

USER'S GUIDE

Wheel Balancer R90

*Quality
Service*

Catalog

1.	Signs of applicaion.....	3
1.1	Signs of document.....	3
2.	User references.....	4
2.2	Hints of safety.....	4
3.	Products description.....	5
3.1	Use in accordance with the regulations	5
3.2	Prerequisite	5
3.3	Supporting Accessories	5
3.4	Products introduction	6
4.	Technical Parameter.....	7
4.1	R90 Technical Parameter	7
4.2	Size and weight	7
4.3	Application Scope	8
5.	First start test.....	8
5.1	Open the package	8
5.2	Installation.....	8
5.3	Install the knapsack.....	9
5.4	Installation of a tire shield.....	9
5.5	Circuit Connection	10
5.6	Gas path connection.....	10
6.	Fix and dismantling wheel.....	11
6.1	Fix wheel.....	11
6.2	Dismantle wheel.....	12
6.3	The model balances large trunk wheels	12
6.4	Fix、dismantle large model of truck wheels	13
7.	Program Structure	15
7.1	Operation area/display area.....	15
7.2	Operating button	16
7.3	Fuction transformation combination key	16
7.4	Balance program	17
7.5	Standard program of wheel data entry	17
7.6	Wheel data input in ALUS state.....	19
7.7	Lower laser guidance function.....	19
8.	Balance wheel	20
8.1	Measurement of imbalances	21
8.2	The application of the balanced lead block.....	21
8.3	Fixed clip type balance lead.....	24
8.4	Fixed pasting balance lead	25
9.	Minimization of imbalances (OPT)	25
10.	Settings.....	26
11.	Fault	26
12.	Repair.....	27

12.1	Cleaning and maintenance	27
12.2	Self correction	28
12.3	Self-examination	30
12.4	Structure and adjustment of pressure sensor	30
12.5	Adjust the tension of the belt	31
12.6	Replacemnt of fuse	31
13.	Shutdown	31
13.1	Temporary Shutdown	31
13.2	Change place	31
13.3	Elimination of waste and waste destruction	31
14.	Aerodynamic schematic diagram	32

1. Signs of application

1.1 Signs of document

1.1.1 Warning hints — structure and definition

Warning hints are used to warn users or people standing around. In addition, warning hints describe dangerous consequences and preventive measures. The warning hints are composed of the following:



Safety Warnings — Safety warning sign on equipment

Ignoring safety warning signs may bring dangerous consequences

➤ Avoid dangerous measures and tips. Avoid dangerous measures and tips. .

Safety warning, warning of danger occurrence probability and severity of danger under caution.:

Safety Warnings	Probability of occurrence	Risk severity, which may lead to neglect
Dangerous	A direct and fatal danger	Death or serious injury
Warning	Possible danger	Death or serious injury
Be careful	A potentially dangerous situation	Minor wound

1.1.2 Symbolic representation in a document

Symbol	Names	Definiton
!	Be aware	Warning of possible loss of property
i	Information	Use instructions and other useful information
1. 2.	Multistep operation	An operation guide made up of multiple steps
➤	One step operation	An operation guide made up of one step
⇨	Medium-term results	The medium-term results can be seen in the operation guide
➔	Final result	The final results can be seen at the end of the operation guide

1.2 Product surface signs

! Pay attention to all the warning signs on the surface of the product

Danger — Pay attention to electricity



Touching electrical parts (such as main switches, circuit boards) can cause electrical shocks and cause damage.

- Only an electrician is allowed to operate
- It is necessary to cut off the power supply before the machine is disassembled



Tire rotation direction

The wheel must rotate in the direction of the diagram

1.3 Warnings



Please wear goggles!



Please read the instructions before using the machine



The equipment rotates, careful to hurt the hand

2. User reference

2.1 Important hints

Before using the balance machine, please read the instructions carefully. If you have any questions, please consult with the manufacturer. Do not blindly operate. Please keep the instruction manual for future reference.

2.2 Safety tips


- 2.2.1 Only those who have been properly authorized and trained can operate the machine.
 - 2.2.2 Operators should not wear neckties, long hair, loose clothing, tire rotation, operators should stand on the side of the machine, and no operator should be near.
 - 2.2.3 It is not allowed to modify the machine without authorization, and can not remove the safety device.
 - 2.2.4 It is not allowed to move the rotating shaft when handling, installing and using the machine, otherwise, it will cause permanent damage.
 - 2.2.5 In areas with unstable power supply, the use of regulated power supply is recommended.
 - 2.2.6 Should not exceed the scope of the use of the machine in the process of
-

use.


- 2.2.7 This machine requires reliable grounding. Please cut off the power supply during maintenance.
- 2.2.8 Before balancing operation, make sure that the wheels are securely locked on the chuck.
- 2.2.9 All electrical installations should be carried out by a professional electrician
- 2.2.10 This machine must be connected to the prescribed pressure source in use.

3. Product description

3.1 Use in accordance with the regulations

This machine is used in wheel balancing machines for vehicles and trucks (rim diameter of 13-24 inches, rim width 4-20 inches). It is only allowed to balance wheels, and it is not allowed to be used for other purposes only in the functional area specified in this instruction. 

3.2 Prerequisite

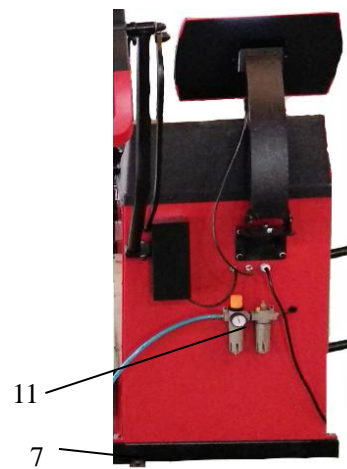
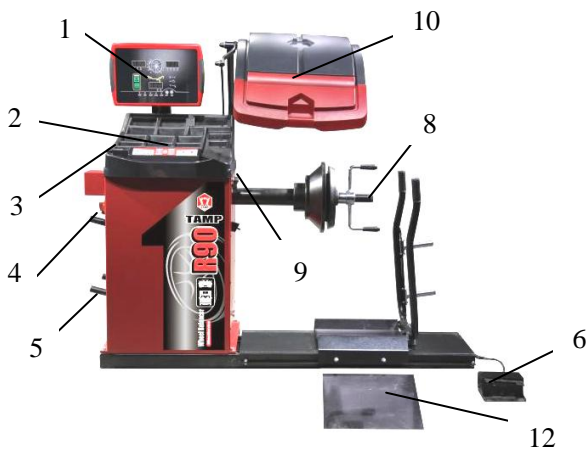
The R90 balancing machine must be fixed on a flat cement floor or similar material base with expansion bolts. 

3.3 Supporting Accessories

Name	Order number
Great flat double cone	05020010017
Great flat double cone	05020010018
2 flange plate	05020070018
Daping 2 cone	05020010013
Daping 2 cone	05020010014
Multi wedge belt	020403005
Locking weldment (locking nut)	05020120013
Inner hexagon spanner 3mm	022102004
Inner hexagon spanner 5mm	022102009
Inner hexagon spanner 6mm	022102002
Inner hexagon spanner 8mm	022102035

Inner hexagon spanner 10mm	022102022
A balance weight	022102005
Lead block 100g	022102006
Lead block 150g	022102014
Lead block 200g	022102015
Lead block 250g	022102016
Lead block 300g	022102017
Lead block 350g	022102018
Lead block 400g	022102019
Lead block 450g	022102020
Lead block 500g	022102021
Lead shovel	020601105
Internal six angle cylindrical head screws	030201082
Calipers	020601004
Daping 5 cone	05020010016
cone 2	05020010037
cone 3	05020010038
cone 4	05020010039
Fast nut	020601279
Reverse bowl apron	020101001
Small reverse bowl	020601002
taper spring	020601004

3.4 Products Introduction



Loc.	Name	Function
------	------	----------

1	Display area	Display measurement results
2	Key control board	Operating R90 balancing machine
3	Lead cover	Store balance heavy blocks and accessories
4	switch	Turn on and off power
5	Tooling handle	Hanging fittings
6	Lift pedal	Control the rise and fall of the lifts
7	Fixed foot	Fixed machines and mounting holes in the ground
8	Spindle screw	Installation of tires and measurement
9	scale	Identification of rim spacing and rim diameter
10	Tire cover	<ul style="list-style-type: none"> ● Protect operators from damage from flying objects (e.g. dirt, water). ● Close down starts the measurement, when pulls up stops the measurement.
11	Oil mist	Gas source input of lift truck
12	Bridge plate	Convenience tires up and down lift truck

4. Technical parameter

4.1 R90 Technical parameter

Function	Technical Specifications
Motor Revolution	160rpm
Measurement resolution	Big car model + 25g, car model + 1g
Noise Level	Less than 70db
Power	300W
Voltage	Reference to the specified voltage on the nameplate
Protection grade	IP22
Working Pressure	0.6-0.8Mpa
Equilibrium period	10s
Working Condition	Temperature 0°C – 50°C
Altitude	<1000m
Storage and transportation	Relative humidity:20%-95% ; Temperature :-10°C-+60°C

4.2 Size and weight

Function	Technical Specifications
Packing size (height × Width × length)	1550×900×1900


4.3 Application scope


Function	Technical Specifications
Rim width	4 inch—20inch (Containing cars and wagons)
Rim diameter	13inch —24 inch (Containing cars and wagons)
Maximum wheel diameter	1200mm
Maximum wheel weight	150kg

5. First start test

5.1 Open the package

1. Remove the packing belt
2. Carefully remove the packing box
3. Take out the accessories and the inside packing material

 Check whether the machine and accessories are in good condition and whether there are damaged parts. If there is a problem, please do not start debugging, immediately contact with the customer service department.

 The packaging materials are transferred to the corresponding recycling department for disposal.

5.2 Installation

1. Release bolt of fixed machine on pallet



Warning—Damaged or wrong sling !

R90 Abscission has a risk of injury

- Check the damage of the sling material before installation
- Tighten sling
- Carefully hoisted R90

2. R90 It is not allowed to lift the spindle in any case. After lifting the sling, place it in the pre selected area, and pay attention to the minimum space required.

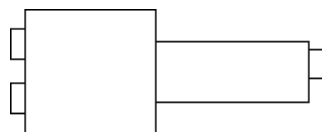


Illustration: Balancing machine

For safe use of R90 and consideration of convenient operation, it is recommended that the machine be installed at the distance from the 500mm of the wall.

3. The R90 must be fixed on the ground with expansion bolts. If it is not fixed, it will cause measurement error.

5.3 Install the knapsack

- Fix the backpack with three bolts to the machine and install the side cover.

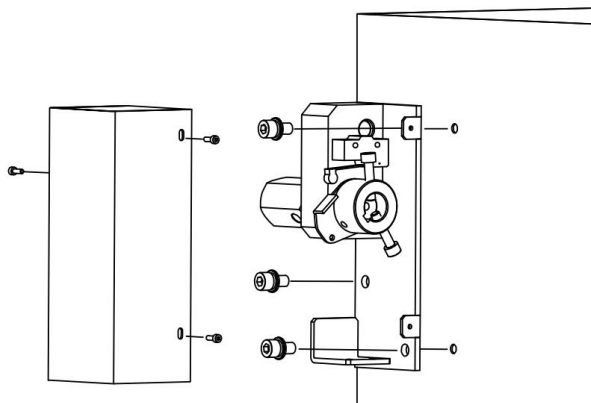


Illustration: knapsack installation

5.4 Installation of a tire shield

1. Mount the tire cover on the knapsack shaft and fix it with screws.

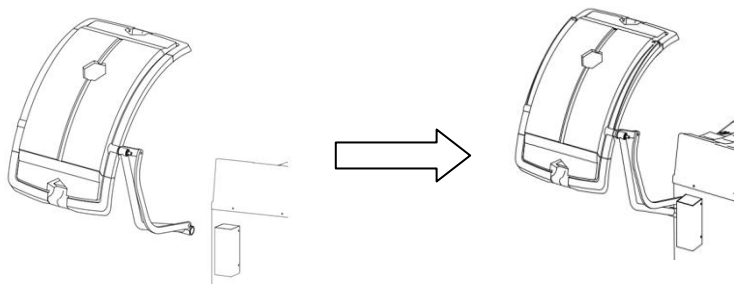


Illustration: protective cover

5.5 Circuit connection

! Only when the power supply is consistent with the rated voltage specified on the nameplate can R90 be connected to the power supply.

1. Check whether the supply voltage is consistent with the specified voltage on the nameplate.
2. Refer to the local specifications of the machine to ensure that the R90 power interface and the customer's power interface conform to the specifications.
3. Connect power
4. Connection display panel and air joint of box
5. Connection knapsack and aero plug joint



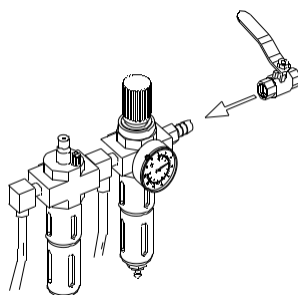
Illustration: display panel connecting aero plug



Illustration: connect the backpack aeronautical plug

5.6 Gas path connection

- ☞ The equipment must be well grounded. Do not connect earth wires to incorrect components such as heating pipes, water pipes, telephone lines, etc.
- ☞ It is confirmed that the compressed air source meets the requirements of the equipment. It has this technical parameter. The pressure and flow of the gas source should be in accordance with the operating requirements of the equipment. The pressure should be at 0.6-0.8bar.
- ☞ The gas triplet (water separator, pressure regulator, oil mist) on the side of the equipment is connected with a special pipe. Confirm that the oil in the oil injector has been filled up to the standard oil content. The professional SAE20 oil must be used in the mist sprayer, otherwise the gas path system will not be lubricated, and the seals may be damaged in a short time.
- ☞ The user must install a gas shut-off valve and a pressure regulating valve in front of the equipment.



6. Fixed and dismantling wheels



Warning— Wheel slipping

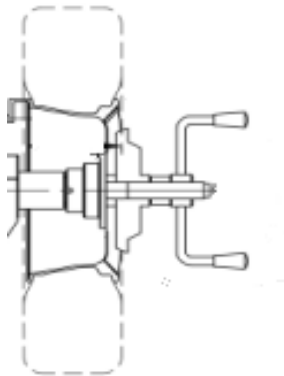
Danger of crushing fingers and other parts of body when fixing and removing wheels

- Wear protective gloves
- Wear protective goggles
- Do not place your fingers between the wheel and the axle.
- Heavier wheels should be installed by two people


6.1 Fixed wheel

6.1.1 Positive positioning

1. Put the wheel (rim mounting facing) to the screw rod.
2. Put the right cone (in a small head)
3. Clockwise locking nut



Illustrations: positive positioning

 The positive positioning is a common positioning method. It is easy to operate and is suitable for ordinary steel ring and thin aluminum alloy ring. This position is suitable for the small diameter of the center hole of the measured tire.

6.1.2 Reverse positioning (used not to install flanges)

1. Put a spring on the wire rod (the head inward)
2. Put the right cone (small head to the outside)
3. Put the wheel (rim mounting facing) to the screw rod.

- 4、 Fast nut mounted reverse bowl
5. Push the lock nut onto the screw rod by pressing the quick clamping device.
- 6、 Loosen the clamping device and tighten the lock nut clockwise.

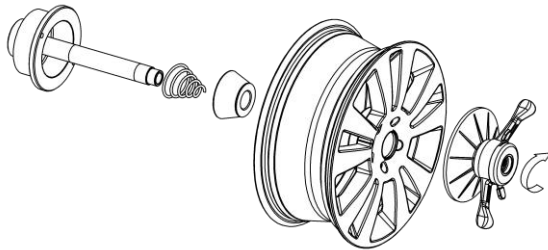
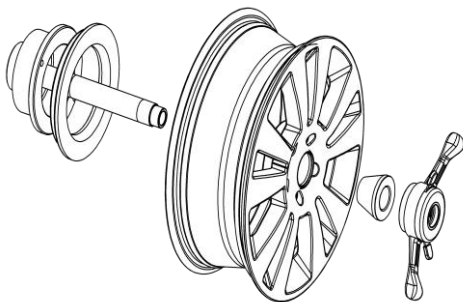


Illustration: reverse positioning

📌 When the deformation of the center hole of the tire is larger, the reverse location is adopted to ensure that the inner hole and the spindle of the steel ring are accurately positioned. It is suitable for steel rings, especially when measuring thick aluminum alloy rings.

6.1.3 Special flange position

1. The flange is fixed to the screw plate with random attached screws.
2. Put the wheel (rim mounting facing) to the screw rod.
3. Put the right cone (small head to the outside)
4. Push the quick nut to the screw rod by pressing the quick clamping device.
- 5、 Loosening the clamping device and tightening the fast nut clockwise



Illustrations: special flange positioning and mounting wheel

📌 This positioning method is suitable for tyre mounting of the center hole of the wheel beyond the diameter of the spindle matching device.

📌 Flanges and spindle matching devices are marked with "0" marks respectively, and two "0" marks are aligned.

6.2 Disassemble the wheel

1. Swirling fast nut with counter clockwise direction
2. Loosen and remove the locking nut while holding the wheel with your hands.
3. Dismantle the wheel

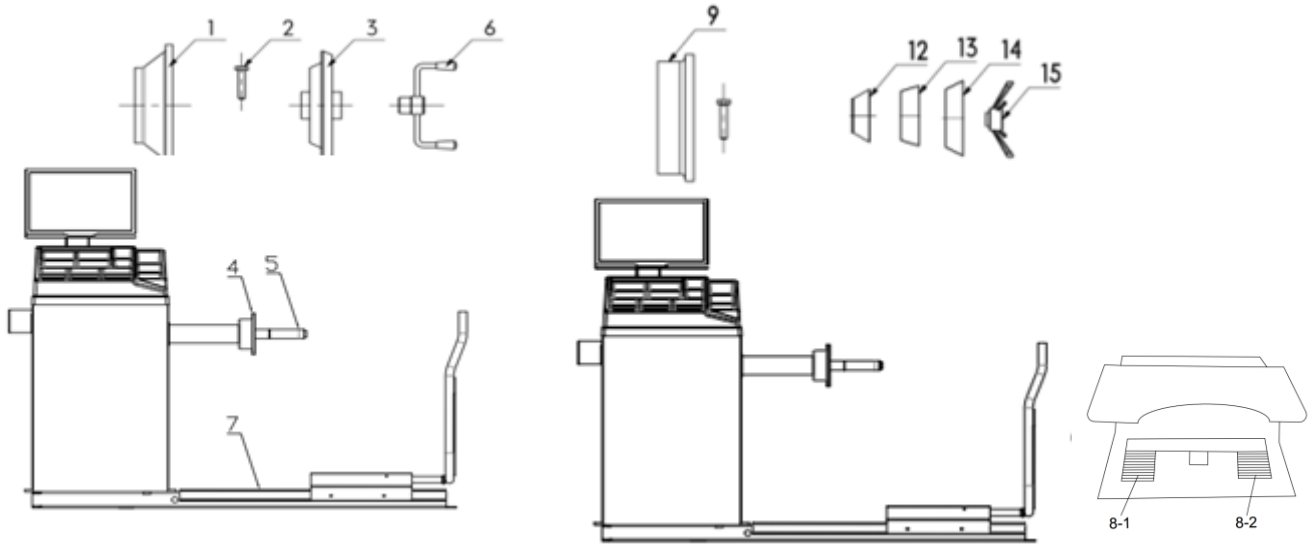
6.3 This model is balanced for large truck wheels



Warning — Wheel rolling

Danger of crushing fingers and other parts of body when fixing and removing wheels.

- Wear protective gloves
- Wear protective goggles
- Do not place your fingers between the wheel and the axle.
- Heavier wheels should be installed by two people



1—Big plate

2—Bolt

3—Double sided cone

4—Spindle iron bowl

5—Spindle screw

6—Lock nut

7—Lift truck

8-1、8-2—Lift pedal of rise and fall

9—Small plate

12—Cone with number 3

13—Cone with number 2

14—Cone with number 1

6.3.1 The flange (9) and the matching device (4) are connected by bolts (2).

6.3.2 According to the size of the balanced tire, choose different cones, small plates (9) and large cones (12~14).

6.4 Installation and removal of large truck wheels

- 6.4.1 First, (1) connect the large pan with (4) iron bowl through (2) screws.
- 6.4.2 Pull the sliding car to the right position and push tire onto the sliding car for balancing.
- 6.4.3 According to the foot (8) icon to indicate the operation, Step up the rising foot to raise the lift car .The radial center of the tire and the main shaft ,The heart is high, stop lifting.
- 6.4.4 Push the sliding car to the left to make the hub stay (1), and then select the suitable cone according to the size of the inner hole. The (3) cone will be locked through the main shaft by the inner hole of the tire, and then lock it through the lock nut.
- 6.4.5 Step on the pedal (8-2) pedal, the car falls to the original position.
- 6.4.6 After the balance operation, the raised car will stop at the first rise height, push the car to the bottom of the tire, unload the lock nut, the cone, pull the sliding trolley to the right position to the left, avoid the spindle, step on the pneumatic valve foot, drop the car down to the initial position, push the tire down the car and push the small car to the right position.
- 6.4.7 According to their own business situation, we can decide whether to unload (1) the market.

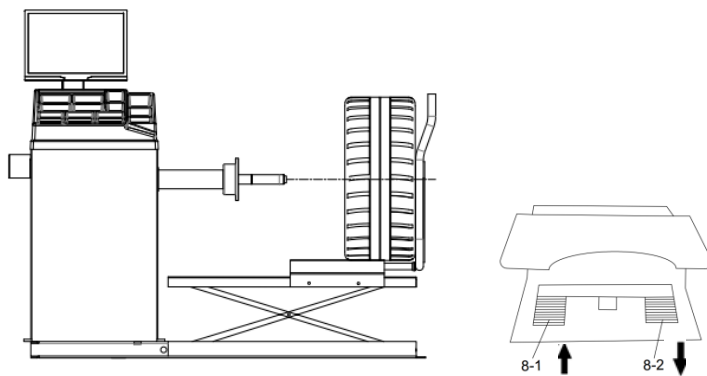


Illustration: foot control to control lifting and descending

- 📌 When tyres are overweight, it is necessary to use the approach plate when pushing the tires to the lifting vehicle.
- 📌 When tyres are lifted, it is not easy to push the tyres up and down, and the tyres will be washed away, resulting in the loss of trucks.

7. Program structure

7.1 Operation area / display area

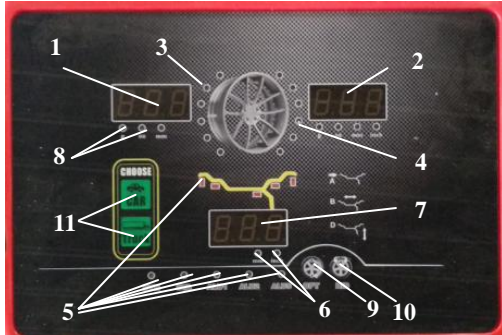


Illustration: Control panel LED

location	Instruction
1	Left side display, showing tire inner imbalance value or reference. Distance from size A
2	The right side display shows the unbalanced value or diameter of the tire outside. D size
3	Indication of internal unbalanced position (inside with key indication)
4	Lateral imbalance position indication (lateral key indication)
5	Balance function and balance method instructions
6	"Millimeter / inch" switch display
7	Intermediate display, showing static balance value and rim width dimension. And paste the lead block instructions
8	"Gram / ounce" switch instruction
9	OPT function indication
10	Spokes decomposition function indication
11	Model conversion of large car

🔧 After opening the R90 power switch, the device code will be displayed on the display screen, and the three display windows will display "1428.2 22.5" respectively.

➔ Started successfully

🔧 According to the MODEL key to change the trolley mode, the device code will be displayed on the display screen, and the three display windows will display "805.715" respectively.

➔ Started successfully

7.2 Operation key

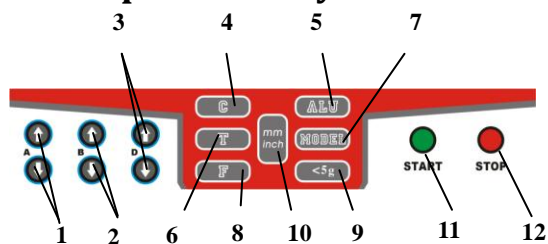













Illustration: operation key

Locat ion	name	instruction
1	A	Manually enter the reference distance dimension key A, press arrow to rise, increase the input size, decrease according to arrow, and reduce input size.
2	B	Manual input size B, increase according to arrow, input size increase, press arrow drop, input size reduce.
3	D	Manual input size D, increase according to arrow, input size increase, press arrow drop, input size reduce.
4	C	Correction key / reset key
5	ALU	Selection key for dynamic balance measurement of aluminum ring
6	T	Test key for the balance machine computer board test
7	MODEL	Large-small car mode conversion key
8	F	Static balance function conversion key
9	<5g	The unbalance value of a key display less than 50g)
10	mm/inch	Millimeter - Inch switch display
11	START	Press the button to start
12	STOP	Press the button to stop






! Keys can only be pressed with fingers, not with other sharp objects.


7.3 Convert function combination key


Combination key	Instruction
 + 	K oz conversion key
 + 	The protective cover is opened or closed
 + 	Correction of the A and D values of the internal drawing tape
 + 	Weight Correction
 + 	Decomposition and concealment of imbalance to the back of the rim spokes

 After shutting down all converted functions will be saved.


7.4 Balance program

Signs	Explanation
	DYN: Dynamic balance, balance block on both sides of wheel rim, balance steel rim and aluminum alloy rim.
	STA: Static balance, static correction for motorcycle tires or on both sides can not add balance block when used.
	ALU1: Balancing the alloy rim and sticking the balance block inside and outside
	ALU2: Put the lead block on the inside, paste the lead on the inside
	ALUS: Paste the lead in any position on the inside of the rim

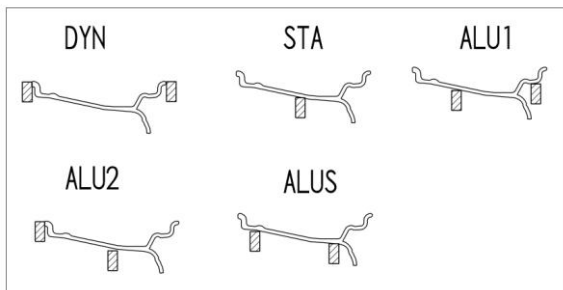
 The static balance is recommended for the wheel under 3.5 inches wide. Static balance is only used to remove the static unbalance on the side of the wheel or in the middle of the wheel. The unbalanced result is only related to the diameter of the wheel and is independent of the other parameters.


 Press the "F" button to choose the static balance method, press the "ALU" button to select other ways.

→ The LED display light can display the state of every balance mode.

 According to convention, the inner side of the tire is near the side of the chassis; otherwise, the outer side of the tire is away from the chassis side.

7.5 Standard program wheel data entry



 The process of wheel data entry depends on the selected balance procedure.

To achieve the balance of wheels, we must input the following parameters for the wheels.

➤ Rim spacing: the distance between the wheel and the balancing machine fuselage.

- The diameter of the rim of the wheel: the rated diameter of the tire
- Rim width: in the standard procedure, the width of the rim.

7.5.1 Automatic measurement of rim distance and rim diameter

1. Pull the ruler, make the top of the ruler head to the inner edge of the tire, keep the motion, confirm the measurement results after hearing the hint, and make the ruler return to zero, and the display window will show the measurement result.

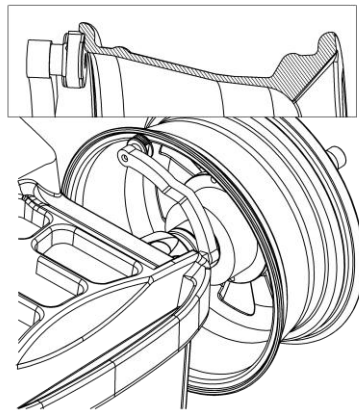


Illustration: placing an automatic

- 🔊 Confirm acceptance of the position with a hint
- ➡ The left window shows the "A" distance from the rim to the box.
- ➡ 🔊 The tire width is manually entered through the keyboard

2. Manual input of rim data

Pull the scale on the rim, read the scale on the scale, and then use the keyboard A, B, and D keys to modify the data and enter the structure size of the rim.

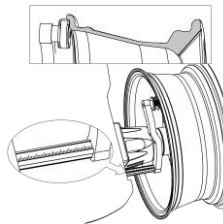


Illustration: reading scale value

- 🔊 The diameter of the rim is usually visible on the top of the tire, if not ,

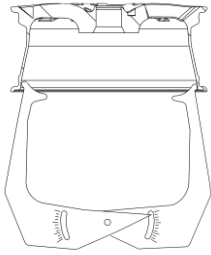


Illustration: measuring the rim diameter

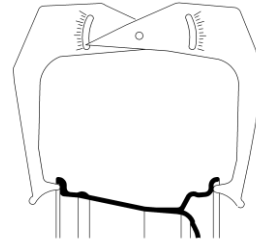




Illustration: measuring wheel width

 The rim width can be measured by a caliper

→ All required tire data have been tested

7.6 Wheel data input in ALUS state

 The process of wheel data entry depends on the selected balance procedure.

In order to balance the wheel, we must input the following parameters for the wheel.

- Rim spacing: the distance from the balance machine body to the inside balance point.
- Rim diameter: the rated diameter of the tire
- Width of the rim: the distance from the inside balance point to the outside equilibrium point.

! The selected program determines the balance position

7.6.1 Automatic enter the balance method of ALUS

1. Pull the ruler to the first position where you want to paste the lead piece inside, and wait for the prompting confirmation.
2. Do not return the drawing ruler, continue pulling the pull ruler to the second position of sticking the lead block inside the rim. Wait for the prompting sound to confirm, then pull the ruler back.

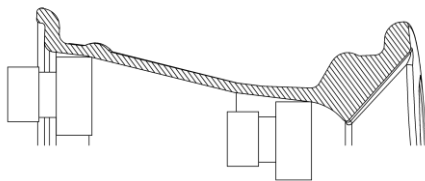



Illustration: automatically enter the ALUS balance mode

 The program will automatically enter the ALUS balance after completing the above operations.

 Through the ALU key, you can also choose to enter the ALUS balance mode.

7.7 Lower laser guidance function

7.7.1 Function

The machine designs and installs a laser guidance function under the main axis. Its function is to directly calibrate the position of the axis below the 6 o'clock position.

7.7.2 Usage method

7.7.2.1 Factory setting

When the balance machine is sending out from the factory ,the laser pointer function is set to a closed state. If you need to use the laser guidance function, you need to set it up according to required steps.

7.7.2.2 Lower laser opening function opening setting

First step: Press C first and press T button to enter the interface of the correction program. When the phase lamp is not flashing and loosening the key.

Second step : Press both keys of A size input button's ↑ than press the key of ↓ , at last press the ALU key to enter the interface of the program.

Third step : According to the A size input key 's' ↑ , select fifth item of the program. The display panel on the left side of the display panel displays the LAS right window displays OFF, According to the B size input key ↑ to the right side window to on, then press A size input button ↑ to close the program internal setting interface, the laser guidance function setting is completed.

7.7.2.3 Precautions for using the lower laser guidance function

At the beginning of the laser function, after the balance machine enters the fixed pattern, the balance machine needs to turn the measured tires to make the inside or outside phase lights on the display board after each time the balance of the measured tire is unbalance. The lower laser refers to the 6 o'clock position below the main shaft.

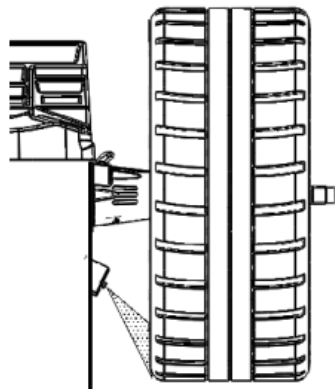


Illustration: lower laser guidance function



- 1、 When the laser guide is opened, it is impossible to paste lead blocks with internal automatic gauge.
- 2、 When the current laser guidance function is opened, the program will automatically convert to the input size interface when the fixed pattern of the lead block is fixed and then the lead block is pulled. This will facilitate the input of a number of measured tires in the fixed pattern of the lead block.
- 3、 After the laser guidance function is switched on, the phase points of all the fixed modes of the balancer are all at the 6 o'clock position of the spindle.

8. Balance wheel

When turning on the balance machine defaults to big car balance mode, for balance car tires, please press MODEL to switch to small car mode.





Warning—Wheel not balanced

Changes in the technical performance of vehicles will bring people danger of bodily injury

- R90 must be fixed to the ground level
- Use the prescribed parts
- The rim must be clung to the main shaft flange to remove the dirt
- Check and measure after installing the balance block

8.1 Measurement of imbalances


 Only when all the settings are matching with the wheels which are prepared to the test , then allowed to measure the dynamic balance of the wheel.


 Can stop measuring at any time

—Press “STOP” button


—Open wheel protective cover

1. Close wheel protective cover


 Automatically conduct dynamic balancing measurement

 At the end of the measurement, the weight required to reach the balance will be displayed on the display screen: the upper left side window of the panel shows the balance of the inner side of the tire, and the upper right side window of the panel shows the balance of the outer side of the tire.

2. Open the wheel protection cover and finish the measurement

 Before measuring the imbalance, remove the dust, dirt and other objects on the tire, check whether the tire pressure is in accordance with the specified value, check the rim location and the mounting hole to be deformed and remove the original balance block.


8.2 The application of the balanced lead block

 After balancing the lead block, the unbalance must be re measured to check whether it has been balanced.

8.2.1 Standard procedure for clip type balanced lead and paste balanced lead blocks

Fix balance lead blocks inside the machine.


1. Manual rotation of tires

 The accurate position of the balanced lead block is set up, that is, the inner phase indicator light is fully lit up, and a warning tone is issued while the main shaft is locked by the brake.

2. If the clip type balance lead block is used, the clip type balance lead block corresponding to the inside display window value is pinch at the top (12 o'clock position) on the inside of the wheel, and the stickable balance lead block is pasted with the automatic scale.

Fix balance lead blocks outside the machine.

1. Manual rotation of tires

 The accurate position of the balanced lead block is set up, that is, the lateral phase indicator lights are all lit up, and a warning sound causes the spindle to be locked by the brake.

2. If the clip type balance lead block is used, the clip type balance lead block corresponding to the outside display window value is pinch at the top of the wheel (12 o'clock position). For the sticker balance lead block, the automatic scale is used to paste.

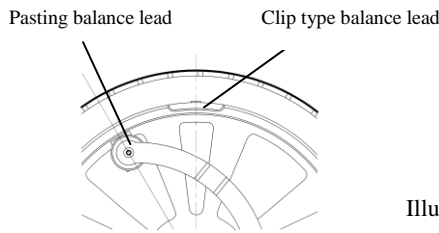


Illustration: put a balanced lead block

8.2.2 ALUS Balance method

- ▮ Sticking position of balance lead block is determined by the geometric position of the automatic ruler.
- ▮ The inner gauge on the left side of the display panel should be weighed with the weight of the balance lead block. The weight of the balance lead should be pasted on the right side.

1. Manual rotation of wheel
 - ⇒ The accurate position of the balanced lead block is set up, that is, the inner phase indicator lights are all lit up, and the indicating sound causes the spindle to be locked by the automatic device.
1. Put corresponding weight of the balance lead block on the scale head, pull the drawing ruler, when the left window shows "- mouth", and there is a hint sound, the position of the ruler head, the position of contact with the scale head is the unbalanced phase point.

- ▮ Paste the balanced lead block, the two sides of the tire are completed the same way.

8.2.2.1 STA Balance method

Select according to the "F" key switch STA mode to rotate by starting key, after the tire stops the middle window after the numerical value, rotating tire to the indicator light is all bright, according to the value to prepare the lead put to pull the ruler to pull the ruler, according to the right window countdown data, when the value is zero, paste the lead block.



Illustration: STA Balance method

- ▮ Static balance — Static correction is adopted when the balance block can not be added on both sides of the

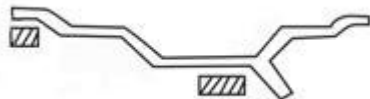
8.2.2.2 ALU1、ALU2 Balance method



Illustration: ALU1 Balance method

ALU1 — Balance the alloy rim, paste the balance block inside and outside the strip.

First enter the three parameters of the tire according to the DYN mode, then select the ALU1 mode according to ALU, then measure the tire. After the imbalance is shown, the rotating wheel makes the inner phase indicator light after the full light and stickup the corresponding paste on the inner wall of the measured rim is above the main axis (12 o'clock), and the position of the outer stickup of the lead block is the same as above. Until the indication window is out of balance, the data are returned to zero in and out of the data.





ALU2 - Lead block clamped inside , stick lead block inside.

Illustration: ALU2 balance method


- ① 、 Press ALU and select ALU2 balance mode, pull the ruler first to the fixed position of the inside clip and wait for the sound, and then continue to pull the ruler to the inside of the rim to wait for the position of the automatic measure.
- ②、 After the balance machine is measured and the internal and external display window shows the imbalance, the rotary tire makes the inner phase indicator light all up to install the clip type lead block of the corresponding weight on the top of the spindle (12 o'clock) the rim of the wheel to clip the lead block position. After turning the tire to make all the outside phase indicator light up, the corresponding weight is pasted on the lead block on the drawing end, and when pulling the drawing ruler to the middle display window display (- the mouth), the sticking lead block is pasted up on the inner wall of the rim, and then the automatic drawing ruler is put back, and the balance machine is started to be measured until the inside and outside display window display. The value is zero.

8.2.3 Split balanced lead block (HID program)

 Under ALUS working condition, we can use the unbalance to separate the balance lead blocks and hide them behind the rim in order to balance wheel.

 If you want to use unbalanced decomposition to split the balance lead, you need to press the "T+OPT" key after the measurement is complete, and when the HIDE indicator on the panel is on, the HID function runs.

1. Press "T+OPT" button

 Display window B displays 12h information

2. Turn the tire until the outer phase light is on, press the "ALU" button to confirm.

3. The window B displays "- 1", turns the tire, adjusts the spoke on the left side of the imbalance phase point to the 12 position on the top of the spindle, and confirms according to the "ALU" key.

4. The window B displays "- 2-", rotate the tire, adjusts the spokes on the right side of the unbalanced phase point to the 12 position at the top of the spindle, and confirms the button according to the "ALU" key.

5. The window B shows "SPD". At the same time, two unbalanced points are decomposed on the outside side, the

outer phase light is full (left spoke), and the brake locking balance shaft.

6. Put the corresponding pasting balance lead block on the scale head, pull the drawing ruler, when the B value window shows "- — □", and the hint sound is sent out, the pendulum momentum is attached to the lead block.

7. Continue to manually turn the wheels to secure another balance block behind the spoke.

⇒ Repeat fifth and sixth

8.3 Fixed clip type balance lead

📌 In order to locate clip type balanced lead blocks, a balancing hammer is needed.

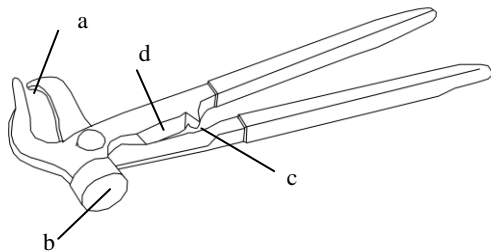


Illustration: Balancing hammer

- a. Balance hammer tongs
- b. Hammerhead
- c. A pegged rolling tank
- d. Metal scissors

1. Find the right position of balance counterweight and put a clip type balance lead on the rim of rim.
2. A balance hammer is fixed to the rim of the rim with a balance hammer

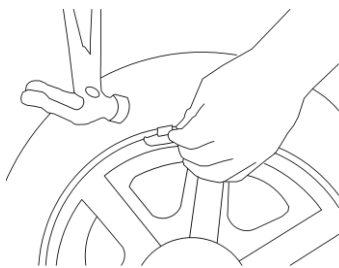


Illustration: fixed balance block

📌 Removing the clip balance lead requires the tip of the counterweight jaw.

📌 When finish balance and remove the tire, be careful not to hit the spindle.

8.4 Fixed pasting balance lead

1. Put the balance lead block that balances the required weight into the ruler of the automatic ruler.
2. When pulling the ruler to the B value window to display the "—□", it is accompanied by the prompting single tone.
3. Turn the measuring ruler and let the probe close to the wheel, so that the balance lead will be pasted on the wheel.

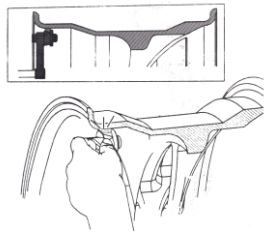


Illustration: a demonstration of the use of a balance block on the inside of a tire

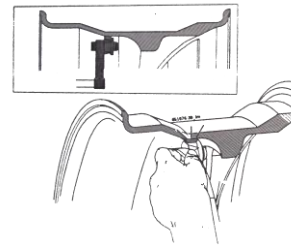


Illustration: a demonstration of the use of a balance block on the outer side of a tire

- ☞ To remove the original paste lead blocks on the tire, it is necessary to use the random lead block shovel, instead of other sharp objects, so as not to damage the rim.

9. Minimization of imbalances OPT)


The minimum degree of imbalance (OPT) is the optimization of tire and rim matching. Usually, when the static unbalance of tire is greater than 30g, OPT function is recommended.

1. According to the "STAR" key, after a measurement is completed, the above two window values are larger than 30g, and the following window displays the "OPT", then the operation enters to OPT function
2. Rotate the tire to the inside unbalance point, press the "OPT" key, and the lower digital tube window displays "180". At this time, outside the rim and the tire are marked in the same upper position, in order to make the OPT more accurate, and at the same time the corresponding marks are made in the cone and the spindle.
3. Remove the tire from the balancing machine, and make the rim and tyre rotate 180 degrees by dismounting operation on the tyre remover.
4. when the tire is inflated, re-install it on the balancing machine, and mark the marks of the rim, cone and spindle (the difference between the markings on the tire and these marks is 180 degrees).
5. Press the "STAR" button to start the balancing machine. When the spindle stops, turn the spindle to the inside indicator light, and make the correct mark at the top of the rim.
- 6 Turn the tire on the outside of the window with your hands and turn the indicator on. At the moment, make the correct mark above the tire.
7. Remove the tires from the balancing machine to the tyre remover, and rotate the tyres and rims through the tyre removal operation, so that the correct marks on the tires and rim are aligned.

→ Minimization of tire imbalances

10. Set up

Due to operational errors or other reasons leading to loss of program, the following adjustments can be made to restore the computer to work.


 Proper setting of machine parameters can ensure the balance accuracy of R90.


1. Hold the "C" button and hold the "T" key after half a second. The display window shows that the "CAL CAL CAL" phase indicator is all bright and flashing, and the button is loosened when the light is not flicker.
2. In sequence, press A key "↓", A key "↑", and "AUL" button, and the window displays "da.-", "000".

→ Display the parameter categories on the left side display, and the parameters on the right display.

Function	Press button
Change settings / values	B button “↑”“↓”
Enter the next setting	A button “↑”


Settings	左侧显示屏	右侧显示屏	说明
Scale compensation	da.-	000	D value compensation value of automatic scale
Buzzer switch	bee	on	Switch buzzer
Lower laser guidance function	LAS	OFF	Guide the paste position


 The value displayed on the right window is the standard memory value, that is, the default value. The memory value of the actual machine is different from the standard memory value.

 When the memory is lost or the computer board is replaced, the standard memory must be calibrated by the label attached to the machine.

! If the above operation is invalid, please contact the customer service department.

11. Fault

 Other possible operational failures, first of all technical problems, must be checked by qualified engineers, and no matter what happens, contact with the customer service department of the authorized TAMP distributor.

 It is very important to take prompt measures. When contacting the customer service department, it is necessary to explain the contents and types of the labels on the nameplate.

Fault	Reason	Remedial method
Starting up does not display	1. Fuse damage 2. Switch damage	1. Replace fuse 2. Replace switch
After opening the machine if it shows normal, but does not start and has buzz, displays Err1.	Failure of motor capacitor	Replace 20μ F/400V capacitor

Display Err1	Press “START” button non stop of the car	Check the power board, the computer board, the photoelectric board
Display Err2	<ol style="list-style-type: none"> 1. non clamp tires 2. Spindle and screw installation loosening 3. tire installation is wrong, unlocked 4. motor skin is too loose or too tight 	<ol style="list-style-type: none"> 1. operate after clamp the tire 2. reinstall the wire rod by 5.1 3. reload the tires by 6.1 4. adjust the belt (see)
Display Err3	The unbalance of the tire is too large	Test of change the tire and re - self - correction if necessary
Display Err4	Location sensor error	Adjust position sensor or replace
Display Err5	The wheel shield has not been put down	Put down the wheel guard
Display Err7	Memory data loss	Input memory value, re - self correction
Only display 00—00 Non numeric display	<ol style="list-style-type: none"> 1. sensor lead broken or bad contact 2. Memory storage loss 	<ol style="list-style-type: none"> 1. reconnect the sensor lead 2. Input memory value, re - self correction
The variation range of each rotation is more than 20g	<ol style="list-style-type: none"> 1. Tire has a foreign matter or mounting surface of the rim center cased deformation 2. Sensor dampness or locking nut unlocked 3. External power supply voltage is low 4. Lacking of tire pressure 5. Machines are not fixed 	<ol style="list-style-type: none"> 1. change the tire 2. Re-adjust sensor 3. Use voltage regulator 4. Fill pressure of tire 5. Fixed the machine with expansion bolts on the leveled cement floor.
No stopping time more than 10 seconds	<ol style="list-style-type: none"> 1. Bad external power supply of ground 2. Interference 	<ol style="list-style-type: none"> 1. Inspection of external power lines 2. Switch off, restart again.
The equilibrium value is inaccurate, and it is difficult to reach 00.	<ol style="list-style-type: none"> 1. Sensor broken 2. Program confusion 	<ol style="list-style-type: none"> 1. Change sensor 2. re -self correction
Don't brake after showing the value	<ol style="list-style-type: none"> 1. Damage of brake system 2. Outside interference 	<ol style="list-style-type: none"> 1. Replace the power board 2. Restart the machine
The two disassembly error is more than 100g	<ol style="list-style-type: none"> 1. Irregularities in the inner hole of the tire 2. Wire rod installation error 	<ol style="list-style-type: none"> 1. Test of tire replacement 2. reinstall the wire rod by 5.1
Self proofreading Err8	<ol style="list-style-type: none"> 1. No adding 200g of self correction block 2. pressure sensor lead break 3. computer board failure 4. Power board failure 	<ol style="list-style-type: none"> 1. Add the 200g lead block 2. Check the connection line and connect it well 3. Change the computer board 4. Replace the power board

12. Repair

12.1 Cleaning and maintenance



Disconnect the R90 power supply before cleaning and maintaining

! Do not use detergent containing diluent. When washing plastic elements, use alcohol or similar detergent.

In order to ensure normal operation and efficiency of R90, the following operations must be carried out

Maintenance	Per week
-------------	----------

Clean mobile mechanical parts, wash with oil or kerosene, and lubricate with engine oil or suitable grease.

12.2 Self correction

12.2.1 System of self correction

Model correction of big car

1. Release your hand when all light turns on
2. Press the "START" button to start the measurement, and the display panel displays "200" "ADD".
3. After turning the tire corrected, the inner indicator light is fully lit, and the 200g block is added at the edge of the corrected tire inside the 12 o'clock position.
4. Press "START" to start the measurement, the display panel displays "ADD" "200".
5. Move the inside 200g lead block to the corrected tire on the outside edge of the 12 o'clock position when the external phase lamp is fully lit.
6. Press "START" to start the measurement, display board displays "END" "CAL"
7. Press "START" to start the measurement, check the result.

Project	Result
Display value	Show "00" and "200" allowed $\pm 2g$ error
phase	The inner or outer indicator lights are all bright. The 200g block is allowed to be 4 degrees below the axis.

→ System self correction end


🔧 When the computer board or pressure sensor is replaced, the system self calibration must be done again.

Mode correction of car

1. Hold down the "C" button and press the "T" button after half a second. The display panel displays "CAL CAL CAL". The indicator lights are all bright and flashing. When the indicator lights are all lit, let go.
2. Press "START" button, start to measure, Display board display "100" "ADD"
3. After turning the tire corrected, the inner indicator light is fully lit, and the 100g block is added at the edge of the corrected tire inside the 12 o'clock position.
4. Press "START" to start measurement, the display panel displays "ADD" "100".
5. Move the inside 100g lead block to the corrected tire on the outside edge of the 12 o'clock position when the external phase lamp is fully lit.
6. Press "START" to start the measurement, the display panel displays "END" "CAL"
7. Press "START" to start the measurement, check the result.

Project	Result
Display value	Display "00" "100" $\pm 10g$ error allowed
phase	The inner or outer indicator lights are all bright 100, and the tolerance is allowed to be 1 or less below the axis.

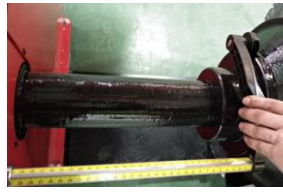
→ System self correction end

 When the computer board or pressure sensor is replaced, the system self calibration must be done again.

12.2.2 Self calibration of automatic scale

Automatic drawing ruler correction for big car mode

1. Pull the ruler to ensure that the "STOP" and "<5g" keys are pressed at the initial position, and the display board displays "CAL" "100".
2. Pull the ruler to 10cm and press the "ALU" button to confirm that the display panel displays "CAL" "300".
3. Big car mode pull down to 30cm, swing down the ruler downward, make the lower end of the ruler and the main shaft matching outside the eaves, press the "ALU" key to confirm, display board "CAL" "22.5".



4. Swing the ruler, make the upper end of the ruler in the correct position of the 22.5 inch tire, and confirm it according to the two "ALU" key.



5. Check the result

	Project	Result
Display value	"000" "000" "000"	Correction adopted
Display value	"CAL" "100"	Correct again

Automatic drawing ruler correction of car model

1. Pull the ruler to ensure that the "STOP" and "<5g" keys are pressed at the initial position, and the display board displays "CAL" "100".
2. Pull the ruler to 10cm and press the "ALU" button to confirm that the display panel displays "CAL" "300".
3. The trolley pattern pulls the ruler to 30cm, swings downward and pulls the ruler down, so that the lower end of the ruler is attached to the outer eaves of the spindle matching device, and the "ALU" button is pressed to confirm that the display board "CAL" "15".



4. Move the ruler head to make the upper end of the ruler head in the correct position of the 15 inch tire, and confirm it according to the two "ALU" key.



5. Check result

Project	Result
Display value “000” “000” “000”	Correction adopted
Display value “CAL” “100”	Correct again

12.3 Self-examination

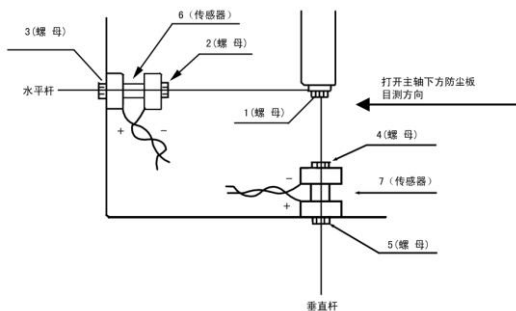
1. Press the "T" button to turn the indicator light from left to right. After the system detects the indicator light, the display is displayed [POS][].
2. Turning the tire, the indicator lights start to blink, and when the initial tooth of the spindle gear passes through the sensor, the display screen displays [POS][0].
3. For each turn, the right screen will appear once [0], reverse rotation as mentioned above.



Whether the self checking program detects the function of the position sensor and the lower laser guide.

12.4 Structure and adjustment of pressure sensor

1. Release 2, 3, 4, 5 nuts.
2. Loosen the nut 1 and unscrew the vertical rod.
3. Take out the sensor to check or replace the pressure sensor
4. Put the sensor's long line on the vertical bar, put the short line on the horizontal bar, and the two sensor is positive.
5. After the horizontal bar is combined with the vertical rod, the vertical bar is screwed into the square beam of the deformed beam 1 ~ 1.5cm.
6. Observe whether the spindle is perpendicular to the box, if not vertically adjust the 2 or 3 nut.
7. After tightening the 4 nuts with your hands, twist the half circle with the wrench, and tighten the 5 nuts vigorously.
8. After tightening the 2 nuts with your hands, twist the half circle with the wrench, and tighten the 3 nuts vigorously.
9. After installation, discharge the sensor joint with a short wire.



Before you repair the pressure sensor, you must turn off the machine, do not turn on the machine,

disassemble the sensor, or burn the computer board. After the pressure sensor is repaired, you need to do the fatigue test.



Install a tyre more than 22.5 " on the machine, Short circuit board inserts needle 1 and 8, let the machine run automatically, run for 15 minutes or so, turn off the power for 30 minutes or so, repeat the fatigue test more than 5 times.

12.5 Adjust the tension of the belt

1. Remove the mask
2. Loosen the motor screw, the mobile motor is tight to the belt, and after pressing the belt, it is about 4mm low.
3. Tighten the screw of the motor and cover the mask

12.6 Replace fuse



The two fuse is installed on the power board and can be removed from the safety seat. Once damaged, the same specification can be replaced.

13. Closing down

13.1 Temporary shutdown

Long period not in use

- Cut off circuit connections

13.2 Place of replacement

- When transferring R90, the documents accompanying the supply will be transferred to the other party.
- R90 transportation is only in the form of original filling or same packing.
- Disconnect electrical connections
- Note the instructions for the first start of the debug
- R90 bolt is fixed to the bracket again with a bolt

13.3 Elimination of waste and waste destruction

13.3.1 Water pollution



Lubricating oil, grease and waste containing grease (such as filters) are substances that are contaminated with water.

1. The prohibition of dumping pollutants into the drainage pipe
2. Disposal of water contaminated substances must be abandoned according to the existing regulations.

13.3.2

R90 and spare parts

1. Disconnect the R90 power and pull off the power connection line
2. The R90 will be split and classified according to the material and treated according to the relevant regulations.

14. Aerodynamic schematic diagram

