



TW F-95

Wheel balancing machine

twinbusch.de



INSTRUCTION & MAINTENANCE MANUAL



Read this entire manual carefully before installation or operation of the TW F-95. Follow the instructions strictly.

Twin Busch GmbH | Amperestraße 1 | D-64625 Bensheim
Tel.: +49 (0) 6251-70585-0 | Fax: +49 (0) 6251-70585-29 | info@twinbusch.de



TWIN BUSCH GmbH

CATALOGUE

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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 Feature

2.1 Specificatio

- **Max wheel weight: 65kg**
- **Motor power: 200W**
- **Power supply: 220V 50Hz**
- **Rotating speed: 200r/min**
- **Balancing precision: +/- 1 g**
- **Angular accuracy: 2.81°**
- **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 high-definition 17" LCD, 3D animation interface. Intelligent LCD screen with dynamic message displaying makes all balancing mode operation visualized;
- 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°C;
- 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.
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.

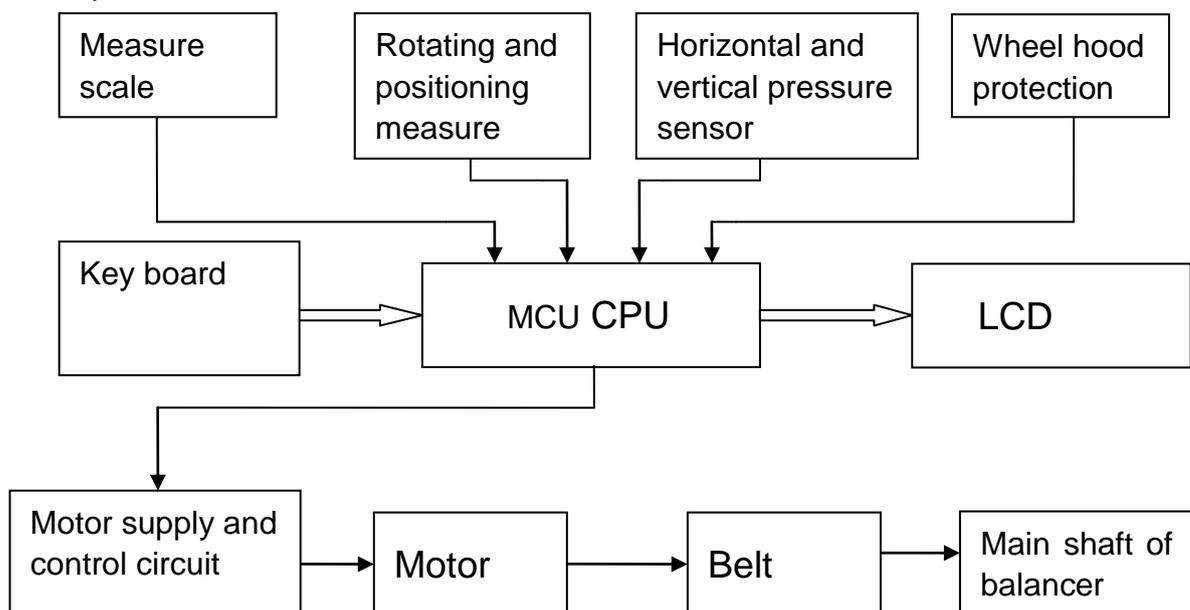


Figure 3-1

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 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 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)

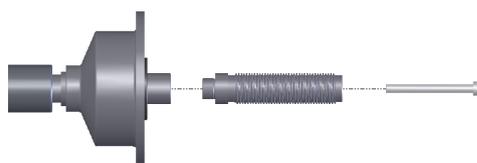


Figure 4-1

5. The meaning of the icons on the screen and key function

Interface icons as the corresponding function key tips, the same keys work in different interfaces have different functions, details are described below:

5.1 The meaning of the interface icons



Menu: Press "M", enter the menu operation



Balancing mode conversion: Press "ALU", enter the balancing mode



Recalculate: When finishing the wheel balancing, and find forget to input the current rim data, please input the right rim data and press "E", the machine will recalculate the rim of imbalanced weights and show the right results.



Quit: Press "STOP", quick the current task and back to the interface of input rim data



Check the real imbalanced weights: Press "FINE", show the realistic imbalanced weights



Split mode: under the static balance mode, ALU-S1 mode and ALU-S2 mode can active this function. Press "S" into split mode, make the weights to be stuck behind the rim spokes



Tracking sticking balancing mode: under the static balance mode, ALU-S1 mode and ALU-S2 mode can active this function. Press "T" into this function. Clipping the corresponding weights on measuring ruler head, pull out the handle bar, and sticks the weights on the right position according to the on-screen prompts.



Optimization Tips: When this icon appears, informing the operator, the static unbalance of the tire is too large. Please make the best tire and rim fit by optimizing operations, reducing static unbalance



Press any key to return: Press any key to quit current tack and back to the interface of inputting rim data



Switching: Press "M" key to switch to the next option



Setting: Press "E" to set the corresponding function



Confirming: Press "E" to enter the selected operation

5.2 Key function

a+ or **a-** input the distance value (a)

b+ or **b-** input the width value (b)

d+ or **d-** input the diameter value (d)

S Split mode

T Tracking sticking balancing mode

ALU ① Balancing mode conversion; ② Confirming function when measuring scale calibrate

M ① Menu; ② Switching selection

E ① Recalculate; ② Confirming; ③ setting

FINE The realistic imbalanced weights display

STOP Stop key

START Start Key

inch/mm inch/mm Conversion key

Key combination Function

FINE + **d+** or **d-** input the outer rim diameter value (dE)

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.

6.2.3 Install 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.

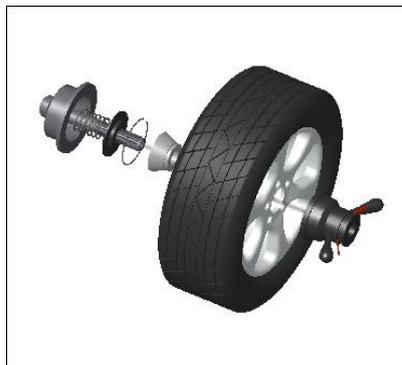


Figure 6-1



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, ready for input date of rim

7.2 Date input method for normally dynamic balance mode

7.2.1 After the power-on of the machine, it enter the dynamic balance mode

7.2.2 Input date of rim:

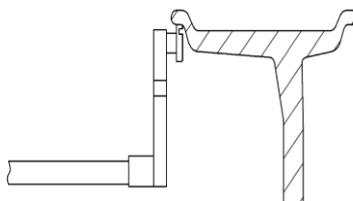


Figure 7-1

Rotate the measure scale, pull the scale head to inside concave on the edge of the rim, etc figure 7-1, and LCD screen show “measuring”. Finish the measuring, and the LCD screen show end measuring “OK”, waiting to put back the measuring scale.

Put back the measuring scale, the rim data will be show on the screen automatically.

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 the rim width automatically

7.2.4.1 Move the width measuring scale, pull the ruler head to the edge of the rim outside (Figure 7-2), and LCD screen show “measuring”. Finish the measuring, and the LCD screen show end measuring “OK”, waiting to put back the measuring scale.



Figure 7-2

7.2.4.2 When the data get automatically is different with the realistic rim width, please do the scale self-calibration and then measuring the data again. Or input the right data manually by pressing the corresponding key.

7.2.5 Manually input data of rims

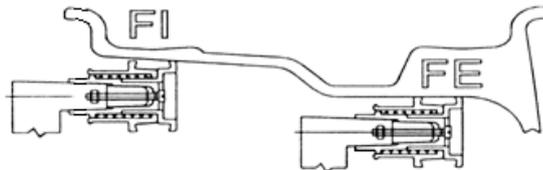
Get the width value indicated on rim or measured by ruler, then press [b+] or [b-] key to input value “b”.

7.2.6 Measuring methods of rim data from ALU-1 to ALU-5 and ALU-X modes are same with

above mentioned procedure.

7.3 Inputting method of rim data for ALU-S1 mode

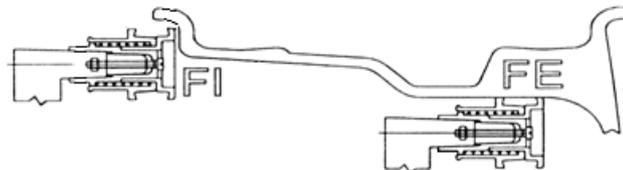
Move the measuring scale, pull the ruler head to the edge of the rim inside (FI), measuring the rim inside distance (aI) and diameter(dI), when LCD show “OK”, go on moving the ruler head to the edge of the rim outside (FE), measuring the rim outside distance (aE) and diameter(dE), when LCD show “OK”, end measuring. The balancer will enter the ALU-S1 mode automatically. indicate value “a”, “aE”, ”dI”, ”dE”



Press [a+] or [a-] can be adjust a value; press [b+] or [b-] can be adjust aE value; press [d+] or [d-] can be adjust dI value; hold press [FINE] key and press [d+] or [d-] can be adjust dE value.

7.4 Inputting method of rim data for ALU-S2 mode

Move the measuring scale, pull the ruler head to the edge of the rim inside (FI), measuring the rim inside distance (aI) and diameter(dI), when LCD show “OK”, go on moving the ruler head to the edge of the rim outside (FE), measuring the rim outside distance (aE) and diameter(dE), when LCD show “OK”, end measuring. The balancer will enter the ALU-S2 mode automatically. indicate value “a”, “aE”, ”dI”, ”dE”



Press [a+] or [a-] can be adjust a value; press [b+] or [b-] can be adjust aE value; press [d+] or [d-] can be adjust dI value; hold press [FINE] key and press [d+] or [d-] can be 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 [M], enter Menu, press [M] again, choose “distance measuring scale calibration”, press [E] to confirm;

8.1.2 According to the prompt, move the measuring scale to “0”, press [ALU] to confirm;

8.1.3 According to the prompt, move the measuring scale to “15”, press [ALU], and put back the measuring scale when LCD screen prompt ending calibration.

8.2 Calibration of diameter scale

- 8.2.1 Install one mid-size wheel to the main shaft, press [M] enter Menu, press [M] twice again to chose diameter measuring scale calibration, press [E] to confirm;
- 8.2.2 Press “d+” or “d-”, adjust the data as the current rim diameter data, and press [ALU] to confirm;
- 8.2.3 Moving the measuring scale, rotating the handle bar and make the ruler head to the endge of the rim inside shown as Figure 8-1, press [ALU] and put back the measuring scale when LCD screen prompt ending calibration.

8.3 Calibration of width scale

- 8.3.1 Press [M], enter Menu, press [M] continuously, choose “ width measuring scale calibration”, press [E] to confirm;
- 8.3.2 Put back width measuring scale to the original place, press [ALU];
- 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 8-1, press [ALU] and put back the measuring scale when LCD screen prompt ending calibration.

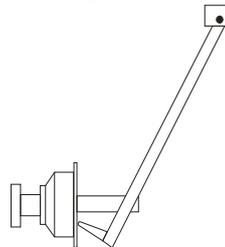


Figure 8-1

9. The Self-calibrating of Balance

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 finishe , install a can clip counterweight and comparatively balance middle size tyre, follow step 7 input date of rim;
- 9.2 Press [M], enter the Menu, press [E] to confirm ; lay down protection hood, press [START] key for next step;
- 9.3 After axis stop,(open protect hood)clip a 100 gram counterweight on anywhere of outside of rim, (close protect hood)press START key, going to next step;
- 9.4 After axis stop,calibration end. Demount tyre, now balancer ready to work.

N.B: 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.

10. The Balancing Operation of Wheel

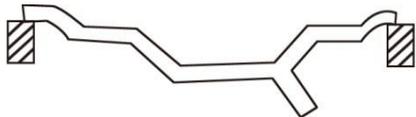
10.1 Balance mode change operation

Press [ALU] to change the balancing modes, details shown as below:

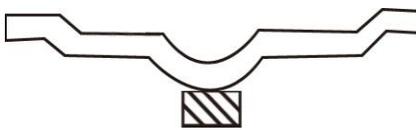
Dynamic balance mode → Static balance mode → ALU-1 → ALU-2 → ALU-3 → ALU-4 → ALU-5 → ALU-S1 → ALU-S2 → ALU-X

Note: when the balancing results not so well under ALU-1 & ALU-2, please operating under the mode of ALU-S1& ALU-2.

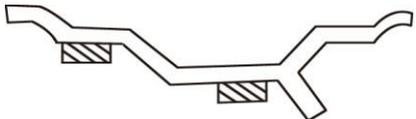
All the weights added position under different balancing modes had shown as below:



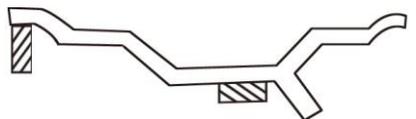
Dynamic balance mode(Standard default mode): clipping the weights on both edge sides of the wheel



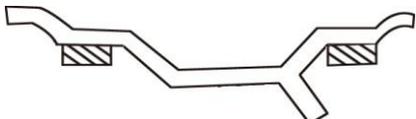
ST mode(Static balance mode): sticking the weights in the middle of wheel, this mode is suitable for the motorcycle wheel



ALU-1:sticking the weights to the left shoulder of rim inside and near to the rim spoke inside



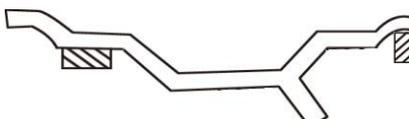
ALU-2: clipping the weights to the edge of rim inside and sticking the weights near to the rim spoke inside



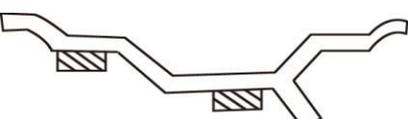
ALU-3: sticking the weights to shoulder of rim inside and to the shoulder of rim outside



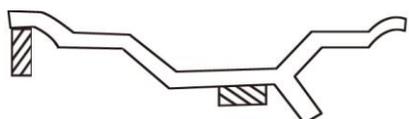
ALU-4: clipping the weights to the edge of rim inside and sticking the weights to shoulder of rim outside



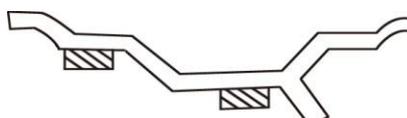
ALU-5:sticking the weights to the shoulder of rim inside and clipping the weights to the edge of rim outside



ALU-S1: sticking the weights to the left shoulder of rim inside and near to the rim spoke inside



ALU-S2: clipping the weights to the edge of rim inside and sticking the weights near to the rim spoke inside



ALU-X: this mode is the please use this mode under the weights to the left shoulder of rim inside and near to the rim spoke inside

self-customized by manufacture, professional guide. sticking the

10.2 Dynamic 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 LCD display wheel both side imbalance weight, When “OPT” displayed, can choice imbalance optimize;

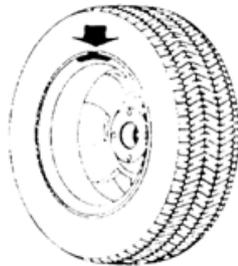


Figure 10-1

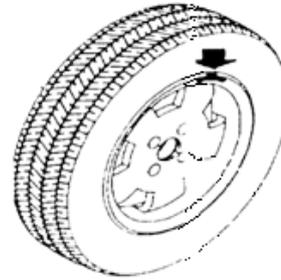


Figure10-2

10.2.3 Slowly rotating wheel, when inside counterweight position indicator light all on, and show “OK”, clip correspond counterweight on 12 o'clock position inside of rim, Figure 10-1;

10.2.4 Slowly rotating wheel, when outside counterweight position indicator light all on, and show “OK”, clip correspond counterweight on 12 o'clock position outside of rim, Figure 10-2;

10.3 The operation process of ALU-1 to ALU-5 mode

10.3.1 Follow 7.2 input date of rim;

10.3.2 Press ALU key, switch to correspond balance mode;

10.3.3 Lay down protect hood and press START key, wheel spinning, after stop LCD display wheel both side imbalance weight, When “OPT” displayed, can choice imbalance optimize;

10.3.4 Slowly rotating wheel, when inside counterweight position indicator light all on, and show “OK”, clip/stick correspond counterweights on 12 o'clock position inside of rim refer to chapter 10.1 various modes;

10.3.5 Slowly rotating wheel, when outside counterweight position indicator light all on, and show “OK”, clip/stick correspond counterweights on 12 o'clock position outside of rim refer to chapter 10.1 various modes.

10.4 ALU-S1 balance mode operation process

10.4.1 Follow 7.3 input date of rim;

10.4.2 Lay down protect hood and press START key, wheel spinning, after stop LCD display wheel both side imbalance weight, When “OPT” displayed, can choice imbalance optimize;

Manual sticking weights please refer to 10.4.3 and 10.4.4 operation; tracking sticking weights refer to 10.4.5 and 10.4.6 operation.

10.4.3 Slowly rotating wheel, when inside counterweight position indicator light all on, and show “OK”, stick correspond counterweights on 12 o'clock position inside of rim refer to left part of Figure 10-3.

10.4.4 Slowly rotating wheel, when outside counterweight position indicator light all on, and show "OK", stick correspond counterweights on 12 o'clock position outside of rim refer to right part of Figure 10-3.

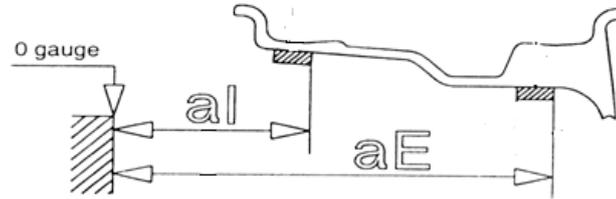


Figure10-3

10.4.5 Press [T], enter the tracking sticking function. Clipping the inside sticking weights with glue side up on the measuring ruler head, rotating the wheel, when inside counterweight position indicator light all on, and show "OK", pull out the measuring scale until the inside tracking sticking indicator light all on, spin the measuring scale and stick the weights on the rim. Figure 10-4

10.4.6 Clipping the outside sticking weights with glue side up on the measuring ruler head, rotating the wheel, when outside counterweight position indicator light all on, and show "OK", pull out the measuring until the outside tracking sticking indicator light all on, spin the measuring scale and stick the weights on the rim. Figure 10-4

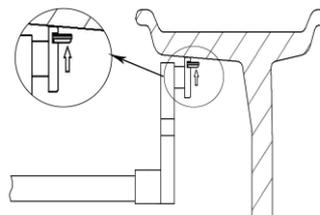


Figure10-4

10.5 ALU-S2 balance mode operation process

10.5.1 Follow 7.4 input date of rim;

10.5.2 Lay down protect hood and press START key, wheel spinning, after stop LCD display wheel both side imbalance weight, When "OPT" displayed, can choice imbalance optimize;

10.5.3 Slowly rotating wheel, when inside counterweight position indicator light all on, and show "OK", clip the correspond counterweights on 12 o'clock position inside of rim refer to Figure 10-1.

Manual sticking weights please refer to 10.5.4 operation; tracking sticking weights refer to 10.5.5 operation.

10.5.4 Slowly rotating wheel, when outside counterweight position indicator light all on, and show "OK", stick correspond counterweights on 12 o'clock position outside of rim refer to r Figure 10-3.

10.5.5 Press [T], enter the tracking sticking function. Clipping the outside sticking weights with glue side up on the measuring ruler head, rotating the wheel, when outside counterweight position indicator light all on, and show "OK", pull out the measuring scale until the outside tracking sticking indicator light all on, spin the measuring scale and stick the weights on the rim. Figure 10-4

10.6 Static balance (ST) operation process

- 10.6.1 Moving the measuring scale to the middle of rim, get the rim data;
- 10.6.2 Press [ALU] key, switch to static balance (ST) mode;
- 10.6.3 Lay down the protection hood, press [START], wheel rotating, and the LCD displaying the ST imbalanced weights of rim when stop. When "OPT" displayed, please chose to enter imbalance optimized;
- Manual sticking weights please refer to 10.6.4 operation; tracking sticking weights refer to 10.6.5 operation.
- 10.6.4 Slowly rotating wheel, when counterweight position indicator light all on, stick correspond counterweights on 12 o'clock position on the middle of rim refer to r Figure 10-5.



Figure10-5

- 10.6.5 Press [T], enter the tracking sticking function. Clipping the sticking weights with glue side up on the measuring ruler head, rotating the wheel, when counterweight position indicator light all on, and show "OK", pull out the measuring scale until the tracking sticking indicator light all on, spin the measuring scale and stick the weights on the rim. Figure 10-4

10.7 The of Counterweight Hide-Stick mode



Figure10-6

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. Figure10-6.

The split hide-stick mode is only available in ALU-S1, ALU-S2 and ST mode.

When the screen shows the icons of split mode mean the function is valid.

If the outside counterweight not hide behind the spoke and need to make the weights hide-stick behind the spokes, please do the operation as below:

- 10.7.1 Press [S], the screen display input the spoke number, press [b+],[b-] to input the rim spokes numbers.
- Press [S] again to next step. Rotating the wheel slowly, and let the spoke near to the imbalanced point on to top (12 o'clock).
- Press [S], finish splitting and enter the hide- stick mode with LCD display two imbalanced indicators appear under outside balancing indicator.
- 10.7.2 When sticking the weights, please refer to corresponding operation method of balancing mode, and also the tracking sticking mode is still valid.

10.8 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.

Under the current imbalanced interface, press [STOP], input the right rim data. Press [E], do the recalculation.

11. Imbalance optimize

Imbalance optimization is to find the imbalanced points of rubber tire and rim. And combined the rubber tire and rim best by tyre changer, which make the rubber tire imbalanced point and rim imbalanced points cancel out each other for the purpose of optimization.

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

Imbalance optimizes function, press [M], enter Menu, continuously press [M], chose “Imbalance optimization”, and press [E] to confirm and enter the imbalance operation interface and then do the operation as the screen displayed.

12. Machine settings

Here the operation can set the min display weight value, key tone, hood protection function, width scale, weight unit and language.

12.1 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.

12.1.1 Press [M], Menu interface, continuously press [M], choose “setting”, press [E] to confirm, and enter the balancing setting function;

12.1.2 Press [E] to set the min display weight value, totally 3 levels: 5,10 and 15 shown in Figure 12-1. Press [STOP], exit.



Figure12-1

12.2 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 12.1.2 press [M] enter setting, Press [E], setting “on/off”, Press [E], setting “on/off”, choose “on” represent this function is open; choose “off” represent this function is closed. Press [STOP] to exit and finishing the setting. Figure 12-2.



Figure12-2

12.3 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.

From 12.2 press [M] enter setting, Press [E], setting “on/off”, choose “on” represent this function is open; choose “off” represent this function is closed. Press [STOP] to exit and finishing the setting. Figure 12-2.

12.4 Width automatic measure settings

This function can be setting width scale open/closed. This function can automatically self-check whether the machine is equipped with width scale. Under the condition of width scale function closed, install the width scale device on the machine, the function will open automatically.

From 12.3 press [M] enter setting, Press [E], setting “on/off”, choose “on” represent this function is open; choose “off” represent this function is closed. Press [STOP] to exit and finishing the setting. Figure 12-2.

12.5 Weight unit settings

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

From 12.4 press [M] enter setting, Press [E] for setting. choose “gr”, the unit is gram, choose “oz”, the unite is ounce. Press [STOP] to exit and finishing the setting. Figure 12-3.



Figure12-3

12.6 Language settings

From 12.3 press [M] enter setting, Press [E] for setting.
Press [STOP] to exit and finishing the setting.

13. INCH and MM conversion operation

This operation for input dimension B value and D value conversion (INCH-MM).

Press INCH/MM key, the length unit for width value B and diameter value D can change between INCH and MM.

14. Machine self test function

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

Press [M] to Menu interface, continuously press [M] choose “self -test”; press [E] to confirm and enter the self-test function. Figure 14-1

14.1 Distance sensor signal check

This function can be check distance sensor and main board signal circuit whether damage. Distance sensor initial value (1,Figure 14-1), moving the measuring scale, the normal value changes. The more moving out, the bigger this value becomes.

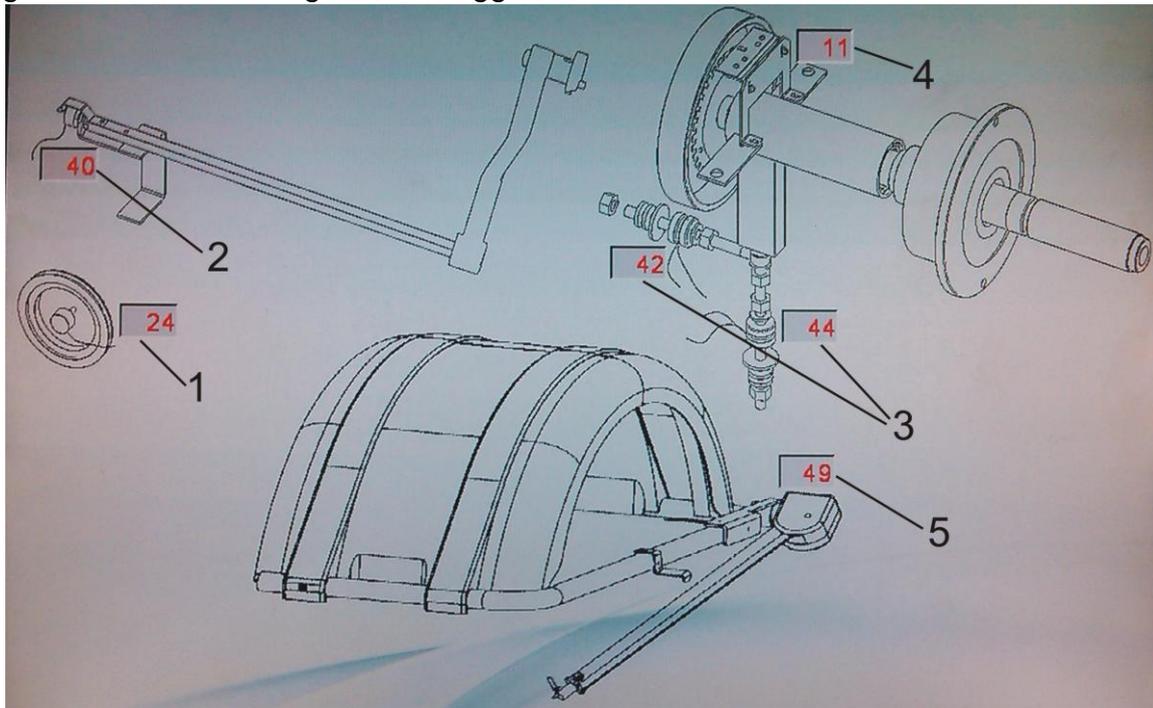


Figure14-1

14.2 Diameter sensor signal check

This function can be check diameter sensor and main board signal circuit whether damage. Diameter sensor initial value (2,Figure 14-1), spinning the measuring scale, the normal value changes. Spinning counterclockwise, the value becomes larger, whereas the smaller

14.3 Pressure sensor signal check

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

Two pressure sensor initial value (3,Figure 14-1), pressing the main shaft gently, value changes under normal condition.

14.4 Position sensor signal check

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

Position sensor is the example value for the current machine(4,Figure 14-1), turning the main shaft slowly, the data will keep changing.

Rotating the main shaft clockwise, and the value getting bigger; rotating it counterclockwise, and the value getting smaller.

Under the normal condition, the value will change between 0-63.

14.5 Width sensor signal check

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

Width sensor initial value (5, Figure 14-1), swinging the measuring scale, the normal value changes.

Swinging towards left, the value becomes larger, putting back, the value smaller

Press [STOP] key exit.

15. Safety Protection and Trouble Shooting

15.1 Safety protection

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

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

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

15.2 Trouble shooting

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

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

15.2.3 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;

15.2.4 If turn on the power, LCD displays "measuring" frequency, need measure scale self-calibration or adjust a-value sensor or replace a new sensor;

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

15.2.6 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;

15.2.7 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.

15.2.8 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.

15.2.9 Width automatic measure not nicety, first check distance a-value input whether right, always input right a-value first then measure width b-value, if width automatic measure still not nicety, make width measure scale calibration.

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.

16. Maintenance

16.1 The daily maintenance of non- professionals

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

16.1.1 Adjust the tension of the belt.

16.1.1.1 Dismantle the hood.

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

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

16.1.2 Check whether the wire of electricity part connects reliably.

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

16.1.3.1 Locking nut can not fix wheel tighten on main-axis;

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

16.2The maintenance of professionals

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

16.2.1 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.

16.2.2 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:

①Unlash the No.1, 2,3,4,5 nuts.

②Dismantle the sensor and nut.

③Replace No.6, 7 the sensor organ.

④ Install the sensor and the nut according to the Figure 16-1. (Pay attention to the sensor's direction.)

⑤Tighten 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.

⑦Tighten the No.4 nut (not too emphatically), then tighten No.5 nut.

16.2.3 The replacing of circuit board and the organ on it should be carried out by professionals.

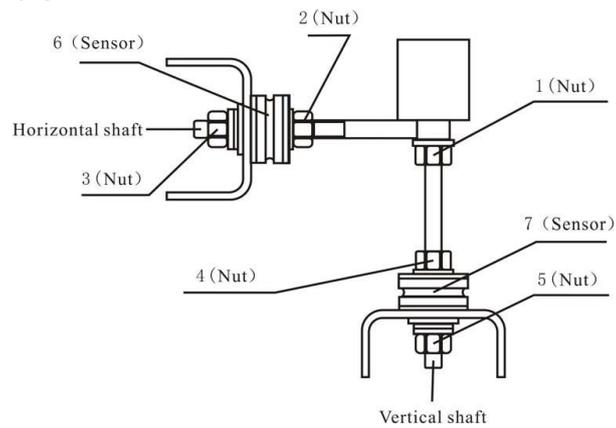
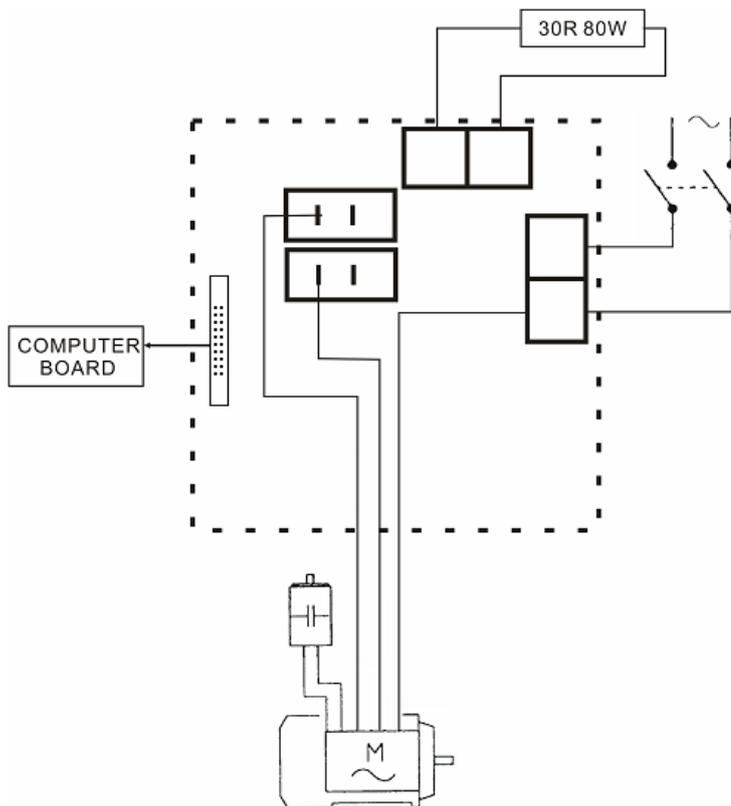


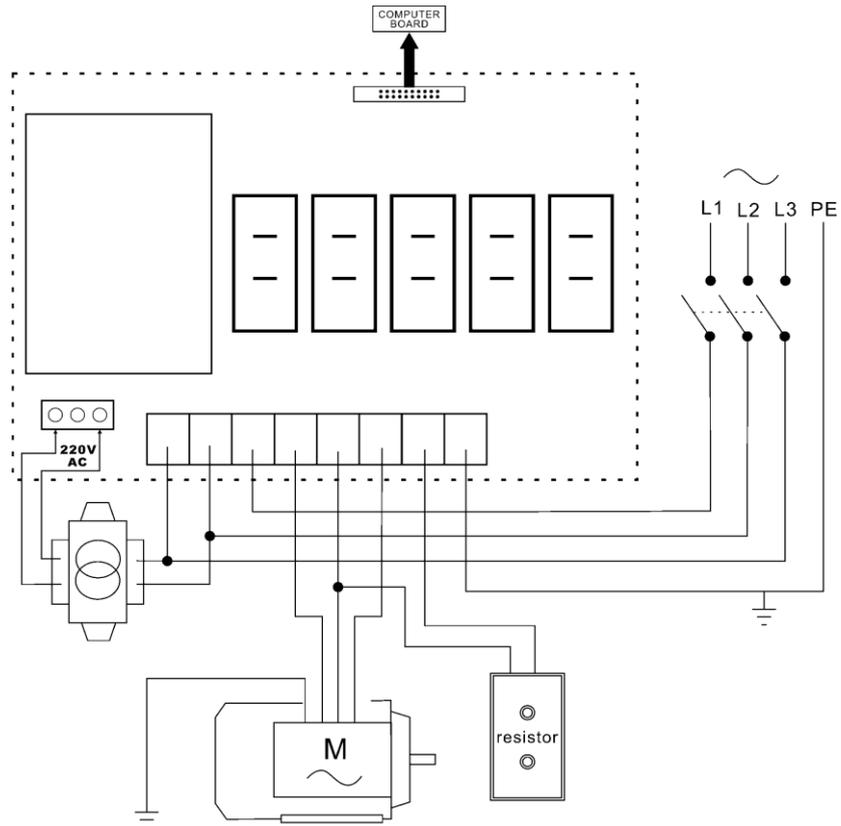
Figure16-1

17. Power supply layout diagram

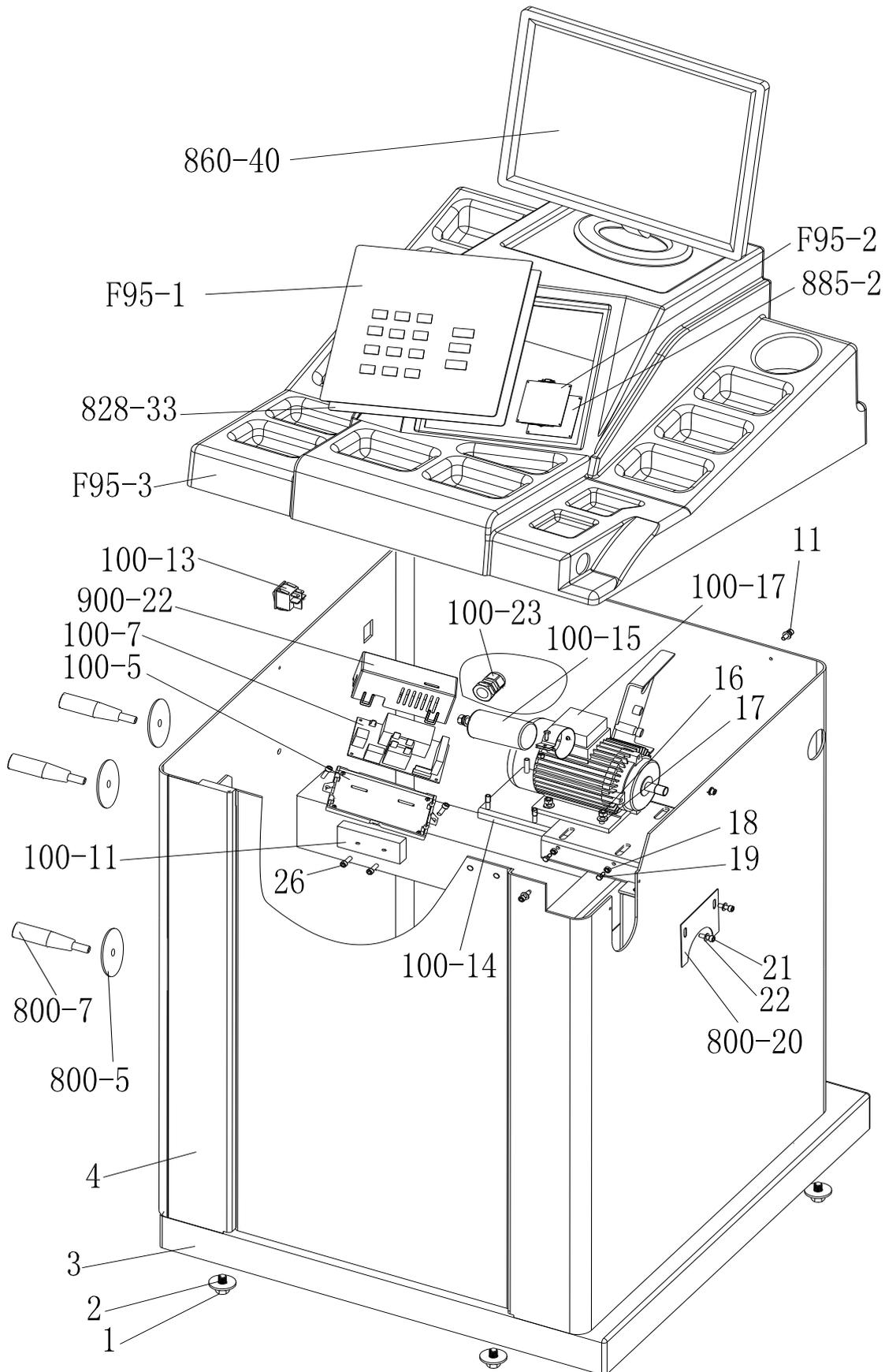
17.1 220 V Connection

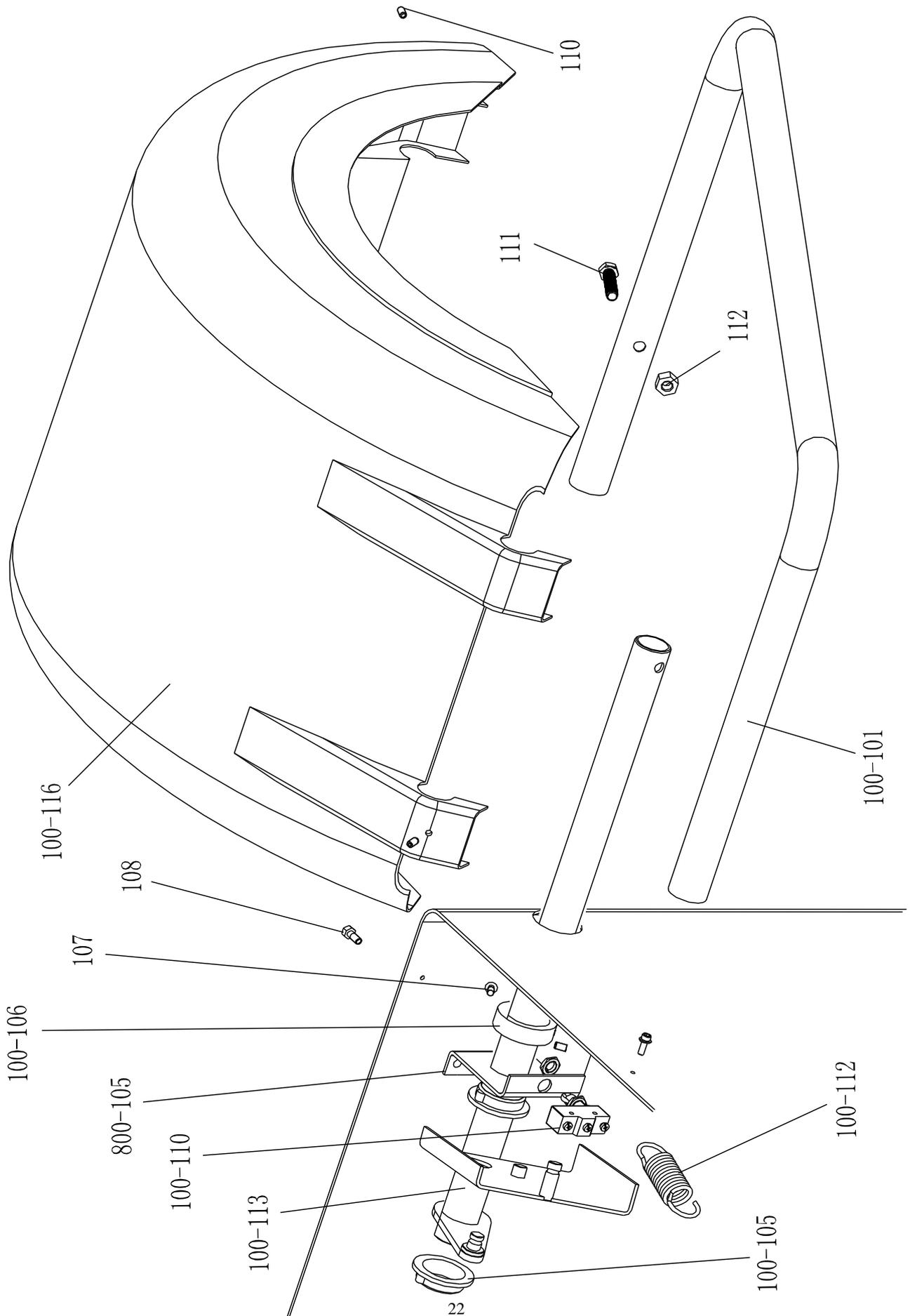


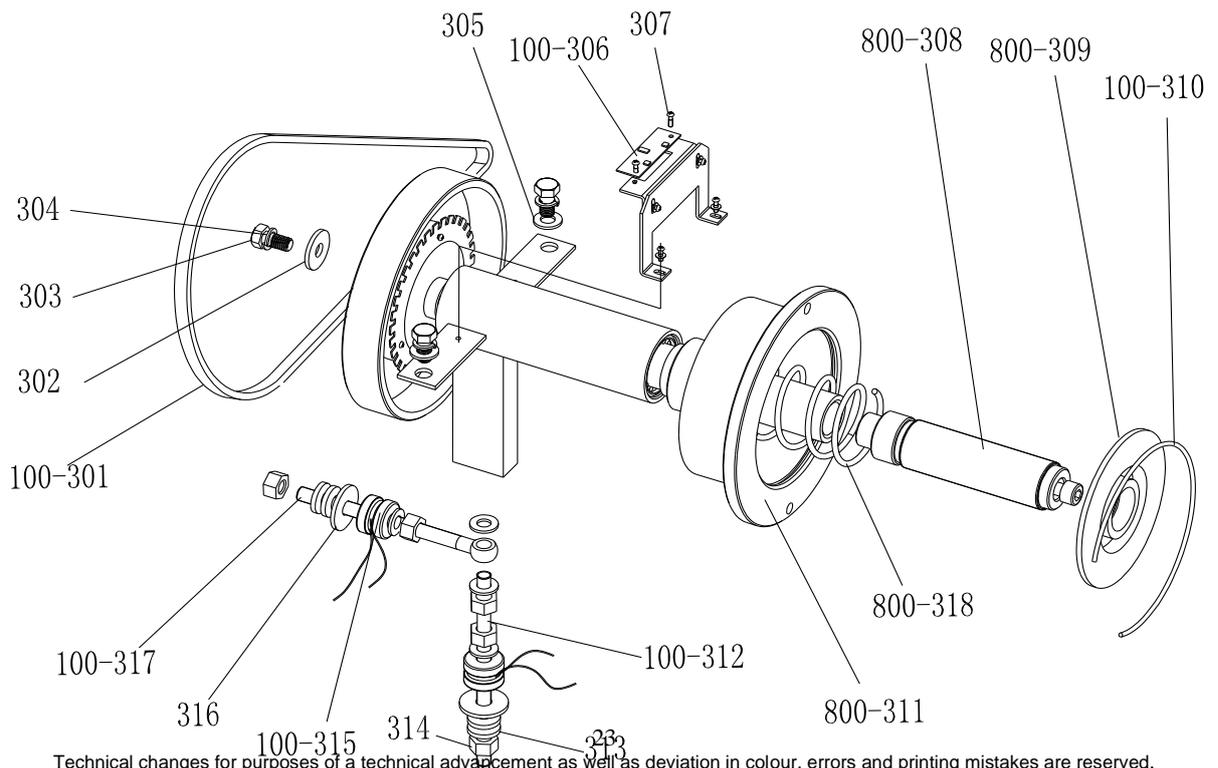
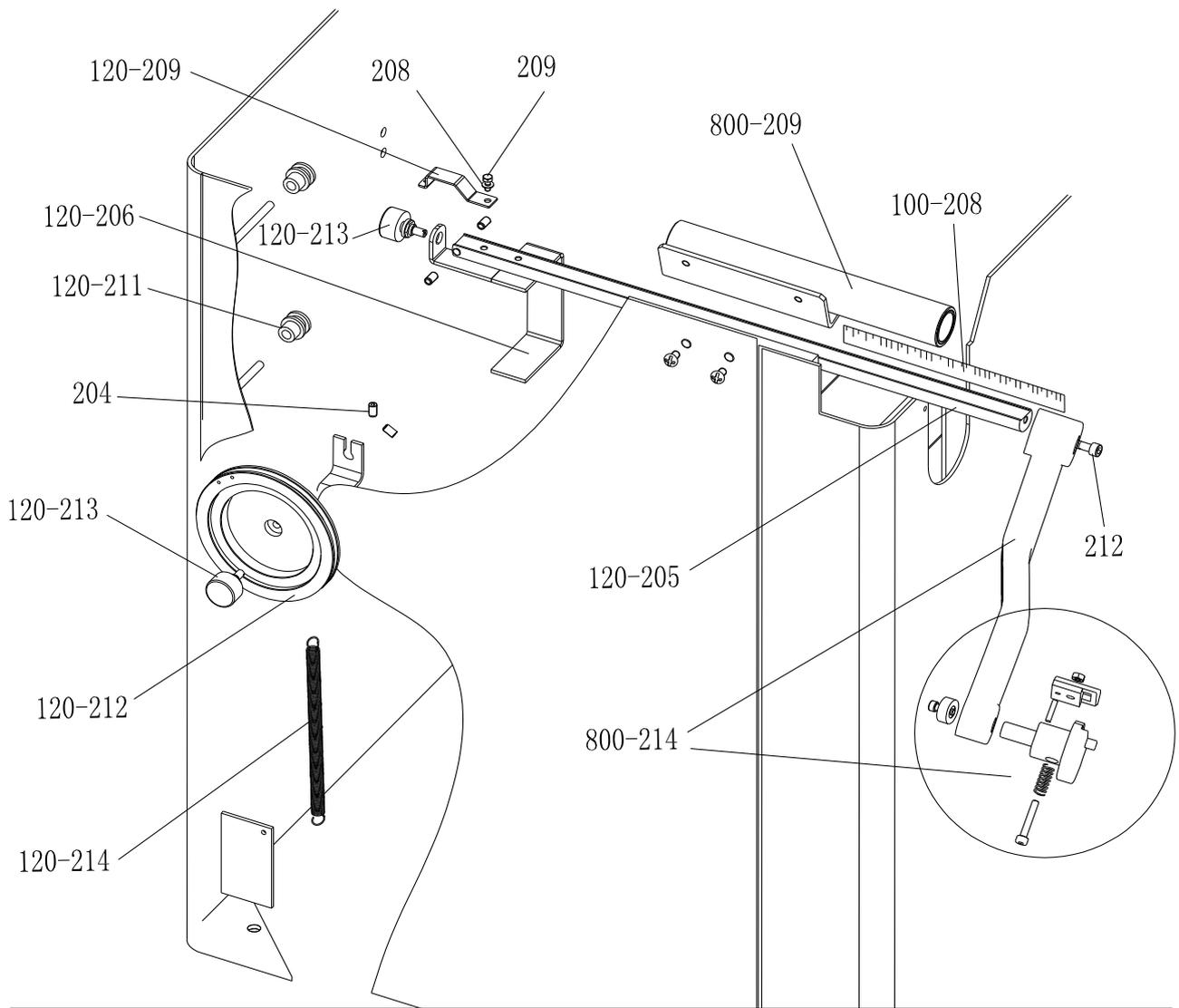
17.2 380 V Connection



18. Exploded drawings

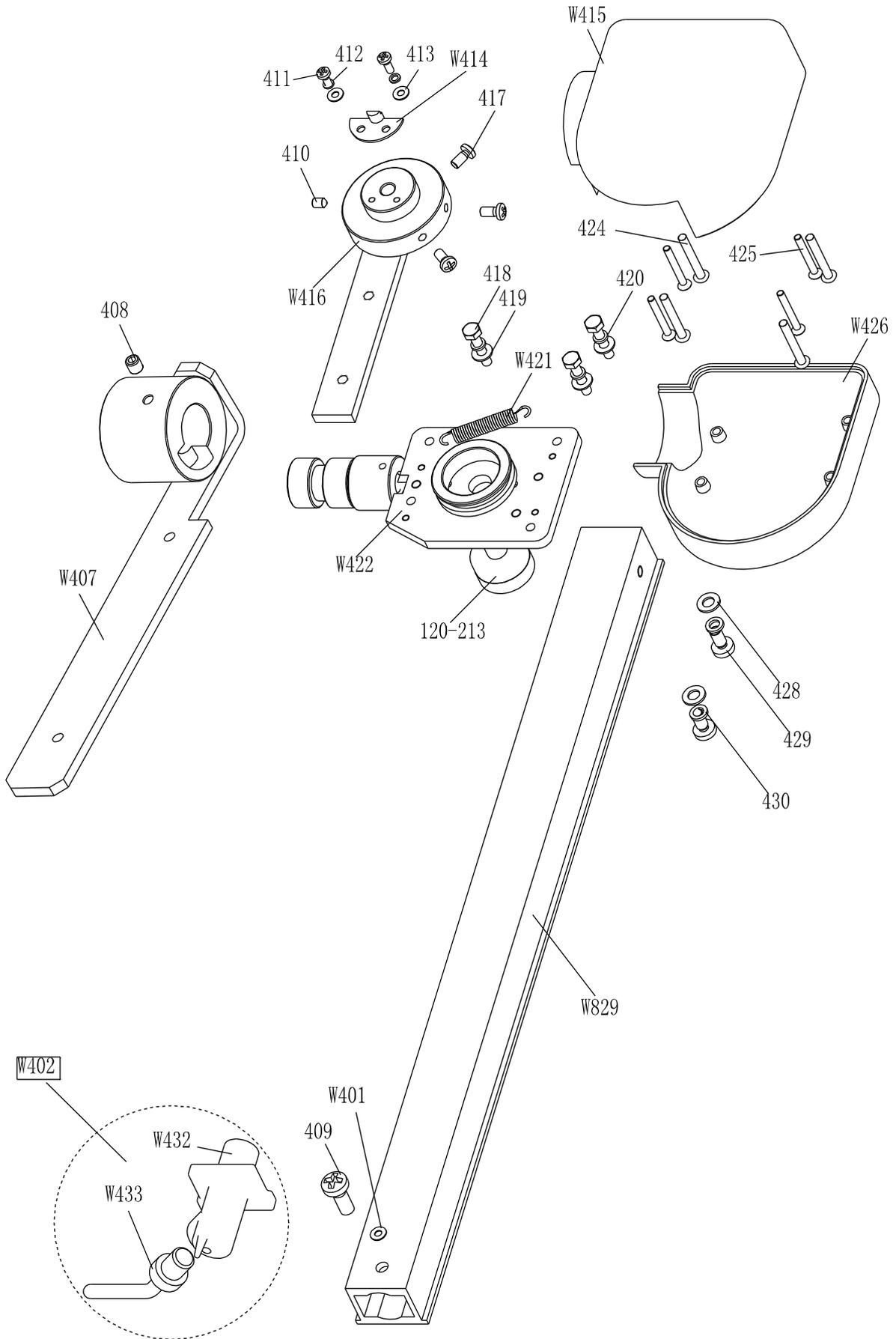






Technical changes for purposes of a technical advancement as well as deviation in colour, errors and printing mistakes are reserved.

Width measuring scale Exploded drawings (Optional)



19. Spare parts list

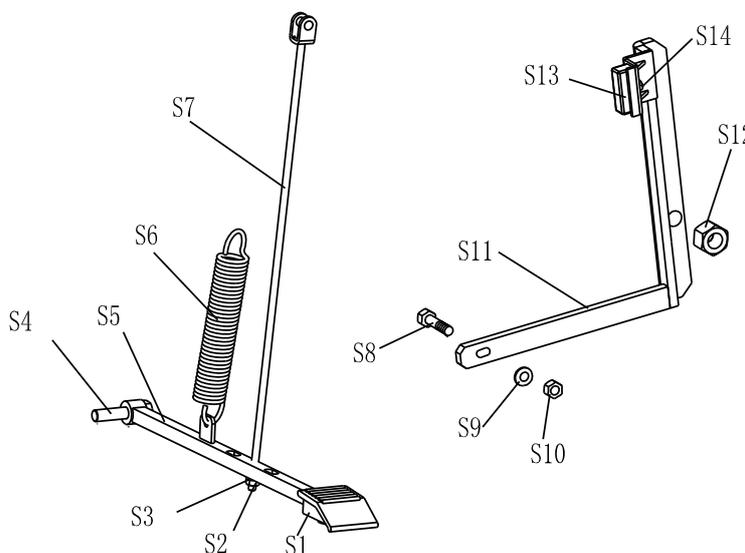
No.	Code	Description	Qt.	No.	Code	Description	Qt.
1	B-014-100251-0	Screw	4	100-116	P-100-200100-0	Hood	1
2	B-040-103030-1	Washer	2	110	B-007-060081-0	Screw	3
3	PX-800-020000-0	Base	1	111	B-014-100451-0	Screw	1
4	PX-800-010000-0	Body	1	112	B-001-100001-0	Nut	1
800-5	P-000-009002-0	ABS Washer	3	100-101	PX-100-200200-0	Shaft	1
800-7	P-000-009000-0	Tools hang	3				
100-13	S-060-000210-0	Power switch	1	120-214	P-120-210000-0	Spring	1
100-23	S-025-000135-0	Cable circlip	1	120-212	P-120-250000-0	Bobbin winder pulley	1
100-14	PX-100-010920-0	Motor adjust board	1	120-213	S-132-000010-0	Gauge sensor	2
11	B-024-050161-1	Screw	4	204	B-007-060081-0	Screw	5
12	B-040-050000-1	Washer	4	120-211	PZ-120-260000-0	Pulley	2
100-15	S-063-002000-0	Capacitor	1	120-206	PX-120-240000-0	Heavy	1
100-17	S-051-230020-0	Motor	1	120-209	PX-120-230000-0	Caliper Hook	1
16	B-004-060001-1	Nut	4	208	B-040-050000-1	Washer	1
17	B-040-061412-1	Washer	4	209	B-024-050161-1	Screw	1
18	B-004-050001-1	Nut	2	800-209	PX-820-570000-0	Gauge support	1
19	B-014-050351-1	Screw	2	212	B-010-060161-0	Screw	1
800-20	PX-100-110000-0	Plate	1	120-205	PZ-120-090000-0	Rim Distance Gauge	1
21	B-024-050061-0	Screw	2	100-208	Y-004-000070-0	Graduated Strip	1
22	B-040-050000-1	Washer	2	800-214	PW-109-082800-0	Handle Bar	1
100-7	PZ-000-020822-0	Power board	1				
100-5	P-100-120000-0	Electric Board Support	1	100-301	S-042-000380-0	Belt	1
26	B-024-050251-0	Screw	2	302	B-040-103030-1	Washer	1
100-11	D-010-100300-1	Resistor	1	303	B-014-100251-0	Screw	3
F95-3	P-800-190100-T	Head with tools-tray	1	304	B-050-100000-0	Washer	3
37	B-004-030001-1	Nut	8	305	B-040-102020-1	Washer	6
885-2	PZ-000-010885-0	Computer board	1	100-306	PZ-000-040100-0	Position Pick-up Board	1
860-40	S-135-001700-0	LCD	1	307	B-024-030061-0	Screw	4
F95-1	S-115-008890-T	Key board	1	800-308		Thread	1
828-33	PX-830-100000-0	Key plate	1	800-309	P-100-420000-0	Plastic Lid	1
F95-2	S-140-000080-0	Show-card	1	100-310	P-100-340000-0	Spring	1
				800-311	S-100-000800-0	Complete Shaft	1
100-112	P-100-210000-0	Spring	1	100-312	P-100-080000-0	Screw	1
100-105	P-800-180000-0	Sheath	2	313	B-048-102330-1	Washer	4
100-113	PX-800-040000-0	Shaft	1	314	B-004-100001-2	Nut	5
100-110	S-060-000400-0	Micro switch	1	100-315	S-131-000010-0	Sensor Assembly	2
800-105	PX-800-030000-0	Shaft support	1	316	B-040-124030-1	Washer	2
100-106	PX-800-050000-0	Shaft sheath	1	100-317	P-100-070000-0	Screw	1
107	B-024-060061-0	Screw	1	800-318	P-100-350000-0	Spring	1
108	B-010-080201-1	Screw	2				

Width measuring scale spare parts list (Optional)

No.	Code	Description	Qt.	No.	Code	Description	Qt.
W401	P-870-011800-0	Magnet	1	419	B-040-040000-1	Flat washer	3
W402	PW-112-082901-0	Complete ruler head	1	420	B-050-040000-0	Spring washer	3
W407	P-870-011001-0	Installation board assembly	1	421	P-870-010900-0	spring	1
408	B-007-060081-0	Screw	1	W422	P-870-010100-0	Revolve shaft assembly	1
409	B-019-420161-0	Screw	1	120-213	S-132-000010-0	Gauge sensor	1
410	B-007-040061-0	Screw	2	424	B-024-350281-0	Screw	4
411	B-024-030081-0	Screw	2	425	B-017-030251-0	Screw	4
412	B-050-030000-0	Spring washer	2	W426	P-870-010700-0	Bottom cover	1
413	B-040-030000-1	Flat washer	1	428	B-040-050000-1	Flat washer	2
W414	P-870-010600-0	Fix the slice	1	429	B-024-050101-0	Screw	2
W415	P-870-010400-0	Top cover	1	430	B-050-050000-0	Spring washer	2
W416	P-870-010500-0	Connection of arm assembly	1	W829	P-870-010800-0	Ruler seat	1
417	B-024-040081-0	Screw	3	W432	P-870-011500-0	Ruler head support	1
418	B-010-040201-0	Screw	3	W433	P-870-011400-0	Ruler head	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 pads	4
S7	PX-100-020400-0	Connecting rod	1	S14	B-004-060001-1	Nut	2

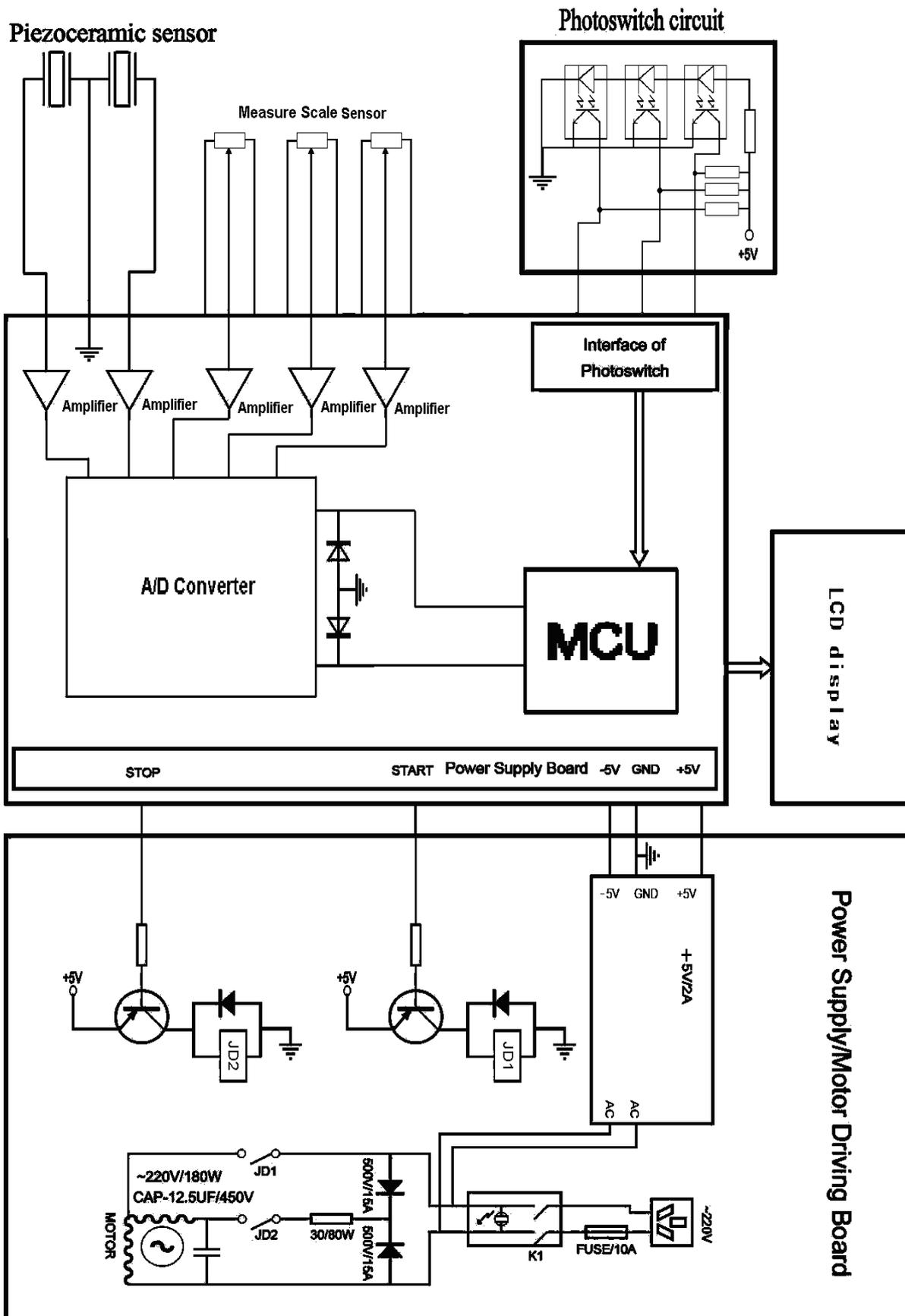
Accessories list

Specification options 1: 36 2: 40

CODE	ITEM	QTY	PHOTO
1:S-100-036000-1	1# CONE	1	
2:S-100-040000-1			
1:S-100-036000-2	2# CONE	1	
2:S-100-040000-2			
1:S-100-036000-3	3# CONE	1	
2:S-100-040000-3			
1:S-100-036000-4	4# CONE	1	
2:S-100-040000-4			
1:P-005-100000-0	COMPLETE QUICK RELEASE NUT	1	
2:P-005-100040-0			
1:P-100-400000-0	THREADED SHAFT	1	
2:P-828-400000-0			
Y-032-020829-0	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	

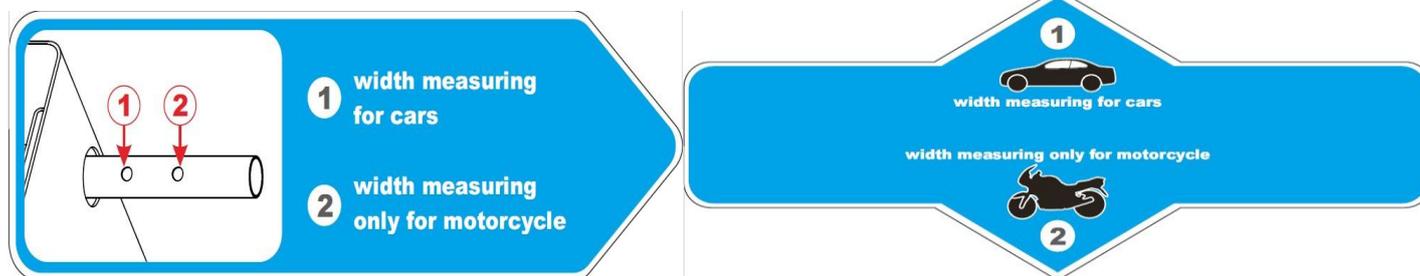
For one item with two codes, please select as per Specification Options, or select by measuring real object.

Attach figure 1 System circuit diagram



Note:

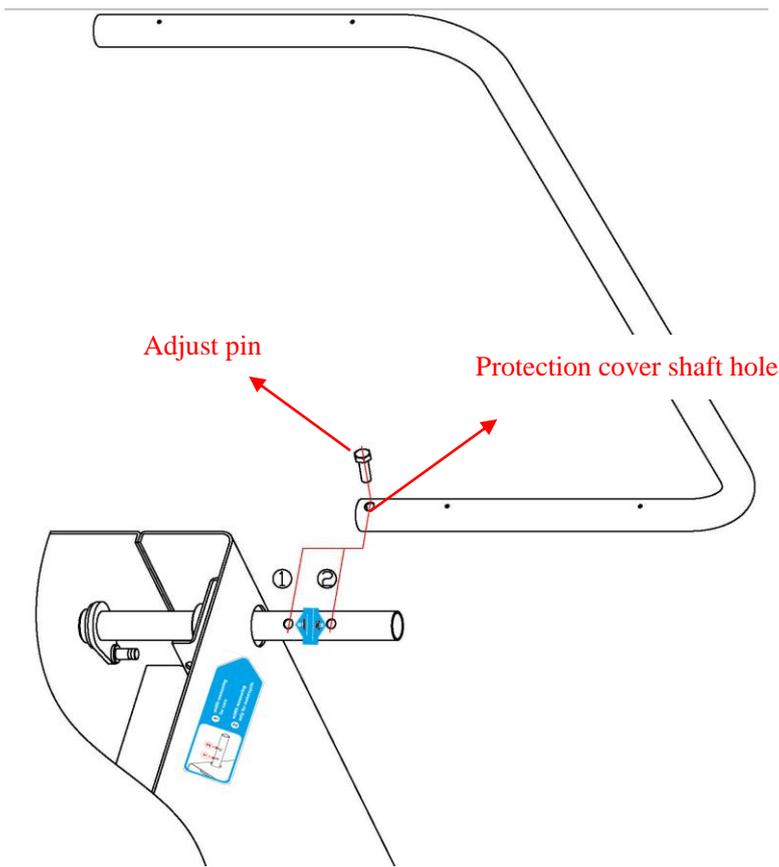
- Fix on hole ① is **only** used for measuring cars' width
- Fix on hole ② is **only** used for measuring motorcycle width



Operation guide:

- When balancing the cars' wheel, please confirm that the protection cover shaft hole matches with hole ①, and fixed tightly with adjust pin; Width measuring scale can measure car wheel width correctly.
- When balancing the motorcycles' wheel, the machine is assembly with motorcycle adaptor, please confirm that the protection cover shaft hole matches with hole ② (take out the adjust pin, move the protection cover shaft towards left and fixed tightly with hole ②); Width measuring scale can measure motorcycle wheel width correctly.

Caution: match the protection cover shaft on the correct hole, otherwise may cause the scale measuring data inaccurately.



Space for notes:

Space for notes:

Space for notes:



The company

Twin Busch GmbH | Amperestr. 1 | D-64625 Bensheim

declares hereby, that the **wheel balancer**

TW F-95 (U-895)

serial no.

in the configuration placed on the market by us, meets the relevant safety and health requirements, as required by the following EC directive(s) in it's/their current version(s).

EG-directive(s)

2014/30/EU EMC directive

Applied harmonized standards and regulations

EN 61000-6-2:2005/AC:2005, EN 61000-6-4:2007/A1:2011, EN 61000-3-2:2014, EN 61000-3-3:2013

CE Certificate

CE-C-0612-16-105-01-3A

date of issue: 01.07.2016
place of issue: London
technical file no.: TF-C-0612-16-105-01-3A

Certification body

CCQS UK Ltd.,
Level 7, Westgate House, Westgate Road,
London W5 1YY UK
Notified Body Appointment No. 1105

Any alteration to the equipment, improper use or installation void this declaration.

Authorized person to compile technical documentation is: Michael Glade (adress as below)



TWIN BUSCH GmbH
Amperestr. 1 • 64625 Bensheim
Tel. 08251 / 70585-0 • Fax: 70585-29

Authorized signatory: Michael Glade
Bensheim, 21.03.17 Qualitätsmanagement

Twin Busch GmbH | Amperestr. 1 | D-64625 Bensheim
twinbusch.de | E-Mail: info@twinbusch.de | Tel.: +49 (0)6251-70585-0

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<https://www.youtube.com/watch?v=l3Dtb9H-Sk&feature=youtu.be>



***Twin Busch
App***



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Twin Busch GmbH | Amperestraße 1 | D-64625 Bensheim
Tel.: +49 (0) 6251-70585-0 | Fax: +49 (0) 6251-70585-29 | info@twinbusch.de