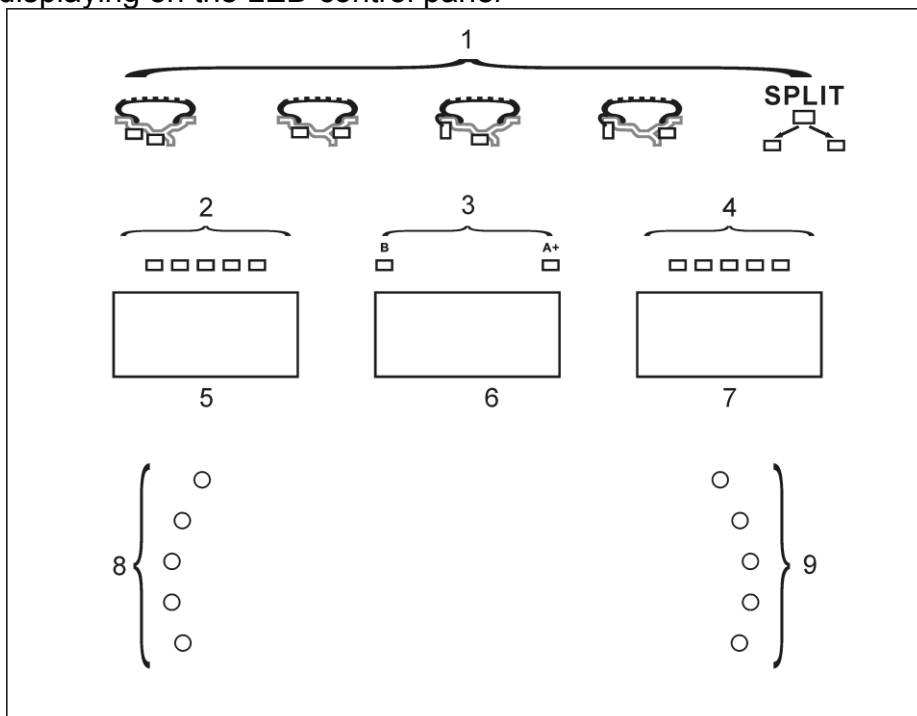
Figure 5-1

5.2 LED signification

Inside balance weight stick position indicator light:
ALU-S mode indicate inside stick balance weight position
Outside balance weight stick position indicator light:
ALU-S mode indicate out side stick balance weight position
Balance mode indicator light:
Indicate currently balance mode
Inside balance weight position indicator light:
Indicate inside balance weight position when all indicator light both on
Outside balance weight position indicator light:
Indicate outside balance weight position when all indicator light both on

5.3 Function key signification

Figure 5-2 key board
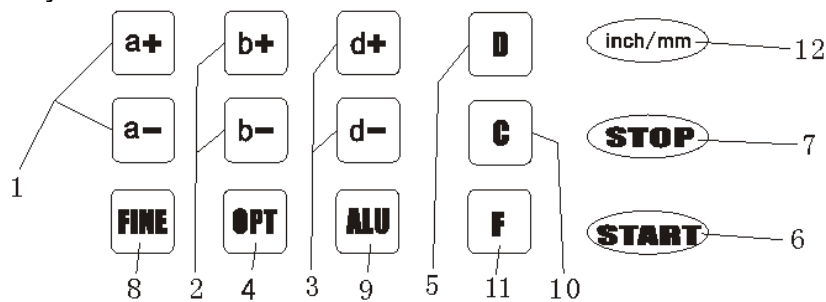
Figure 5-2

1- Push buttons, manual DISTANCE (a) setting
2- Push buttons, manual WIDTH (b) setting
3- Push buttons, manual DIAMETER (d) setting
4- Push button, optimization of imbalance and split imbalance
5- Push button, self-diagnostics, self-calibration and split imbalance
6- Push button, cycle start
7- Push button, emergency and selection of special functions
8- Push button, imbalance display pitch and threshold
9- Push button , selection of "ALU" mode of correction
10-Push buttons for recalculation and self-calibration
11-Selection, "STATIC" or "DYNAMIC" correction
12-Selection of dimensions, inch/mm

N.B. Only use the fingers to press push buttons. Never use the counterweight pincers or other pointed objects.

6. Installation and Demounting of the Wheel

6.1 Checking the wheel

The wheel must be clean, none sand or dust on it, and remove all the primal counterweights of the wheel. Check the tyre pressure whether up to the rated value. Check positioning plane of rim and mounting holes whether deformed.

6.2 Installing the wheel

6.2.1 Select the optimal cone for the center hole when 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 various rims of common steel structure and thin duralumin structure.
6.2.2.2 Negative positioning (refer to figure 6-2):
Negative positioning is used to ensure the inner hole of steel rim and main shaft is positioning accurately when the outside of wheel deforming. Apply for all the steel rims, thick steel rims especially.
6.2.3Install wheel and cone on main shaft. Ensure the cone can clamp the wheel before screwing handle. Wheel can rotate after screwing down.

6.3 Demounting the Wheel

6.3.1 Demount the handle and cone.
6.3.2 Put the wheel up, and then take it down from main shaft.

| **Figure 6-1** | **Figure 6-2** |

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

7. The input methods of date of rim

7.1 The power-on state of the machine

After the power-on of the machine, it starts initialization automatically. The initialization will be finished after two seconds. The machine enter natural dynamic (clamp counterweights on the correction plane of the both edged sides of rim) mode automatically, as in Figure 7-1, ready for input date of rim.
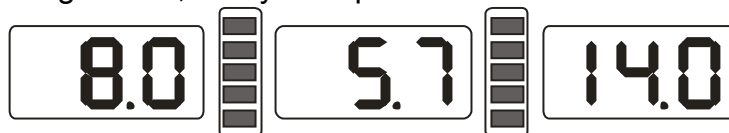

Figure 7-1

7.2 Date input method for normally dynamic balance mode

7.2.1 After the power-on of the machine, it enter the normal balance mode
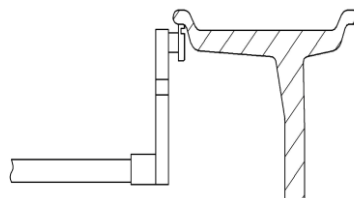7.2.2 Input date of rim:

Figure 7-2

Rotate the measure scale, pull the scale head to inside concave on the edge of the rim, etc figure 7-2, first LED all off, then display ect figure 7-3,waiting put back scale.
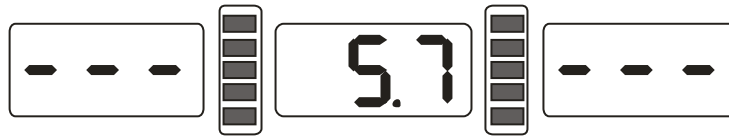
Figure 7-3

When scale back to zero position, LED display value is date of rim.

    7.2.3 When measure values with fact value of rim differ, you need self-calibration of scales then measure again or manual input date of rim.

    7.2.4 Input date of rim width

        Use manual plastic width measure scale, measure the width value of rim then press b+ or b- key input date by manual.

        7.2.4.1swing the width scale, and make the ruler head to the outside rim edge shown as figure 7-4, at this time, all the digital tube are closed. When the measurement is complete, shown as figure 7-5. wait for the width scale to reset. After the width scale reset, shown as figure 7-1.

Figure 7-4
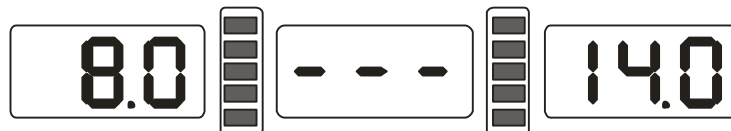
Figure 7-5

        7.2.4.2When the measured value is inconsistent with the actual value of the rim width, the width scale can measured again after self-calibrated or press the "b+" or "b-" key to manually input the correct value

7.3 The date input method of ALU-S mode:

    Normally from normal mode change to other mode, do not need input rim date again, just press ALU key change to you select mode in directly is fine, only ALU-S mode have special input method, ALU-S mean is special mode, include below two kind modes (Figure 7-6):

Figure 7-6

    ect figure 7-7 or 7-8, Rotate the measure scale, pull the scale head to inside of the rim(FI)(this position is your select to stick balance weight on the inside), measure distance(a) and diameter (dI) of inside of the rim etc figure 7-9, then continue rotate measure scale, pull the scale head to outside of rim(FE) (this position is your select to stick balance weight on the outside), measure distance(aE) and diameter (dE) of outside of the rim etc figure 7-10, enter ALU-S mode.
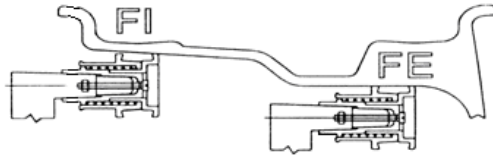
Figure 7-7
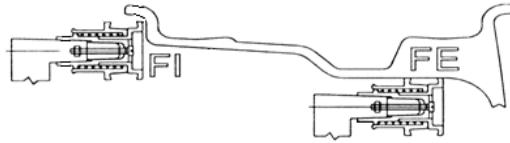
Figure 7-8
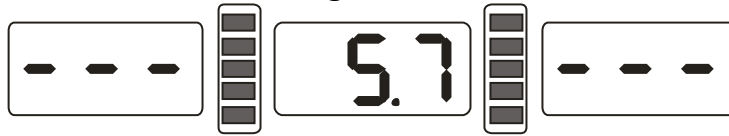
Figure 7-9

Figure 7-10

When scale back to zero position, LED will be display and aE and dI value. Press a+, a- can be adjust a value; press b+, b- can be adjust aE value; press d+, d- can be adjust dI value; press FINE key LED will display dE value, hold press FINE key and press d+, d- adjust dE value.

8. Calibration of measure scale

The measure scale was labeled before ex-factory, but the labeled value may vary because of transportation. Therefore, users can label it themselves before using the balancer.

After the power-on, the initialization is finished. Thus, users can label the measure scale

8.1 Calibration of rim distance scale

8.1.1 Press and hold STOP key and press FINE key, ect figure 8-1, press STOP key or C key to exit.

Figure 8-1

8.1.2 Move scale to 0(zero) position, press ALU key, ect figure 8-2, press STOP key or C key to exit.

Figure 8-2

8.1.3 Move scale to 15, press ALU key, ect figure 8-3, end of self-calibration, put back measure scale.

Figure 8-3

8.2 Calibration of diameter scale

8.2.1 install middle size tyre on principal axis, press and hold STOP key, and press OPT key, ect figure 8-4, press STOP key to exit;

Figure 8-4

8.2.2 Press d+ or d- adjust value to current rim diameter value, press ALU key, ect figure 8-5;

Figure 8-5

8.2.3 Move scale, put scale head on the inside edge of rim ect figure 7-2, press ALU key, ect figure 8-3,self-calibration end, put back scale.

8.3 Calibration of width scale

8.3.1 Press and hold STOP key and press b+ or b- key, ect figure 8-6(press STOP key to exit).

Figure 8-6

8.3.2 Put back the width measuring scale,Press ALU key, ect figure 8-7(press STOP key to exit).

Figure 8-7

8.3.3 According to the prompts, swing the width scale, and make the ruler head to the flange of the main shaft shown as figure 8-8, press (ALU], ect figure 8-3. Finish calibration and put back the measuring scale.
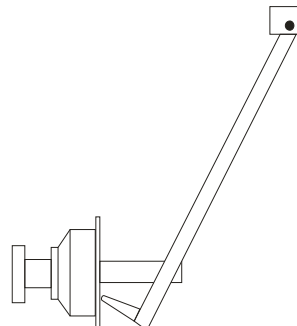
Figure 8-8

9. The Self-calibrating of Balancer

The self-calibrating of balancer was 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.

9.1 After the power-on of the machine, the initialization is finished ect figure 7-1，install a can clip counterweight and comparatively balance middle size tyre, follow step 7 input date of rim;

9.2 Press D key and C key, ect figure 9-1, (close protect hood), press START key, going to next step, press STOP key or C key to exit;

Figure 9-1

9.3 After axis stop, ect figure 9-2,(open protect hood)clip a 100 gram counterweight on anywhere of outside of rim, (close protect hood)press START key, going to next step, press STOP key or C key to exit;

Figure 9-2

9.4 After axis stop, ect **figure** 9-3, calibration end. Demount tyre, now balancer ready to work.

Figure 9-3

NB：when you doing self-calibration, input date of rim must be correct,100 gram counterweight must be correct, otherwise self-calibration result will be wrong, wrong self-calibration will be make balancer measure precision decline.

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10. The Balancing Operation of Wheel

10.1 Balance mode change operation

10.1.1 Dynamic and static balance mode switch: press F key.

Dynamic balance mode: clip counterweight on inside and outside edge of rim (balancer tolerant normal balance mode), ect figure 10-1.

ST mode: static balance measure mode, stick counterweight on middle of rim, ect figure 10-2.
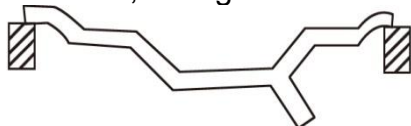
Figure 10-1

Figure 10-2

10.1.2 ALU balance mode switch key (ALU key), switch CPU system between ALU-S~ALU-3 mode.
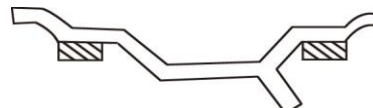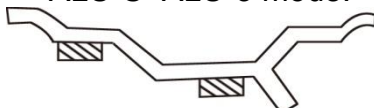
Figure 10-3   **Figure 10-4**

ALU-S mode: stick counterweight on inside two position of spoke of rim, ect figure 10-3.

ALU-1 mode: stick counterweight on inside and outside of spoke of rim, ect figure 10-4.
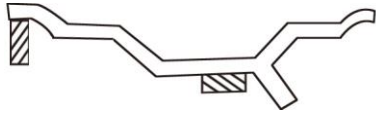
Figure 10-5   **Figure 10-6**

ALU-2 mode: clip counterweight on inside edge of rim, stick counterweight on outside (inside of spoke), etc figure 10-5.

ALU-3 mode: clip counterweight on inside edge of rim, stick counterweight on outside (outside of spoke), etc figure 10-6.

Counterweight split and Hidden-Stick Mode:

ALU-S mode, if the outside (inside of spoke) counterweight position between of two spokes, ALU-S mode can split the counterweight for two. The divided counterweight, just place on the back of two spokes near the former counterweight, in order to hide the counterweight ect figure 10-7.
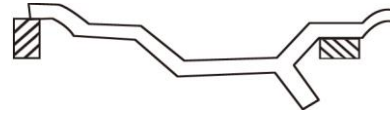
Figure 10-7

10.2 Normal balance mode operation process

10.2.1 Follow figure 7.2 input date of rim.

10.2.2 Lay down protect hood and press START key, wheel spin, after stop two side LED display wheel both side imbalance weight, when middle LED display OPT, can choice imbalance optimize;

10.2.3 Slowly spin wheel, when inside counterweight position indicator light(figure 5-1(8)) all on, clip correspond counterweight on 12 o'clock position on inside of rim, ect figure10-8;

10.2.4 Slowly spin wheel, when outside counterweight position indicator light(figure 5-1(8)) all on, clip correspond counterweight on 12 o'clock position on outside of rim, ect figure10-9;

Figure 10-8   **Figure 10-9**

10.3 ALU-S balance mode operation process

★ Process of manual stickup counterweight

10.3.1 Follow figure 7.3 input date of rim.

10.3.2 Lay down protect hood and press START key, wheel spin, after stop two side LED display wheel both side imbalance weight, when middle LED display OPT, can choice imbalance optimize;

10.3.3 Slowly spin wheel, when inside counterweight position indicator light(figure 5-1(8)) all on, if is follow figure 7-8 input date of rim, next step follow 10.2.3 clip counterweight, if not, ect figure 10-10 of left side show, stick counterweight on 12 o'clock position on inside of rim.

10.3.4 Slowly spin wheel, when inside counterweight position indicator light(fight 5-1(9)) all on, stick correspond counterweight on 12 o'clock position on outside of rim, ect figure 10-10 right side;
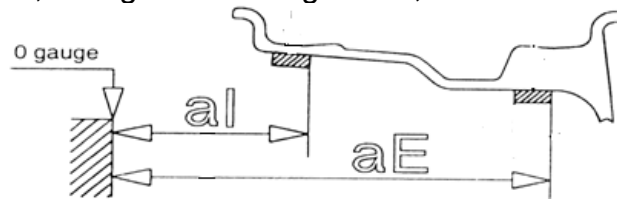
Figure 10-10

★ process of automatic stickup partition Counter weight

10.3.5 Follow figure 7.3 input date of rim

10.3.6 Llay down protect hood and press START key, wheel spin, after stop two side LED display wheel both side imbalance weight, when middle LED display OPT, can choice imbalance optimize;

10.3.7 If is follow figure 7-8 input date of rim, follow 10.2.3 clip counterweight on inside edge of rim. Press STOP key and ALU key, all middle of LED display - - -, follow 10.3.9 stick counterweight on outside of rim.

10.3.8 If is follow 7-7 input date of rim ,press STOP key and ALU key, all middle of LED display - - -,insert correspond counterweight into the scale head slot, slowly spin wheel, when inside counterweight position indicator light(fight 5-1(8)) all on, draught scale, when inside counterweight position indicator light(fight 5-1(2)) all on, turn scale, stick counterweight on the rim, ect figure 10-11;

10.3.9 Insert correspond counterweight into the scale head slot, slowly spin wheel, when outside counterweight position indicator light(fight 5-1(9)) all on, draught scale, when inside counterweight position indicator light(fight 5-1(4)) all on, turn scale, stick counterweight on the rim, ect figure 10-11;
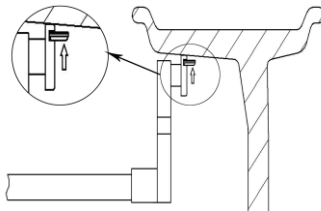
Figure 10-11

> **NB: when use scale automatic stick counterweight, make sure all LED must be display - - -, if not, do not move scale, press STOP and ALU key, then all LED display - - -, now you can move scale to stick up.**

10.4 The operation process of ALU-1 to ALU-3 mode

10.4.1 Follow 7.2 input date of rim;

10.4.2 Press ALU key, switch to correspond balance mode.

10.4.3 Lay down protect hood and press START key, wheel spinning, after stop two side LED display wheel both side imbalance weight, when middle LED display OPT, can choice imbalance optimize;

10.4.4 Slowly spin wheel, when inside counterweight position indicator light(figure 5-1(8)) all on, follow different mode clip or stick counterweight on 12 o'clock position inside of rim.

10.4.5 Slowly spin wheel, when outside counterweight position indicator light (figure 5-1(9)) all on, follow different mode clip or stick counterweight on 12 o'clock position outside of rim.

10.5 Static balance (ST) operation process

10.5.1 Move measure scale to middle of rim, and measure the data of rim;

10.5.2 Press F key, switch to static balance (ST) mode.

10.5.3 Lay down protect hood and press START key, wheel spinning, after stop middle LED display wheel static imbalance weight, when middle LED display OPT, can choice imbalance optimize;

10.5.4 Slowly spin wheel, when both side counterweight position indicator light (figure 5-1(8), (9)) all on, stick counterweight on 12 o'clock position middle of rim. ect figure 10-12.

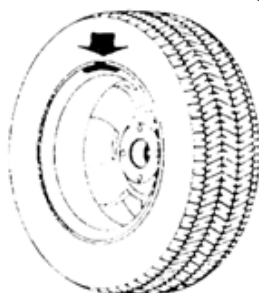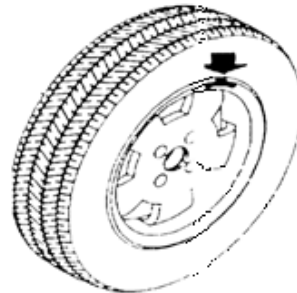**Figure 10-12**

10.6 The of Counterweight Hide-Stick mode

Counterweight Hidden-Stick mode it can cut this position into two parts and make these two new positions hide behind the spoke, so you can achieve this hide purpose. This balance mode only available in ALU-S mode.

In 10.3 Operation process, if outside counterweight not hide behind the spoke, but you still want it hide behind the spoke, you can follow below operation:

10.6.1 Press a+ key, back to figure 7-1 interface, press D key and OPT key, display input numbers of spoke(figure 10-13),press b+ or b- key input spoke numbers, press D key and OPT key to save and return to balance interface, slowly turn the wheel, turn the near by imbalance position of spoke on the top(12 o'clock),press D and OPT key, two underneath lights of SPLIT mode lights will be on, indication already enter hide stick mode, and then press D and OPT key to exit;
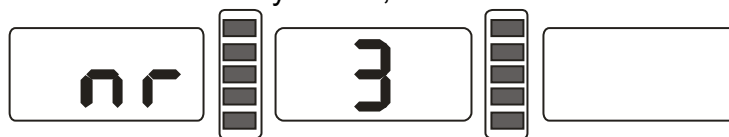
Figure 10-13

★ **Split manual stick operation**

10.6.2 Stick inside operation same 10.3.3;

10.6.3 Slowly spin wheel, when outside counterweight position indicator light(figure 5-1(9)) all on, stick counterweight on 12 o'clock position outside of rim, ect figure 10-10 right side;

10.6.4 Slowly spin wheel again, when outside counterweight position indicator light(figure 5-1(9)) all on, find second position, stick counterweight on 12 o'clock position outside of rim, ect figure 10-10 right side;

★ **Split automatic stick operation**

10.6.4 When stick inside, operation same 10.3.7 and 10.3.8

10.6.5 Slowly spin wheel, when outside counterweight position indicator light(figure 5-1(9)) all on, find first position, draught scale, when outside counterweight position indicator light(figure 5-1(4)) all on, turn scale, stick counterweight on rim(ect figure 10-11);

10.6.6 Slowly spin wheel, when outside counterweight position indicator light(figure 5-1(9)) all on, find second position, draught scale, when outside counterweight position indicator light(figure 5-1(4)) all on, turn scale, stick counterweight on rim(ect figure 10-11).

> **NB: when use scale automatic stick counterweight, make sure all LED must be display - - -, if not, do not move scale, press STOP and ALU key, then all LED display - - -, now you can move scale to stick up.**

10.7 Recalculation

Before wheel balance testing, sometimes may forget input current date of rim, you can after wheel balance testing input date of rim reintroduce, at this time do not need press START key, just press recalculation key (C),system will follow new date of rim calculation imbalance measure. Even interface currently display imbalance value, press C key, can be check currently input date of rim.

10.8 The Auto-Positioning function

When doing wheel balancing, after the rotation, the screen will show information: (Auto-Positioning|Press UP). Then you can press UP key once, the equipment will automatically rotate wheel to the unbalance stick position, and lock the wheel. Use this function can easily stick the counterweight.

11. Imbalance optimize

If wheel imbalance value over 30 gram, system will be display "OPT", clue on process imbalance optimize operation.

Imbalance optimize have two operation methods:

11.1 Already display balance value

If already finish balance testing, when you need process imbalance optimize, press OPT key, display ect figure 11-1;

Figure 11-1

Use chalk mark a reference point on the flange plane and rim and tyre, use tyre changer exchange rim and tyre 180°；Reinstall wheel on the balancer and make sure mark of reference point between the flange plane and rim must be on the same potion. press START key, display ect figure 11-2;

Figure 11-2

ect Figure 11-2, left LED display percent of optimize, if before optimize static value is 40 gram, optimized is 85%, so after optimize static value only 6 gram remain (15%×40gram=6gram);

Slowly spin wheel by hand, when both side two of position indicator light flashing(figure 11-3)，use mark pen make a mark on the tyre;

Figure 11-3

Slowly spin wheel by hand again, when both side one of middle position indicator light flashing(figure 11-4)，use mark pen make a mark on the rim;

Figure 11-4

Remove the wheel from balancer, use tyre changer remove tyre from rim, make tyre and rim marks together, use tyre changer fit tyre on the rim, optimize complete.

11.2 Before testing of process imbalance optimize directly

Turn on the power, installation wheel, press OPT key, left side display OPT, press START key, display ect figure 11-1,then follow 11.1 step to operation.

Press STOP key to stop operation.

12. Gram and Oz conversion operation

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

12.1 Press STOP key and a+ key or a-, display ect figure 12-1, denotation currently maund is gram.
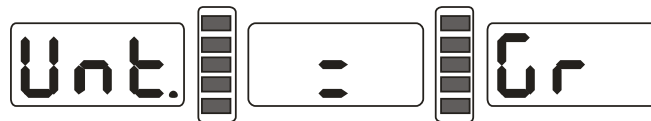
Figure 12-1

12.2 Press b+ or b- key, display ect figure 12-2, denotation currently maund is Oz,
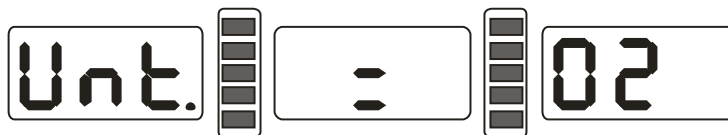
Figure 12-2

12.3 Press b+ or b- key for switch maund between gram and Oz;

12.4 Press a+ key to save setup and exit.

13. INCH and MM conversion operation

This operation for input dimension B value and D value conversion (INCH-MM).
Press INCH/MM key, long measure of LED (figure 5-1(6)) display value B and LED (figure 5-1(7)) display value D can be change between INCH/MM. if in the LED display window right underside have a radix point mean currently long measure is INCH, if not, long measure is MM.

14. Protect hood function and settings

This function can be setting closing protect hood motor start or lay down protect hood properly, then press START key to start motor.

Press STOP key and C key, ect figure 14-1,right display currently state, when display ON, denotation function on, when display OFF, denotation function off.

Press b+ or b- key for switch protect hood function between "ON" and "OFF";
Press a+ key to save currently settings and exit.
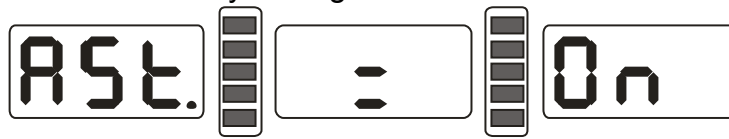
Figure 14-1

15. Other function settings
15.1 Minimum value display settings

After select minimum value display ,even wheel imbalance value less than setting value, result will be display 0(zero),press FINE key, will be display fact imbalance value. Press STOP and D key, ect figure 15-1,denotation imbalance value less than 5 gram, display is 0g(zero gram),press b+ or b- key setting minimum value, are 5 and 10 and 15gram three distinctions. Press a+ key to save settings and enter next step;
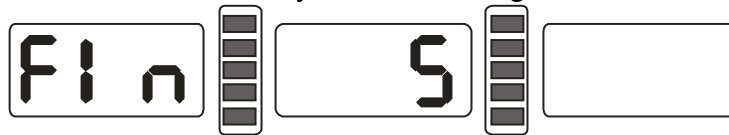
Figure 15-1

15.2 Key-tone clue on function settings

This function can turn on or turn off key-tone, even turn on this function, every time press key, system will be emit a "dl" of tone, even turn off this function, press key not tone.

From 15.1 press a+ enter settings, ect figure 15-2,right side display ON denotation function on, display OFF denotation function off. Press b+ or b- key, function will be switch between "ON" and "OFF". Press a+ key to save settings and enter next step;

Figure 15-2

15.3 Display monitor brightness settings

This function will follow use environment and user need, setting display brightness. From 15.2 press a+ enter settings, ect figure 15-3,right side display brightness grade, altogether is 8 levels, level 1 is darkest, level 8 is brightest, default is level 4.press b+ or b- key, function will be switch brightness levels. Press a+ key to save settings and enter next step;

Figure 15-3

15.4 Automatic width measurement settings

This function can turn on or turn off automatic width measurement, When the width scale system fails and affects the normal use, the automatic width measurement function can be turned off.

From 15.3 press a+ enter settings, ect figure 15-4,right side display ON denotation function on, display OFF denotation function off. Press b+ or b- key, function will be switch between "ON" and "OFF".

15

If machine does not configured with width scale, automatic width measurement function cannot be used, Press a+ key to save settings and exit;
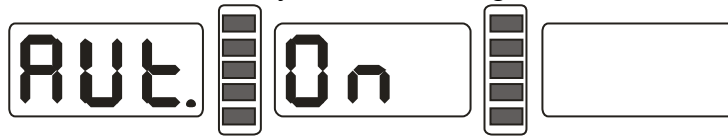
Figure 15-4

16. Machine self test function

This function will be check all kinds input signal whether right working and provide gist for trouble analyses.

16.1 LED and indicator light check

Press D key, whole LED and indicator light all turn on, this function can be check LED or indicator light whether appear damage, press C key to exit, after about 5 seconds display ect figure 16-1,enter position sensor check. Press C key to exit.

Figure 16-1

16.2 Position sensor signal check

This function can be check position sensor and principal axis and main board circuit whether damage.

Slowly turn principal axis, right side LED display number appear change, clockwise turn, and value increase. Anticlockwise turn, value minish, correct value change is between 0 to 63. Press ALU key, enter distance sensor check. Press C key to exit.

16.3 Distance sensor signal check

This function can be check distance sensor and main board signal circuit whether damage.

From 16.2 press ALU key enter, ect figure 16-2, move measure scale, value will be change, value follow move more increase. Press ALU key, enter diameter sensor signal check. Press C key exit.

Figure 16-2

16.4 Diameter sensor signal check

This function can be check diameter sensor and main board signal circuit whether damage.

From 16.3 press ALU key enter, ect figure 16-3, turn measure scale, value will be change, anticlockwise turn, value increase, clockwise press turn, value minish. Press ALU key, enter width sensor signal check. Press C key exit.

Figure 16-3

16.5 Width sensor signal check

This function can be used for checking piezoelectric sensor, main board signal processing circuit.

From 16.4 press ALU key enter, ect figure 16-4, swing the width scale, value will be change, swing from right to left, value increase, put back the width measuring scale, value minimum. Press ALU key, enter press sensor signal check. Press C key exit.

Figure 16-4

16.6 Press sensor signal check

This function can be check press sensor and main board signal circuit and power supply whether damage.

From 16.5 press ALU key enter, ect figure 16-5, gently press principal axis, right and left LED display value will be change, press ALU key to enter press sensor signal check. Press C key exit.

Figure 16-5

17. Safety Protection and Trouble Shooting

17.1 Safety protection

17.1.1 Under the circumstance of operation, if the machine does not operate normally, press STOP key, the rotating wheel will stop immediately.

17.1.2 If hood is not laid down, press START key, the wheel will not rotate.

17.1.3 Under the circumstance of operation, if hood open, the rotating wheel will stop immediately.

17.2 Trouble shooting

17.2.1 After press START key, principal axis not rotates, LED displays Err-1.check motor, computer board and cable connections;

17.2.2 After press START key, principal axis rotate, LED display Err-1.check position sensor, computer board and cable connections;

17.2.3 If balance test already end, balancer still rotates for a long time, does not brake, check brake resistance, power supply board, computer board and cable connections;

17.2.4 If turn on the power LED display ect figure 17-1,need measure scale self-calibration or adjust a-value sensor or replacement new sensor;
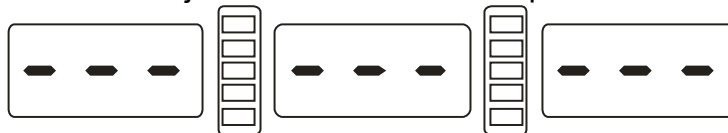
Figure 17-1

17.2.5 Automatic measure rim, advert display date whether difference with trim size of rim, if difference, need measure scale self-calibration;

17.2.6 If show as figure 17-2 after startup, need recalibrate the width scale or check the width sensor. You can also turn off the width scale function according to the method of 15.4, the machine without width scale must turn off this function; After measuring the width, if you put the width scale back to the original place and still show as figure 17.2, you can press the C key to exit;
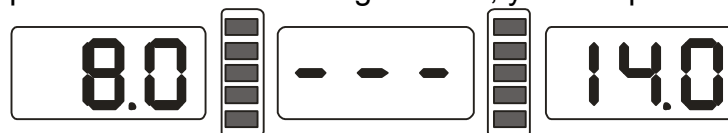
Figure 17-2

17.2.7 If turn on the power have not display, check power switch indicator light whether working, if not, check power supply first, then check power supply board and computer board and cable connections;

17.2.8 Precision not nicety, commonly hurtful not from balancer, may wheel installation wrong or counterweight heft not nicety or 100 gram counterweight for balance self-calibration not nicety, must be always keep manufactory's 100 gram counterweight safety for self-calibration only.

17.2.9 Date not astaticism, repeat difference, commonly hurtful not from balancer, may wheel installation wrong or floor not messiness not level off, may as well fixation balancer by bolt. Sometimes not connection earth wire may appear this phenomenon.

17.2.10 The machine is equipped with width scale, if the result of automatic width measurement is not accurate, firstly, check whether the distance a value is input correctly, the A value correctly should be input first, and then check the width b value, if the result of automatic width measurement is still not accurate the width scale should be calibrated.

> **Hint: check precision right method:**
>
> **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.**

18. Maintenance

18.1 The daily maintenance of non- professionals

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

18.1.1 Adjust the tension of the belt.

18.1.1.1 Dismantle the hood.

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

18.1.1.3 Tighten the screw of the motor and cover the hood.

18.1.2 Check whether the wire of electricity part connects reliably.

18.1.3 Check whether the pressed screw of the main axis is loose.

18.1.3.1 Locking nut can not fix wheel tighten on main-axis

18.1.3.2 Use hexagonal wrench to tighten the pressed screw of the main-axis.

18.2 The maintenance of professionals

The maintenance of professionals can only be carried out by the professionals from the factory.

18.2.1 If the imbalance value of tested wheel has obvious errors and does not improve after self-calibrating, this proves the parameter in the machine has altered, so the user should ask for professionals.

18.2.2 The replacing and adjustment of pressure sensor should be operated according to the following methods, and the operation should be carried out by professionals.

The steps are as follows:

1. Unlash the No.1, 2,3,4,5 nuts.
2. Dismantle the sensor and nut.
3. Replace No.6, 7 the sensor organ.
4. Install the sensor and the nut according to the Figure 18-1. (Pay attention to the sensor's direction.)
5. Tighten No.1 nut emphatically.
6. Tighten the No.2 nut to make the main shaft and the flank of cabinet, and then emphatically tighten the No.3 nut.
7. Tighten the No.4 nut (not too emphatically), then tighten No.5 nut.

18.2.3 The replacing of circuit board and the organ on it should be carried out by professionals.
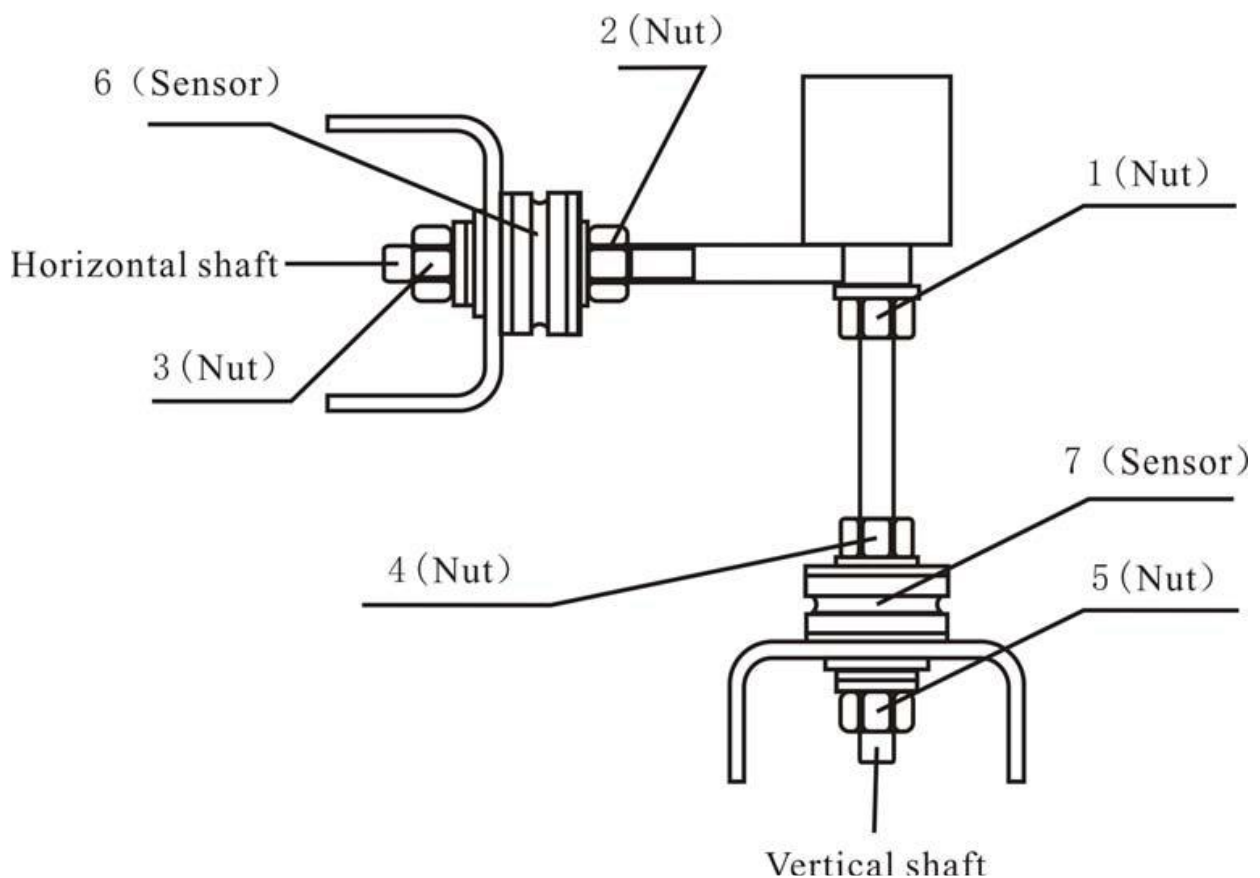
Figure 18-1

19. LED Lighting (optional)

Lighting device can be used both under automatic mode and manual mode. The default setting is automatic mode. In automatic mode, after the balance inspection is finished, turn the tire by hand. When the unbalanced position is found, the lighting device will be turned on automatically. otherwise it will be turned off. When set the manual mode, the lighting device will always be turned on.

After the machine starts, the default setting is automatic mode (turn on and turn off automatically). Pressing the "STOP" button can set the machine to the transport mode. Pressing the "STOP" button again can set it to automatic mode again.

20. Laser

20.1 Laser Settings

Before enter the laser settings, please ensure that the machine is working properly, or the laser program can not be set arbitrarily.

First, install a tire with iron rim, and input a, b, d value correctly, then remove the tire;

Press "STOP" key and "D" key to enter the menu interface.Then press "a+" key repeatedly and select "SET LAS" interface, press "b+" key to enter the laser setting, display "SET LAS -1-".

1、Hang an object on the inside of the shaft, and adjust the position of laser box, to make the laser point towards the bottom (factory adjusted, you can skip), then press "ALU" to the next step.
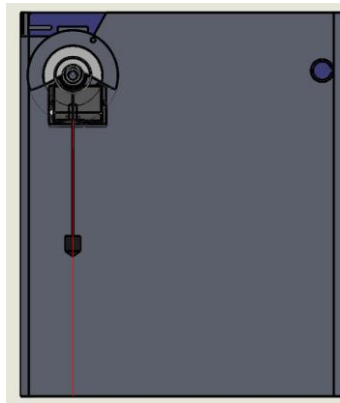
2、Display "SET LAS -2-", hang an object on the outside of the shaft, and adjust the screw at the bottom of the laser box, to make the laser point and the outer vertical line overlapped(factory adjusted, you can skip), then press "ALU" to the next step.
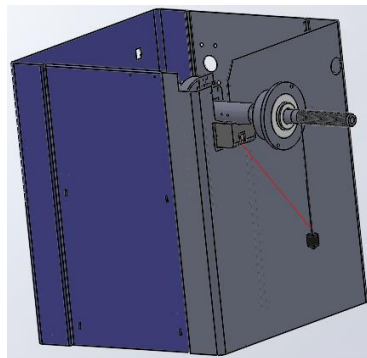
3、Display "SET H 66", measure the distance between the laser and the center of the shaft, and press "b+" or "b-" to input the H value (factory adjusted, you can skip), then press "ALU" to the next step,
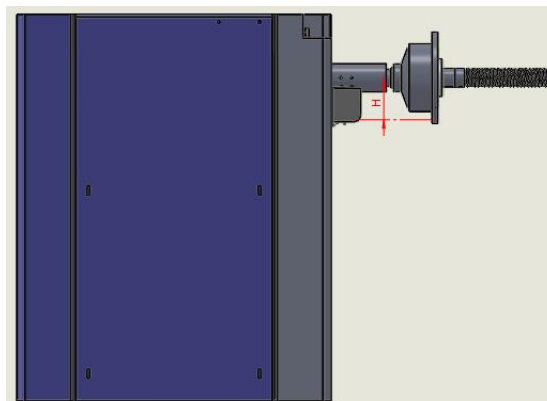
4、Display "SET   LAS   -3-", install a tire with iron rim, press "b +" or "b-" to align the laser point to the inner edge of the rim (factory adjusted, you can skip), then press "AL u" to the next step.
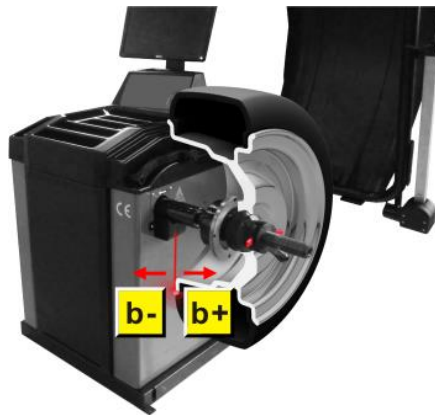
5、Display "SET   LAS   -4-", put down the protective cover (press "START" button)and wait for the end of the balance test.

6、Display "SET   LAS   -5-", turn the tire by hand to find the imbalance point, add 100g weight on the above of the tire, put down the protective cover (press "START" button), and wait for the end of the balance test.

7、Display "SET   LAS   -6-", turn the tire by hand,to make the center of the weights align to the laser point.and press "ALU" to complete it.
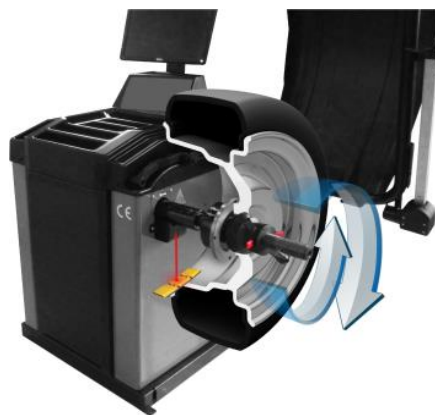
20.2 The Usage of Laser

The laser can only be used in the ALU-S mode. After the balance finish, press "STOP" key and "F" key, rotate the tire by hand. When find the unbalanced position, the laser will point to the position where the weights can be pasted. Make the left side (the middle position) of the weight align to the laser point, then paste the weight on the rim. Do the same operation on both sides of rim till the tire balance finish.

21. Trouble-error code list

When balancer display hint of error, can follow consult below list to remove the trouble:

Code	meanings	cause	remedy
Err 1	principal axis not spin or have not spin 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 is lower than 60r/min	1. position sensor fault 2. wheel not impacting or weight too light 3. motor fault 4. driving belt too loose or too tighten 5. computer board fault	1. change position sensor 2.repeat impacting wheel 3. change motor 4.adjust driving belt elasticity 5. change computer board
Err 3	Miscalculation	too high imbalance	Repeat the self-calibration change computer board
Err 4	principal axis Wrong rotation direction	1. position sensor fault 2. computer board fault	1. change position sensor 2. change computer board
Err 5	Protection hood not lay down	1.when press 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 working	1. power supply board fault 2. computer board fault	1. change power supply board 2. change computer board
Err 7	Lose date of interior	1. Incorrect self-calibration 2. computer board fault	1. Repeat the self-calibration 2. change computer board
Err 8	Self-calibration memory fault	1. not put 100 gram on the rim when self-calibration 2. power supply board fault 3. computer board fault 4. Pressure sensor fault 5. connection-peg untouched	1.follow right method repeat self-calibration 2. change power supply board 3. change computer board 4.change Pressure sensor 5.check cable connection

22. Power supply layout diagram
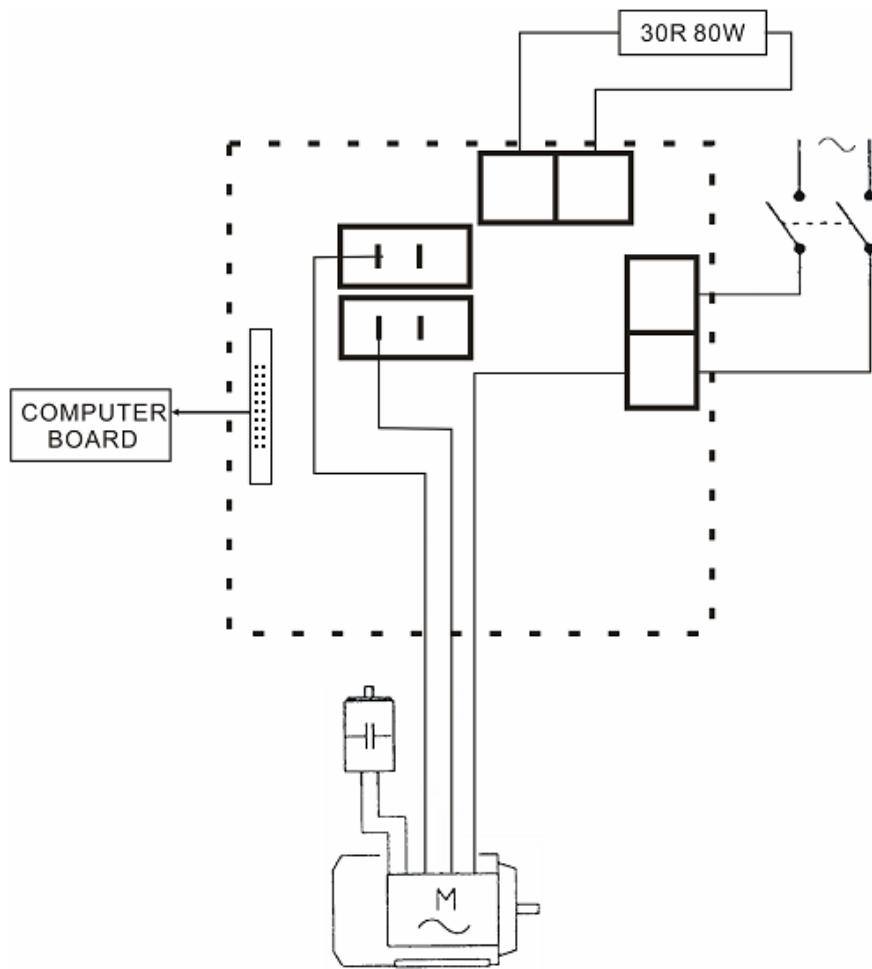
23. Exploded drawings
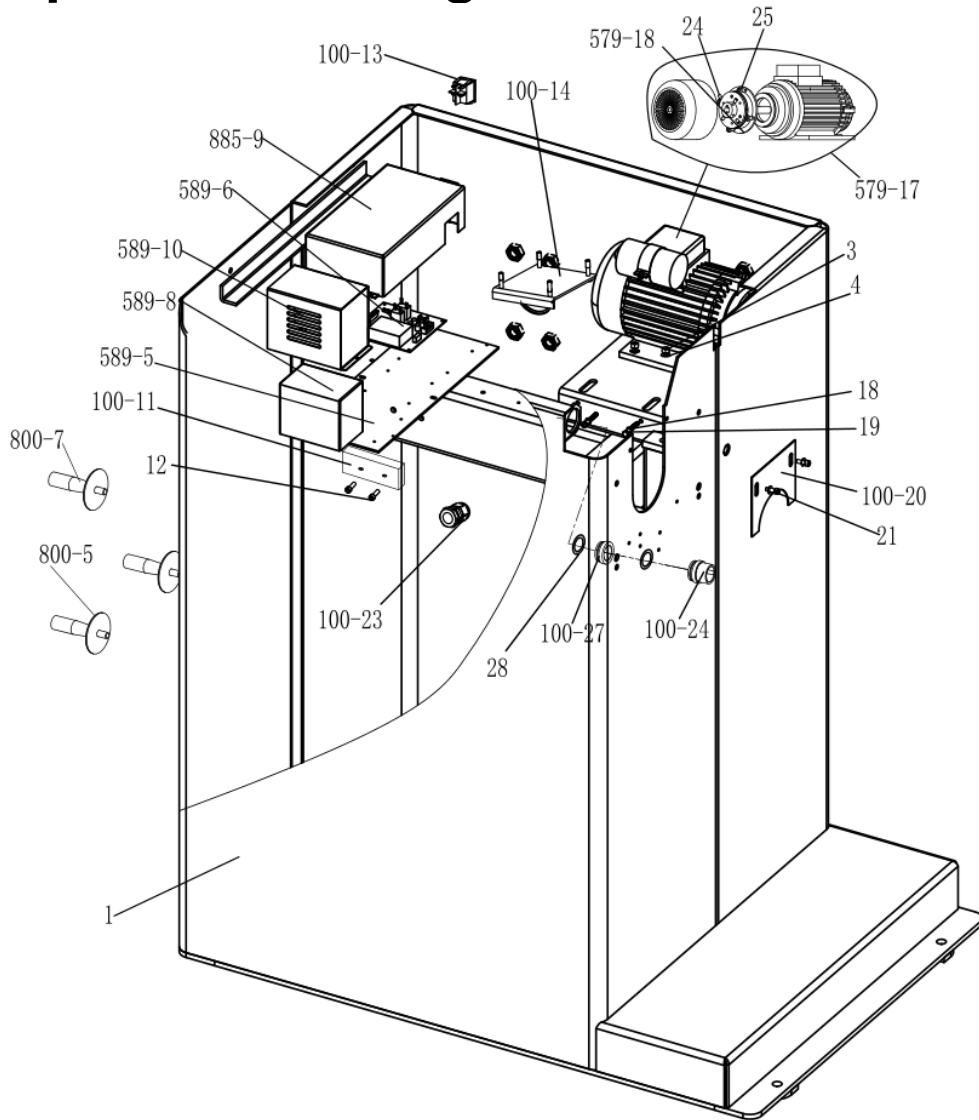
序号	名称	U8 编码	NC 编码
1	Machine body		JZ08002070209
800-5	Tools hang washer	B-040-050000-1	JZ07002020948
800-7	Tools hang	B-024-050251-0	JZ07002020947
100-11	resistance	D-010-100100-1	DD04010002061
12	screw	B-024-050251-0	FJ04006004341
589-5	Computer board fixed board	PX-885-430102-0	JZ03002015940
589-6	Power board		JZ02008049117
885-9	Computer board protection box	PX-885-430100-0	JZ03002015939
589-8	Frequency converter assembly		DD03001055732
589-10	Frequency converter assembly Box		JZ03002056142
100-13	switch	S-060-000210-0	DD03009001576
100-14	Motor adjust board	PX-100-010920-0	JZ03002021444
579-17	Motor		DD01001055813
579-18	Electromagnetic brake		JZ09002048566
24	Screw	B-007-050081-0	FJ04006004061
25	Screw		FJ04009004900
3	Nut	B-004-060001-1	FJ04008004513
4	Flat washer	B-040-061412-1	FJ04002003892

18	Nut	B-004-050001-1	FJ04008004512
19	Outer hex bolt	B-014-050351-1	FJ04009004849
100-20	Plate	PX-100-110000-0	JZ08002021424
21	screw	B-024-050061-1	FJ04006004408
100-23	Power cable socket	S-025-000135-0	DD02001001295
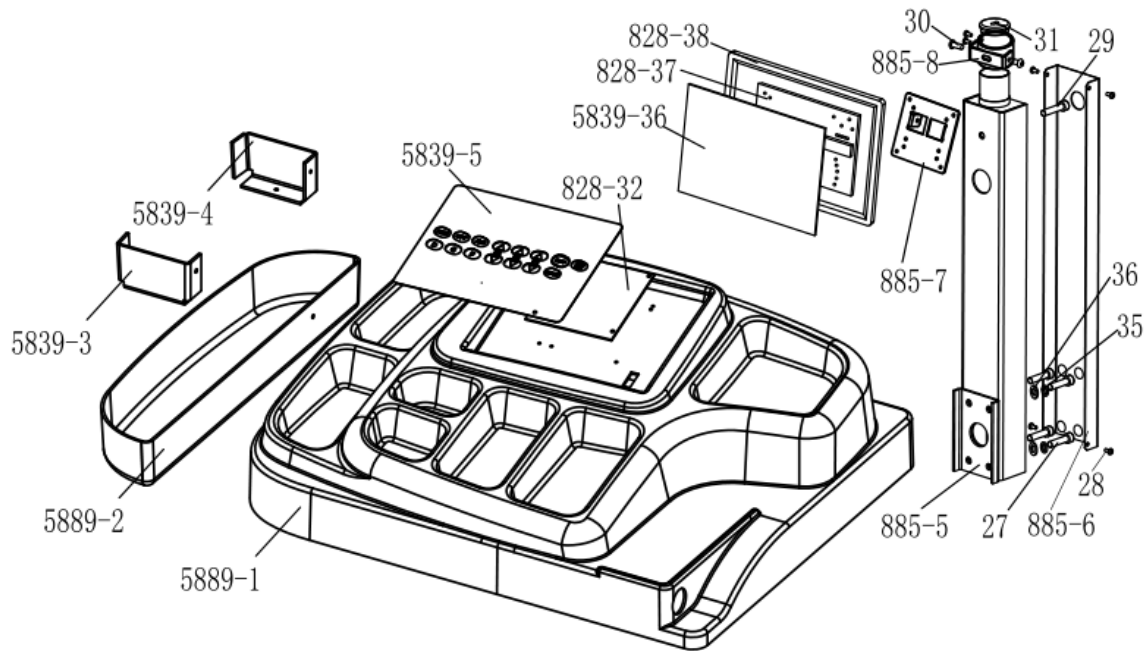
序号	名称	U8 编码	NC 编码
5839-5	Key board		JZ10001069879
828-32	Computer board U829	PZ-000-010829-0	JZ02008012169
5889-1	Top Cover		JZ07002069882
5889-2	Side Cover		JZ07002069886
5839-36	Display board-5839		JZ11001050572
828-37	Display board U829	PZ-000-010829-5	JZ02008012171
828-38	Complete display U-828	PW-111-082800-0	JZ06002020468
27	Screw	B-010-100401-0	FJ04009004586
885-6	Box	PX-890E-040600-0	JZ08002021415
28	Screw	B-013-050161-1	FJ04006004050
29	Screw	B-010-100551-0	FJ04009004589
30	Screw	B-010-080201-0	FJ04009004706
31	Rubber sheath	P-928-060500-0	JZ09002023532
885-7	Support board	PX-890E-040500-0	JZ08002021413
885-8	Support cover	PX-890E-040600-0	JZ08002021415
33	Spring washer	B-050-100000-0	FJ04002003773
34	Flat washer	B-040-112020-1,B-040-102020-1	FJ04002003800
885-5	LCD Screen support	PX-890E-040100-0	JZ08002021433
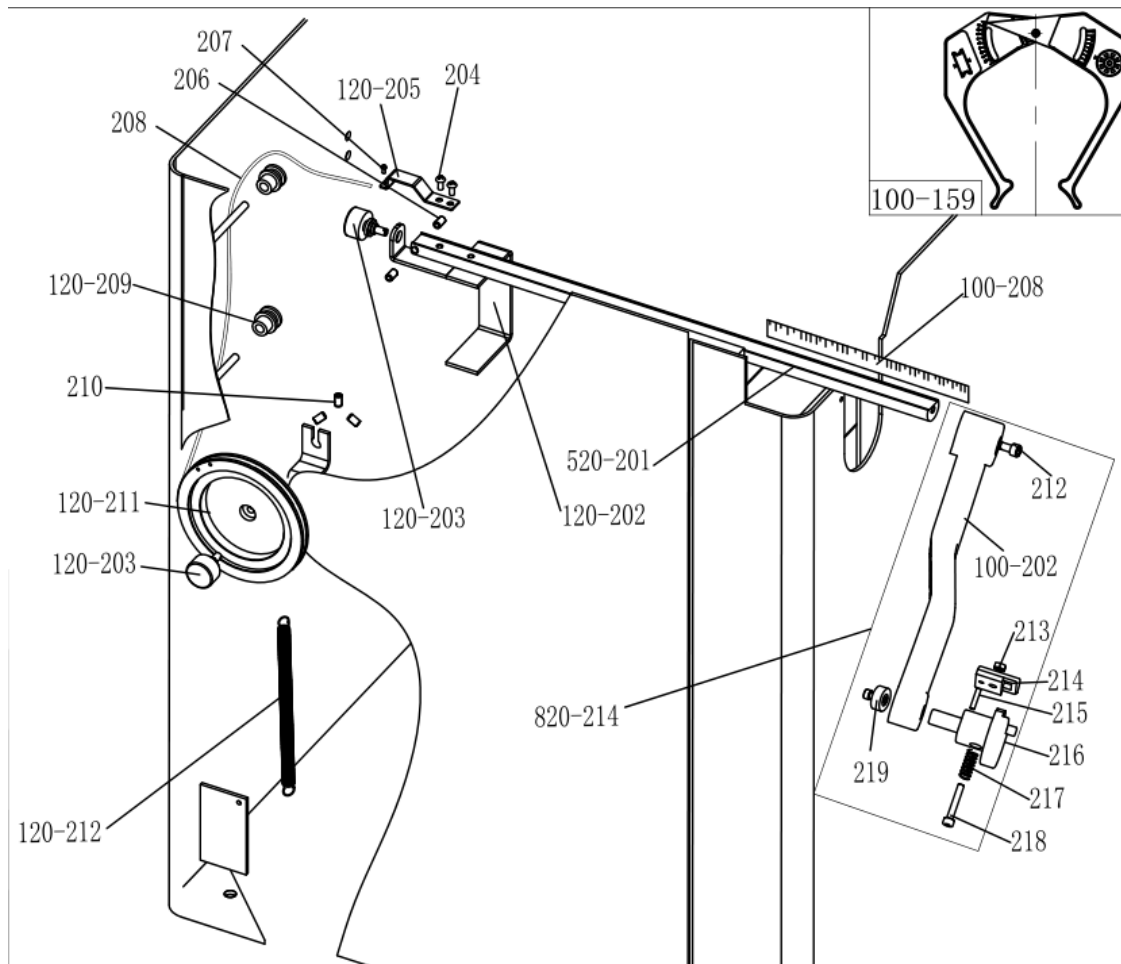
No.	Description	U8 Code	NC Code
520-201	Measuring Scale L425	P-520-090000-0	JZ09002023425
120-202	Heavy U120	PX-120-240000-0	JZ03002016087
120-203	Gauge sensor	S-132-000010-0	DD04010001969
204	screw M5*10	B-024-050101-1	FJ04006004254
120-205	caliper hook U120	PX-120-230000-0	JZ03002021386
206	screw M5*8	B-007-050081-0	FJ04006004061
207	screw PWT3*6*8	B-024-070301-0	FJ04006004364
208	Steel rope Φ1.0	P-000-030010-0	FJ09001005463
120-209	Pulley U120	P-120-260000-0	JZ07002020942
210	screw M6*8	B-007-060081-0	FJ04006004063
120-211	Bobbin winder pulley	P-120-250000-0	JZ07002020971
120-212	Spring 10*0.8	P-120-210000-0	JZ09002023435
820-214	Handle Bar U-828		JZ06002020467
213	screw M6*16	GZBLS-B-011-060161-0,B-010-060161-0	FJ04009004676
100-202	Handle bar 728	P-728-160100-0	JZ07002020965
214	Nut M4	GZBLS-B-004-040000-0,B-004-040001-1	FJ04008004510
120-215	clamping block U828	P-828-160902-0	JZ07002020954
216	Pin Φ3*14	B-061-003014-0	FJ06002004998
120-217	base of the stick handle	P-828-160901-0	JZ07002020987
120-218	Button spring Φ0.8*7.5*18	C-221-690400-A	JZ09001022793
219	screw M4*25	B-010-040251-0	FJ04009004638
220	screw M5*10	B-024-050101-1	FJ04006004254
100-59	Caliper U100	P-000-001008-0	JZ07002020959
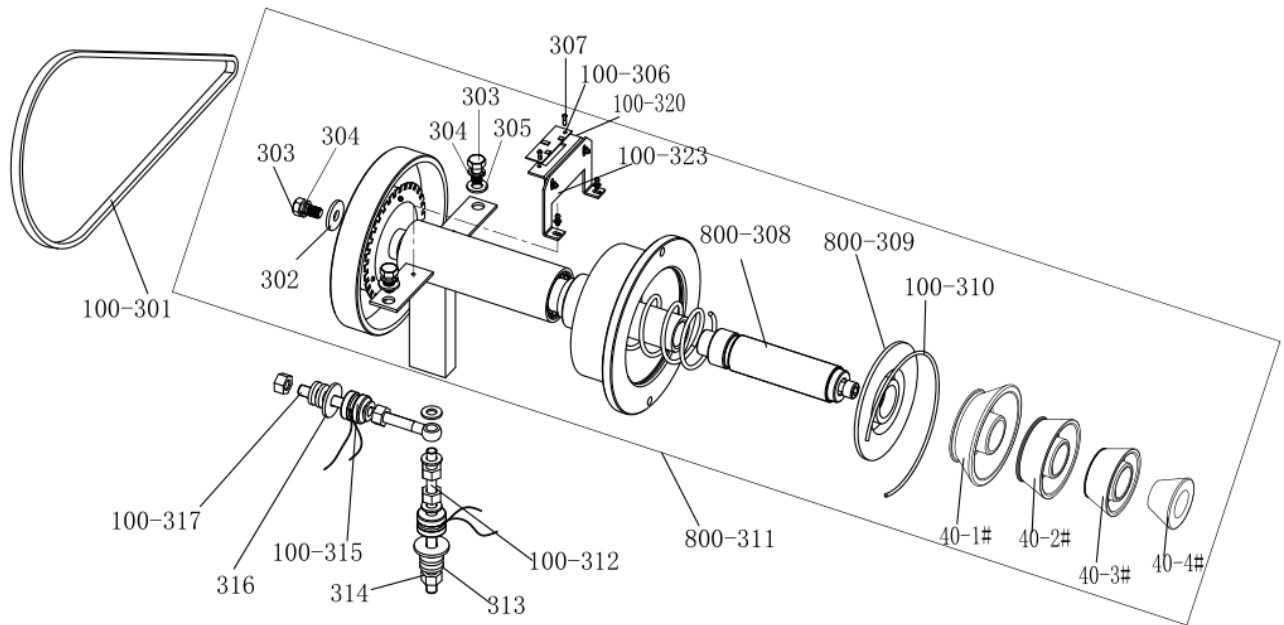
No.	Description	U8 Code	NC Code
800-311	Complete shaft(64/U-9//Tr40) U900 340/Φ40/205 Z*64	S-100-000064-2	JZ06002020506
800-308	Threaded shaft Tr40 M40L203	P-900-400000-0	JZ03002015932
800-309	Plastic Lid Φ40	P-100-420000-1	JZ07002020940
100-310	Big Spring U100	P-100-340000-0	JZ09002023333
307	screw M3*6	B-024-030061-0	FJ04006004367
100-306	Position Pick-up Board U100	PZ-000-040100-0	JZ02008012201
302	Flat washer 10*30*3	B-040-103030-1	FJ04002003804
303	Outer hex bolt M10*25	B-014-100251-0	FJ04009004742
304	Flat washer 10	B-050-100000-0	FJ04002003773
305	Flat washer 10*20*2	B-040-102020-1	FJ04002003800
100-312	Double-end sensing screw rod U100	P-100-080000-0	JZ09002023331
313	Washer 10*23*3	B-048-102330-1	FJ04002003766
314	Nut M10	B-004-100001-2	FJ04008004487
100-315	Sensor Assembly	S-131-000010-0	DD04007001858
316	Flat washer 10*40*3	B-040-124030-1	FJ04002003806
100-317	Single-end sensing screw rod U100	P-100-070000-0	JZ09002023329
800-318	Shaft spring U100	P-100-350000-0	JZ03002016086
100-301	Balancer Belt 380J5	S-042-000380-0	FJ02003003528
100-320	Support of Position Pick-up Board 2	P-800-220000-1	JZ09002023341
100-323	Support of Position Pick-up Board 1	P-800-680900-0	JZ09002023340
40-1#	1 CONE Tr40,big bore Φ40	S-100-040000-1	JZ03002016062
40-2#	2 CONE Tr40,medium bore Φ40	S-100-040000-2	JZ03002016063
40-3#	3 CONE Tr40,med-small bore Φ40	S-100-040000-3	JZ03002016064
40-4#	4 CONE Tr40,small bore Φ40	S-100-040000-4	JZ03002016061

protection cover
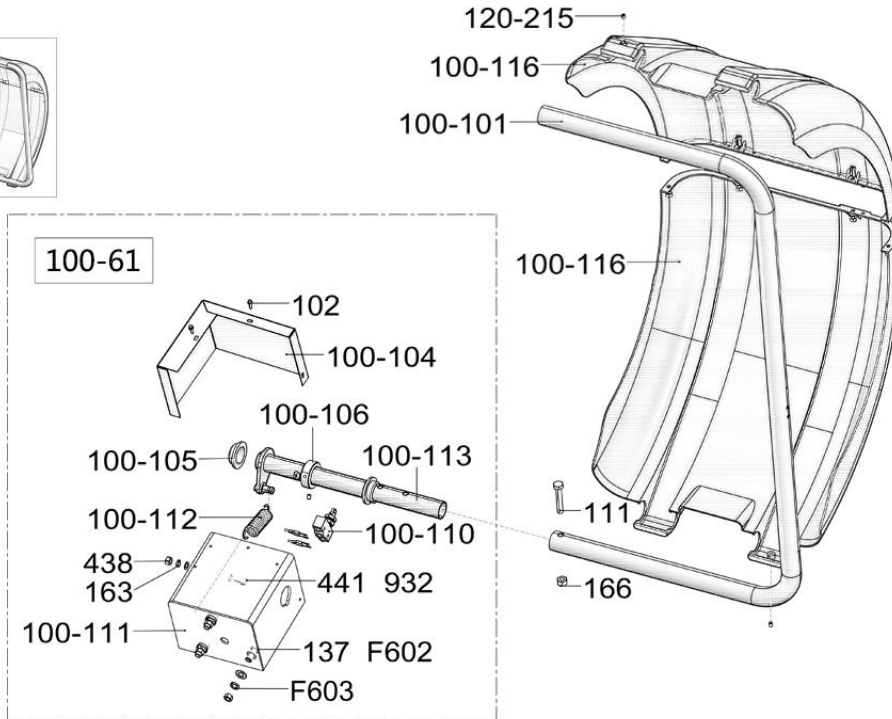
Graph code	Name	U8 code	NC CODE
100-116	Protection Hood Assembly	P-100-200100-0	JZ07002020936
100-104	Cover for protection hood box	PX-100-030000-0	JZ08002021368
F603	Flat washer	B-050-100000-0	FJ04002003773
163	Flat washer	B-050-080000-0	FJ04002003792
F602	Flat washer	B-040-112020-1,B-040-102020-1	FJ04002003800
932	Flat washer	B-040-081820-1	FJ04002003906
441	hex socket head cap screw	B-010-080201-0	FJ04009004706
131	hex socket head cap screw	GZBLS-B-011-060161-0,B-010-06016	FJ04009004676
	Hex wrench	S-105-000050-0,G-035-050050-0	HG02001028227
100	LW-Hood100	PW-108-010000-0	JZ06002020459
100-110	Micro switch	S-060-000410-0	DD03009001605
	Micro switch wire	PZ-000-180520-1	JZ02008026590
166	Nut	GZBLS-B-001-100000-0,B-001-10000	FJ04008004444
438	Nut	B-004-080001-0	FJ04008004515
432	Nut	GZBLS-B-001-060000-0,B-001-06000	FJ04008004458
111	Outer hex bolt	B-014-100451-0	FJ04009004777
137	Outer hex bolt	B-014-100251-0	FJ04009004770
102	screw M4.8*16	B-013-050161-1	FJ04006004050
100-61	Protect axle box assembly 100	PW-108-010000-2	JZ06002020461
100-111	Protection Hood Box	PX-100-020000-0	JZ08002021366
	Protection Hood cable	PZ-000-180100-1	JZ02008026562
100-101	Protection Hood Rotating Shaft	PX-100-200200-0	JZ09002023655
100-113	Protection hood shaft	PX-800-040000-0	JZ08002021365
	Protection Hood shaft block	P-100-200300-0	JZ09002023297
100-106	Protection hood shaft sleeve	PX-800-050000-0	JZ07002020994
100-112	Protection hood spring	P-800-330000-0	JZ09002023294
120-215	screw	B-007-060081-0	FJ04006004063
4231	screw	B-019-350161-0	FJ04006004231
100-105	Sheath	P-800-180000-0	JZ07002020937
	Wrench	PX-100-200400-0	JZ03002016059

S Version Exploded drawings and spare parts list (Optional pedal brake system)
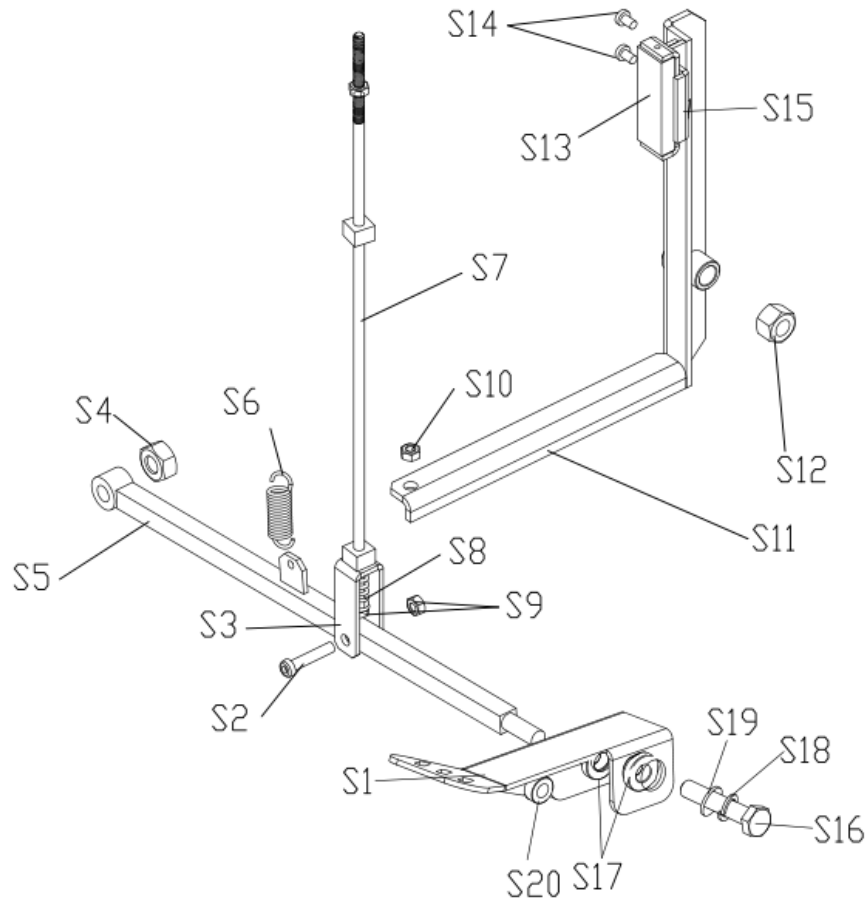
No.	Description	U8 Code	NC Code
S11	Brake lever U100	PX-100-020200-0	JZ03002015963
S15	Brake leather mounting seat	PX-100-020700-0	JZ03002015917
S13	Brake leather		JZ02008044808
S1	Brake peda		JZ08002053931
S7	Connecting rod U100	PX-100-020400-0	JZ03002015977
S3	hook	PX-100-020404-0	JZ03002015980
S5	Foot lever group U-102	PX-102-050000-B	JZ03002015961
S6	Hex locking board spring Φ1.5*9*54	C-221-400000-0	JZ09001022969
S2	hex socket head cap screw M6*35	DS-B-010-060351-0	FJ04009004686
S20	Nut M10	GZBLS-B-001-100000-0,B-001-10000	FJ04008004444
S12	Nut M12	GZBLS-B-001-120000-0,B-001-12000	FJ04008004445
S10	Nut M6	GZBLS-B-004-060000-0,B-004-06000	FJ04008004513
S9	Nut M6	GZBLS-B-001-060000-0,B-001-06000	FJ04008004458
S16	Outer hex bolt M10*75	B-014-100751-0	FJ04009004783
S17	rotary sleeve U100	PX-100-020600-0	JZ03002016039
S14	screw M5*10	B-024-050101-1	FJ04006004254

| S8	Spring U100	P-100-020800-0	JZ09002023304
S18	Flat washer 10	B-050-100000-0	FJ04002003773
S19	Flat washer 10*20*2	B-040-102020-1	FJ04002003800
S8	Spring U100	P-100-020800-0	JZ09002023304

Laser Version Exploded drawings and spare parts list
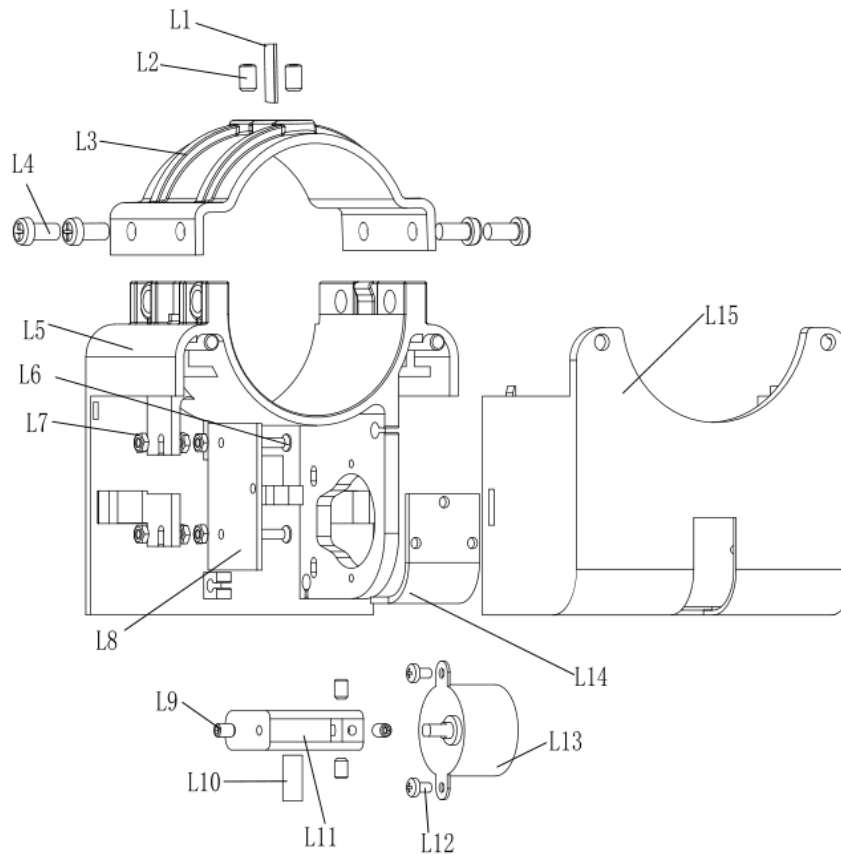
No.	Description	U8 Code	NC Code
L1	Pin Φ4*12	B-070-040012-0	FJ06002005005
L2	screw M5*8	B-007-050081-0	FJ04006004061
L3	Laser mounting seat cover U579	P-579-310900-0	JZ07002020990
L4	Laser mounting plate U579	P-579-310800-0	JZ07002020991
L5	screw M5*10	B-024-050101-1	FJ04006004254
L6	screw M3*16	B-017-030161-0	FJ04006004306
L7	Nut M3	GZBLS-B-004-030000-0,B-004-030001-1	FJ04008004509
L8	control board U579	PZ-000-050579-0	JZ02008012215
L9	screw M4*6	B-007-040061-0	FJ04006004060
L10	Laser XH2.54-T/Φ6/5V/100mm	S-054-000002-0	DD04014002121
L11	Laser fixing block U579	P-579-310200-0	JZ07002020992
L12	screw PWT3*6*8	B-024-070301-0	FJ04006004364
L13	MOTOR 28YBJ-48/5V	S-053-000001-0	DD01001001162
L14	plastic film board U800	P-800-310300-0	JZ09002023515
L15	Laser mounting box U579	P-579-310100-0	JZ07002020989

Width measuring scale spare parts list
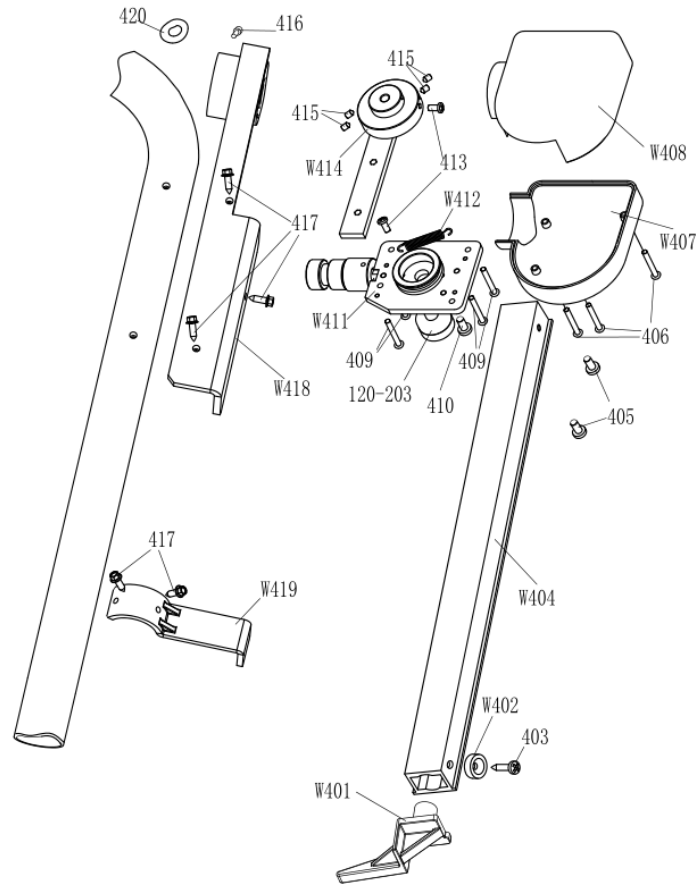
No.	Description	U8 Code	NC Code
W401	Complete ruler head U829	P-870-011400-0	JZ07002020938
W402	Magnet Φ15*5	P-870-011800-0	JZ09002023312
403	screw ST3.5*16	B-019-350161-0	FJ04006004231
W404	Arm U829010108 U829	P-870-010800-0	JZ09002023306
405	screw M5*10	B-024-050101-0,B-024-050101-0, GZBLS-B-024-050100-0	FJ04006004336
406	screw ST4.2*30	B-019-420301-0	FJ04006004241
W407	Width measuring scale Bottom cover U829	P-870-010700-0	JZ07002020975
W408	Width measuring scale Top cover U829	P-870-010400-0	JZ07002020973
409	screw ST4.2*25	B-019-420251-0	FJ04006004240
410	screw M5*16	B-024-050161-1	FJ04006004255
120-203	Gauge sensor RV24YNPY20S-B203/20K	S-132-000010-0	DD04010001969
W411	Revolve shaft assembly U829	PX-870-010100-0	JZ03002016040
W412	Spring Φ0.9*5.5*28	P-870-010900-0	JZ09002023434
413	screw M4*10	B-024-040101-0,B-024-040101-0, GZBLS-B-024-040100-0	FJ04006004318
W414	Ruler arm connecting assembly U829	PX-870-010500-0	JZ03002015921

415	screw M4*6	B-007-040061-0	FJ04006004060
416	hex socket head cap screw M6*16	GZBLS-B-011-060161-0,B-010-060161-0	FJ04009004676
417	outer hex self-tapping and self-auger screw ST4.8*16	B-013-050161-1	FJ04006004050
W418	Installation board U829	PX-829-020000-0	JZ03002015981
W419	locating plate U829	PX-829-011900-0	JZ03002015945
420	bushings Φ14	S-036-201400-0	CF03002001046

Accessories list

Specification options   1: 36 ☐   2: 40 ☐

CODE	ITEM	QTY	PHOTO	
1: JZ03001015878	1# CONE	1		1: φ36
2: JZ03002016062				2: φ40
1: JZ03001015879	2# CONE	1		1: φ36
2: JZ03002016063				2: φ40
1: JZ03001015880	3# CONE	1		1: φ36
2: JZ03002016064				2: φ40
1: JZ03001015881	4# CONE	1		1: φ36
2: JZ03002016061				2: φ40
1: JZ06002020442	COMPLETE QUICK RELEASE NUT	1		1: φ36
2: JZ06002020443				2: φ40
1: JZ03002015928	THREADED SHAFT	1		1:Tr36
2: JZ03002015932				2:Tr40
JZ03002016061	WRENCH	1		
HG02001028224	HEX WRENCH	1		
HG02001028227	HEX WRENCH	1		
JZ09002023492	STANDARD WEIGHTS 100G	1		
JZ07002020959	CALIPER	1		
JZ09002023563	PLIER	1		
JZ07002020974	PLASTIC LID	1		
JZ09002023408	RUBBER BUFFER	1		

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

Attach figure   System circuit diagram