

# INSTALLATION & OPERATION MANUAL

## Atlas Super-Duo Motorcycle/ATV Changer Balancer Combo



**Atlas Automotive Equipment**  
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**Read this entire manual before operation begins.**

Record below the following information which is located on the serial number data plate.

Serial No. \_\_\_\_\_

Model No. \_\_\_\_\_

Date of Installation \_\_\_\_\_

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## *Tire Changer*

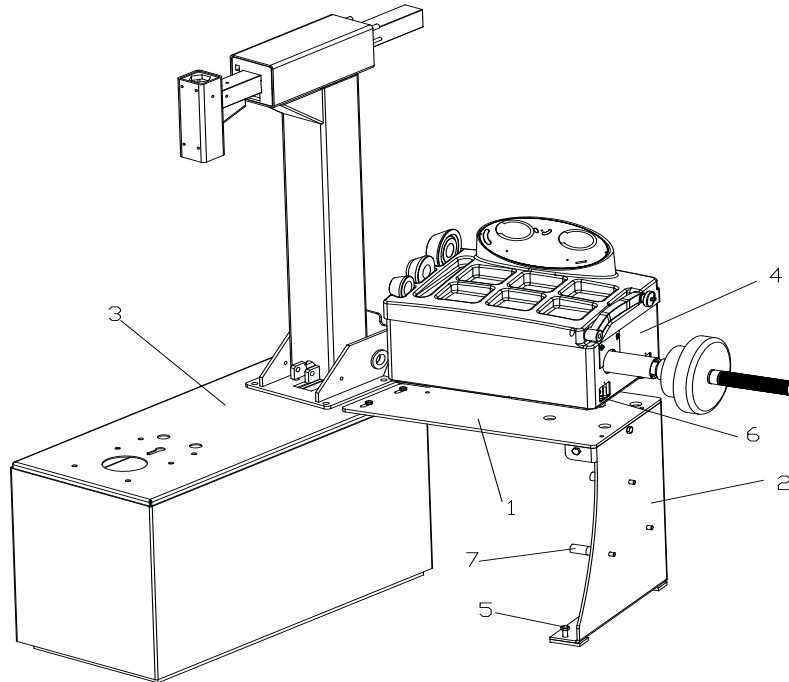
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# Overview for the **SUPER DUO** **ALL-IN-ONE** Tire Changer & Wheel Balancer



1. As shown in figure, assemble the base plate (1) and the bracket (2) with three pieces M10 bolts, and then fixed the base plate (1) on the tire changer (3) with two pieces M10 bolts.
2. Adjust the bolt (5) to make the base plate (1) at the horizontal.
3. Put the wheel balancer (4) on the base plate (1), and make the mounting holes aligned. Fix them with 3 pieces M8 bolts
4. Installed the tools hang (7) on the bracket (2).

NO	Parts' Name	Parts' Code	NO	Parts' Name	Parts' Code
1	Base plate	PX-110M-020600-0	5	Bolt	M10*25
2	Bracket	PX-110M-020700-0	6	Bolt	M8*30
3	Tire changer	PL-1206	7	Tools hang	P-000-009000-0
4	Wheel balancer	U-110			

# Tire Changer

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## Warning

This instruction manual is important for the machine, please read carefully before installation and use; also it is important for safe use and machine maintenance of machine. Please keep this manual properly in order to further maintenance of the machine.

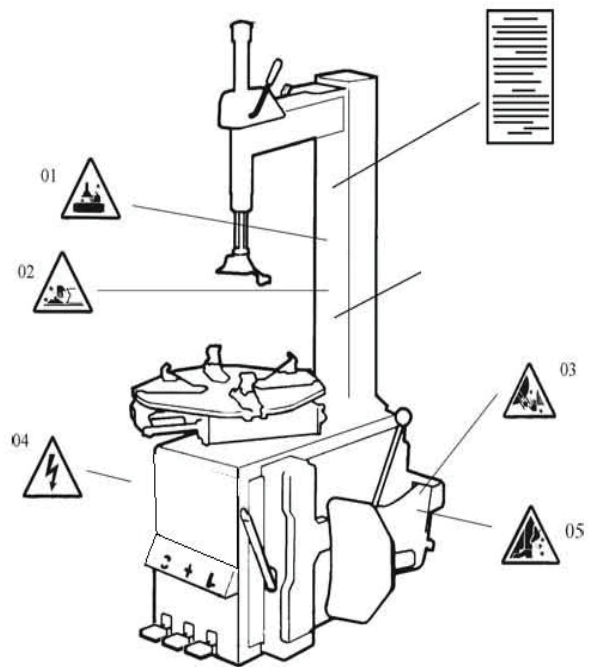
## 1. Introduction

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**Application Range:** The semi-automatic tire changer is especially designed for demounting / mounting tires from wheel rims.

**Caution:** Please use the machine only for purpose for which it is designed, don't use it for other purposes. Manufacturer shall not be liable for any damage or injury caused by failure to comply with these regulations.

**Safety regulation:** Use of this machine is especially reserved to trained and qualified professional persons, those who already read the introduction manual carefully, or someone have the experience for operating similar machinery. Any changes and beyond the scope of use on this machine without manufacturer's permission or do not according to the manual, may cause the malfunction and damage to machine, manufacturer can cancel warranty coverage for above. If some parts are damaged due to some reason, please replace them according to the spare parts list. (Attention: warranty is one year after manufactures' delivery date; warranty excludes the easy-broken parts).



## 2. Safety Warnings

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- Don't put hands under the Mounting/demounting head during operation;
- Don't put hands between the jaws during operation;
- Don't put hands inside the tire bead when demounting the tire;
- Make sure and to check the system is equipped with a good grounding circuit;
- Don't put feet between the Bead Breaker shovel and the body during operation;

### Security warning labels

- When the security warning labels are defaced or off, please recovery them in time!
- Do not allow to operate when the security warning labels are missed or imperfect.
- Do not allow to set any objects to obscure the security warning labels.



Clients can self-set the warning labels at any necessary positions.

## 3. Technical Data

External locking rim dimensions	6-24"
Max. Wheel diameter	41" (1040mm)
Max. Wheel width	10" (270mm)
Working Pressure	120PSI
Power supply	110V (1ph)/ 220V (1ph)/ 380V (3ph)
Optional Motor power	0.75/1.1 kw
Max. Rotating Torque (Turntable)	1078 Nm
Overall Dimension	71" x 61" x 47"
Noise Level	<75 dB

**Note:** Rim dimensions defined at above table are based on the iron wheel rims. Aluminum rims are thicker than the iron wheel rims, so here above rim dimensions are just for the reference.

## 4. Transport

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When transporting, the machine should be with original package and placed according to the mark on the package. For the already packaged machine should be handled with a corresponding tonnage forklift for loading and unloading. The location to insert the fork feet shown as **Fig 1**.

## 5. Unpacking & Inspection

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Pull out the nail which is nailed on the plate with tip jaw; unpack the carton and plastic cover. Check and make sure all parts shown on the spare parts list are included. If any parts are missing or broken, please do not use the machine and contact the manufacturer or dealer ASAP.

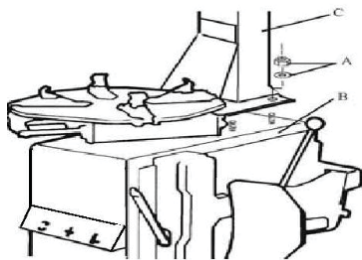


Fig 1

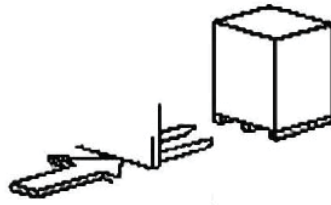


Fig 2

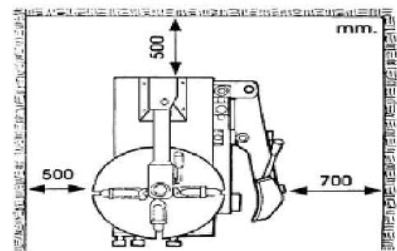


Fig 3

## 6. Workplace Requirements

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Choose workplace in compliance with safety regulations. Connect power supply and air source according to manual and workplace must have good air condition; in order to make the machine run well, its workplace requires at least clear space from each wall shown as **Fig 2**. If installing it outdoor, it must be protected by roof against rain and sunshine.

**Warning:** the machine with motor must not be operated in explosive atmosphere.



## 7. Position And Installation

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1. Unscrew the nuts at the bottom, position the machine and calibrate it with the horizontal rule. Mount the machine with all the screws and to ensure the machine is stable. Make sure the system is equipped with a good grounding circuit for prevent electric leakage. And have operation range of ground for skid prevention.
2. Unscrew the nut A on the cabinet body B as shown in **Fig 3**. Lift the column C; mount it on the machine body B by using the nut A through the bolt located on the machine body B. If the column becomes loose after a period of using, tight them immediately. Otherwise the result of damage to the tire may happen.



Fig 4

## 8. Electricity And Pneumatic Connections

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**Caution:** Before installation and connection, check to be sure that the electricity power supply corresponds to the machine technical data. All the installation of electric and pneumatic devices must be operated by a professional electrician.

Connect the compressed air connector which is on the machine right side with compressed air system. The electric grid that the machine connects to must have fuses protection device and good outer cover grounding protection. Install the leakage automatic air switch on the main power supply, leakage current is set at 30mA

**Caution:** No power plug for this machine, the user should self-connect one power plug no less than 16A as well as in line with the machine voltage. Or directly connect with the power supply according to the above requirements.

## 9. Adjusting Operation

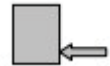
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Turntable Rotation  
Pedal (Z)



Jaws open and  
close Pedal (V)



Bead Breaker Pedal (U)

- Tread the Turntable Rotation Pedal (Z), Turntable (Y) clockwise rotation; Lift up the Turntable Rotation Pedal (Z), Turntable (Y) counterclockwise rotation.
- Tread Bead Breaker Pedal (U), Bead Breaker shovel (F) close toward inside; release Bead Breaker Pedal (U), Bead Breaker shovel (F) return to original position.
- Tread Jaws open and close Pedal (V), four jaws (G) on the turntable open; tread again, four jaws (G) close. When the pedal is in the middle position, the four jaws stop moving.

Tire changer operation is consisted of three parts:

1. Breaking the tire bead
2. Demounting the tire
3. Mounting the tire

**Caution:** Before any operations, don't wear loose clothing and wear protective hat, gloves, and skid-proof shoes. Ensure to exhaust the air in the tire completely, and remove all the wheel weights from the rim.

### 9.1. Breaking The Tire Bead

Ensure to exhaust the air in the tire completely, place the tire against the rubber buffer (S). Bring the paddle against the bead about 10mm from the edge of the rim shown as **Fig 5**. Tread Bead breaker Pedal (U) to push paddle into tire. Repeat the above operations on different positions around the tire and both sides of tire until tire bead is released completely.

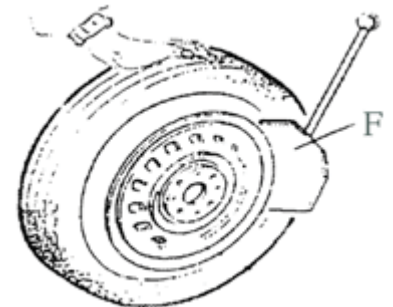


Fig 5

## 9.2. Demounting The Tire

Ensure to remove all the weights on the wheel rim and to exhaust the air in the tire completely before this operation. Apply lubricating grease (or similar lubricant) around the tire bead. Without the lubricant may lead to badly wear and tear on tire.

Clamp the wheel methods shown as below regarded to the ruled dimension:

### a- to clamp the wheel from outside:

Tread the Jaws open and close Pedal (V) halfway down to middle, positioning for the four jaws (G) by reference scale on the Turntable (Y); put the tire on turntable, hold the rim, and tread the Jaws open and close Pedal (V) until the wheel is secured by the jaws.

### b- to clamp the wheel from inside:

Positioning for the four jaws (G) and let them all closed. Put the tire on the turntable and tread the Jaws open and close Pedal (V) to open the jaws thereby lock the wheel in place.

**Caution:** Check to make sure the wheel firmly secured by the four jaws before next step.

Lower the Vertical Arm (M) until the Mounting/demounting head (I) rests next to the edge of the rim, flip the Locking Handle to lock the Vertical Arm and Swing Arm in position, and also adjust the Rocker Arm make Mounting/demounting head can raise 2mm-3mm automatically from the edge of the wheel rim. Insert the Lifting Lever (T) between the tire bead and the front section of the mounting/demounting head (I), and move the tire above the mounting/demounting head as shown as **Fig 6**.

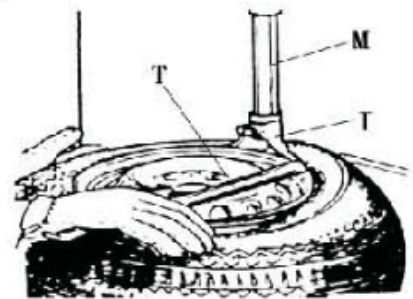


Fig 6

**Caution:** Chains, bracelets, loose clothes and anything else close to the rotating parts will bring danger to the operator.

With the Lifting Lever held in position, tread the Turntable Rotation Pedal (Z), rotate the Turntable (Y) in a clockwise direction until the tire is completely separated from the wheel rim. For the other side tire demounting, keep using the lifting lever to lift the tire, make the other side tire separated from the wheel rim.

### 9.3. Mounting The Tire

**Caution:** Check to make sure that the tire and the wheel rim are of same size before mounting the tire.

To avoid any damage on type, lubricate the tire bead and the wheel rim with the lubrication recommended by manufacturer. Put on the tire and check the situation.

**Caution:** When clamp the wheel rim, don't put your hands on the wheel rim to avoid injury during this operation.

Lock the Hexagonal Vertical Mounting Arm, put the tire on the rim, let the Rocker Arm back to place as demounting the tire. And let one side of tire down bead above the rear section of the Mounting/demounting head, the other side under the front section of the Mounting/demounting head. Suppress the tyre with hands or help arm, and then spin the turntable for mounting the tire down bead. Repeat the above operation for mounting the tire up bead. **(Fig 7)**

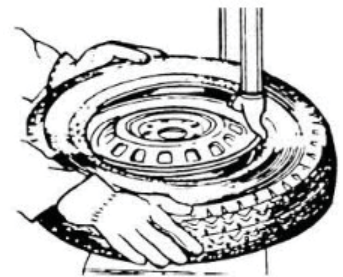


Fig 7

## 10. Inflating The Tire

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**Important:** It is very dangerous during inflating operation, take carefully and comply with instruction. When inflating, it will turn to be extremely dangerous if problems happen to tire or rim. The possible burst force tire goes upward and outward, the big power may cause injury or death of the operator or the people around.

Tire may burst caused by following:

1. The wheel rim and the tire are not of the same size;
2. The tire or the wheel rim is damaged;
3. The pressure of tire inflation is over the max. pressure recommended by manufacturer;
4. The operator fail to comply with the safety regulation;

Please operate as follows:

1. Remove the valve cap from the valve stem;
2. Check to make sure the air nozzle is pressed down completely over the threads of the valve stem.
3. Check to make sure that the tire and the wheel rim are of the same size;
4. Lubricate both the tire bead and the wheel rim, additional lubrication is required if needed;
5. Inflate the tire with break, while inflating, check the pressure listed on the pressure gauge, also check whether the bead is fixed or not. Repeat operation above until the bead is secured; you need take special steps when inflating convex rim or double convex rim;
6. Continue inflating and check the air pressure frequently until to reach the required pressure.

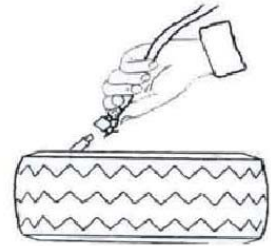


Fig 8

**Note:**

- Never exceed the max. inflation pressure given by the tire manufacturer.
- Keep hands and your body away from inflating tires.
- Only specially trained persons are allowed to perform the operations, do not allow other to operate or be near the tire changer.

## 11. Moving Machine

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Please use forklift to move the machine. Disconnect the tire changer from the electricity power supply and pneumatic power supply, lift the base board and insert the feet of forklift. Then mount the tire changer machine to a new position and fix it tightly.

**Note:** The place chosen for fixing the tire changer must meet the safety regulation.

## 12. Maintenance

**Caution:** only the professional persons can do the maintenance. To prolong the machine's life, maintain the machine timely according to the manual. Otherwise, it will impact the reliability of the machine or even cause injury to operator and others nearby.

**Caution:** before performing any maintenance, disconnect the tire changer from the electric power supply and pneumatic power supply, and tread the Jaws open and close Pedal or Turntable Rotation Pedal for 3-4 times to evacuate all compressed air from the machine. Damaged parts must be replaced by professional persons with the spare parts provided by manufacturer.

- Clean the machine once every day after work.
- Clean the dirt on the turntable with diesel oil once per week and lubricate the slides and jaws.
- At least once per month, check oil level in Oil Fog Maker. Fill with SAE30# oil if need.
  - Unscrew with hex wrench (E). Based on connection of compressed air, first to tread Jaws open and close Pedal or Turntable Rotation Pedal 5-6 times, and then check whether oil in Oil Fog Maker drops down a drip of oil. For continuous operation, tread twice every time, drop down a drip of oil, and otherwise adjust the screw (D) that controlled oil -enter with minus screwdriver. (Fig 9)
  - As shown in Figure 9-1, when you found there are some water in the cup, push up the drain valve to drain away water with your fingers; loosen your fingers after drained water, drain valve can be automatic closed under the action of the spring.

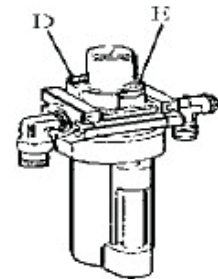


Fig 9

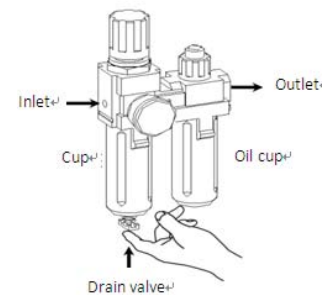


Fig 9.1

**Note:** After the first 20 days of use, retighten the jaws with tightening screws (B) on the Turntable (Fig 10)

**Note:** in the event of turntable lose power, check to see if the belt is tight by removing the left side cover by unscrewing the screws; adjusting two screws located on the motor support, keeping a suitable distance between motor support and motor base; tightening the screws for the belt tension. (Fig 11)

**Caution:** please disconnect the machine from electric power supply and pneumatic power supply.

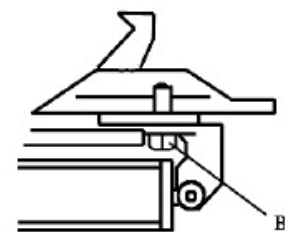


Fig 10

**Note:** If Hexagonal Vertical Arm not be locked or not meet the requirement that 2-3mm from the bottom of Mounting/demounting head to rim, please adjust Hexagonal Locking Plate, refer to Fig 12 and adjust the (X).

In order to achieve the reliability of jaws and Bead Breaker shovel, operate as follows to keep their valves clean:

1. Remove the left side cover of the machine body by unscrewing the two screws;
2. Loosen the valve Muffler (A) which belong to Jaws open and close Pedal and Bead Breaker Pedal; **(Fig 13)**
3. Clean the mufflers with compressed air, please replace it referring to the spare parts list if it is damaged. **(Fig 13)**

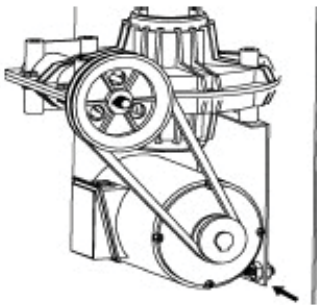


Fig 11

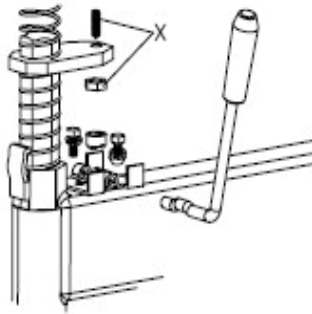


Fig 12

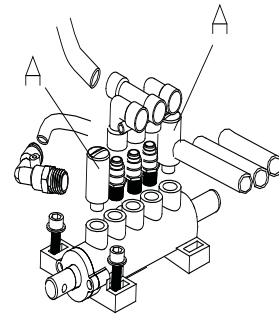


Fig 13

## 13. Trouble Shooting Table

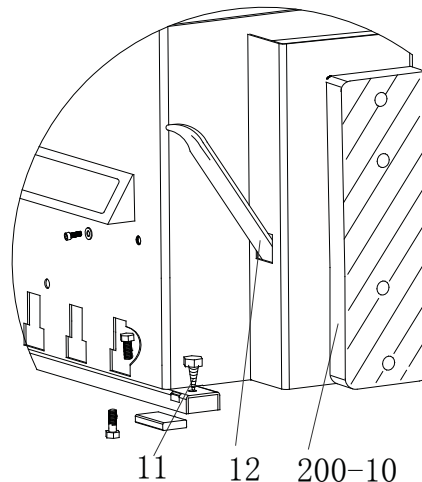
Problem	Reason	Solution
The turntable rotates just in one direction or can't rotate.	Reverse Switch broken	Replace the Reverse Switch
	Belt broken	Replace the belt
	The Motor's malfunction	Check the motor cable or terminal block wire; Replace the motor if it was broken.
Demount or fix the wheel, the turntable can't lock (spin with wheel); The jaws delay to open/close; The turntable locks the rim incorrectly.	Leakage of Air network	Check all the parts on the air network.
	The clamping cylinder can't work.	Replace the cylinder piston.
	Worn jaws	Replace the jaws.
	Broken washers of the chuck cylinder	Replace it.
The mounting/demounting head always touch the rim during operation.	The locking plate incorrectly adjust or unqualified.	Replace or adjust it.
	Screws on the chuck loose; the Hexagonal Vertical Arm can't be locked by Locking Plate	Tighten the screws; replace the Locking Plate.
The Bead Breaker Pedal and Jaw open and close Pedal can't turn back to the original position.	pedal spring broken	Replace it.
The Bead Breaker shovel operates difficultly.	Jammed silencer	Clean it or replace it.
	The washer on the Bead Breaker cylinder is broken.	Replace it.



## 14. Guide For Ordering Spare Parts

Firstly, the damaged or ordered sample should be gained and confirmed the quantity of spare parts. Confirm the replaced parts specification, avoid wrong order. The confirmed method showed as following:

According to the use range and place position of parts, find out the codes of parts in the exploded drawing (section 17) from the manual. For example, if lifting level is needed to be ordered, resulting from the fact that lifting level always placed in the sleeve, and its exploded drawing position is showed as below.



We can see the code "12" from the picture, then find out all the information of code "12" and record them.

11	B-027-060401-0	Grounding screw M6x40
12	C-200-580000-0	Lifting level
200-13	C-200-360000-0	Bead breaker arm spring

The recorded information:

12	C-200-580000-0	Lifting level
----	----------------	---------------

Gather the detailed information of parts

Code	Order code	Name	Qty	Purchase time of machine
12	C-200-580000-0	Lifting level	2	2009.6.25

Please contact the spare parts department and confirm the order.

After confirming the order with any problem, the spare parts department will deliver the goods for you according to the order.

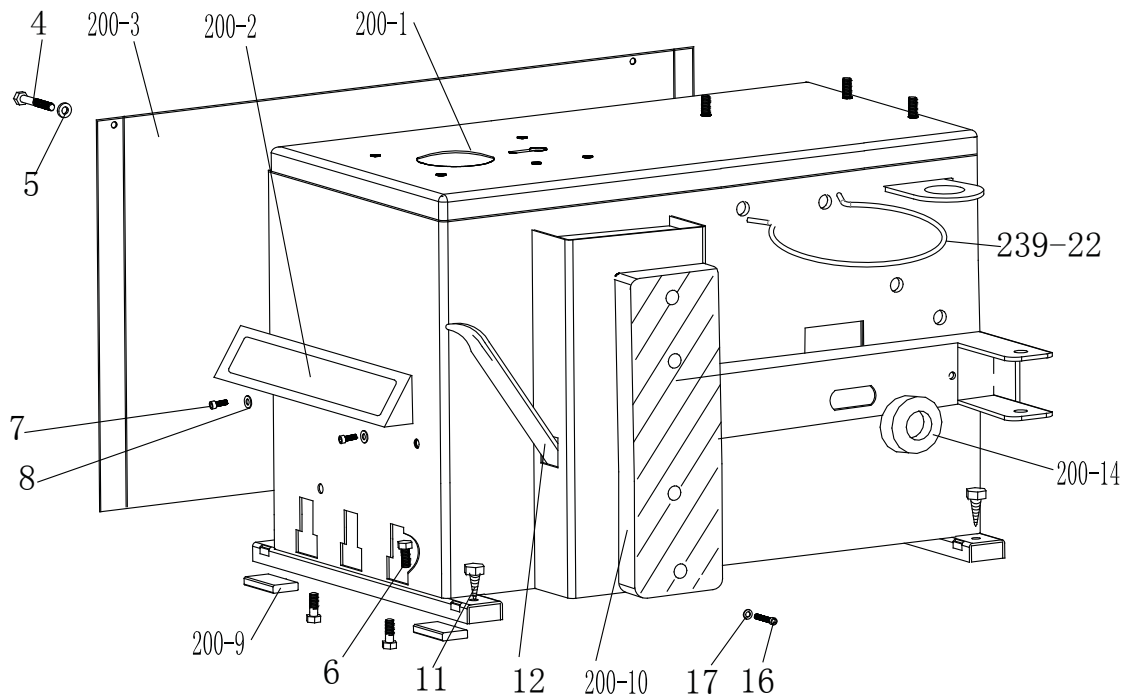
**Note:** The manufacturer reserves the rights to change the parts specification without notice. The manufacturer is not liable for the modification and improvement of the products which have been on sale.

## 15. Wearing Spare Parts List

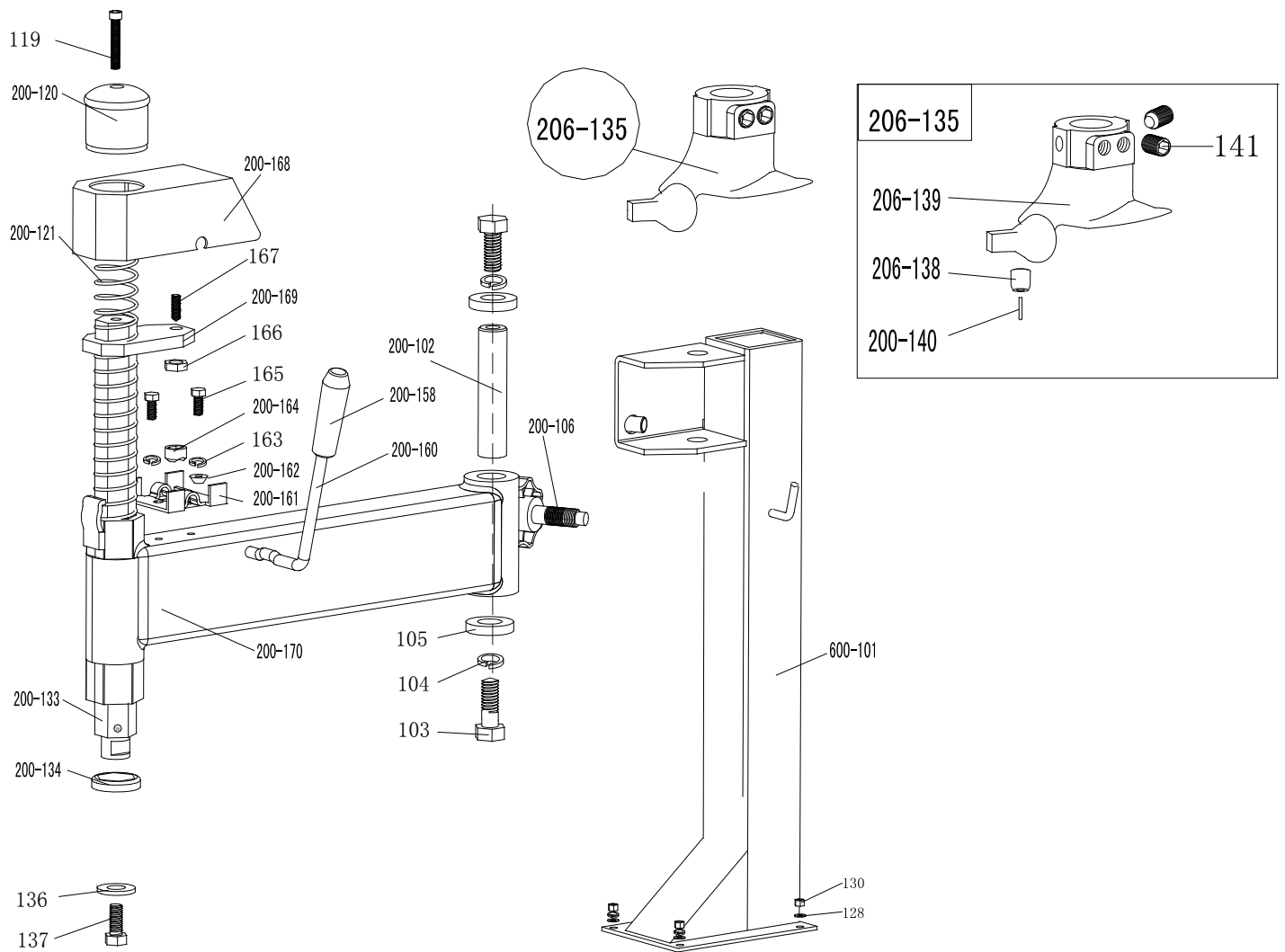
Code	Order code	Name
200-10	C-200-500000-0	Bead breaker buffer
226	S-005-020075-0	V seal 20*28*7.5
227	S-000-063265-0	O seal 63*2.65
200-228	C-200-540000-0	Clamping cylinder piston Ø70
232	S-000-019262-0	O seal Ø19.6×2.62
306	S-000-016265-0	O- seal Ø 16*2.65
307	S-000-020265-0	O- seal 20*2.65
200-308	S-000-180500-0	O- seal 180×5
311	S-005-168115-0	V seal 185×168×10.8
200-370	C-200-070600-0	Bead breaker shovel protection cover (optional)
200-321	S-000-175500-0	O seal Ø173.4×5.3
331	S-000-019262-0	O- seal Ø 19.6*2.62
200-426	S-060-016000-1	Reverse switch
521	S-000-030355-0	seal Ø 30*3.55
200-522	C-200-320700-0	Oil seal resistance
200-532	S-000-059262-0	O seal 59.9*2.62
604	S-042-000686-0	Tire changer belt A-28
701	S-038-000100-0	Inflating gun indicator
702	C-200-900000-0	Rubber connection hose
801	S-033-200002-1	Relief pressure filter
804	S-033-200002-2	oil fog maker 2000

**Note:** The parts in the list are easily broken parts. If other parts needed to be ordered, please check the manual.

## 16. Exploded Drawing

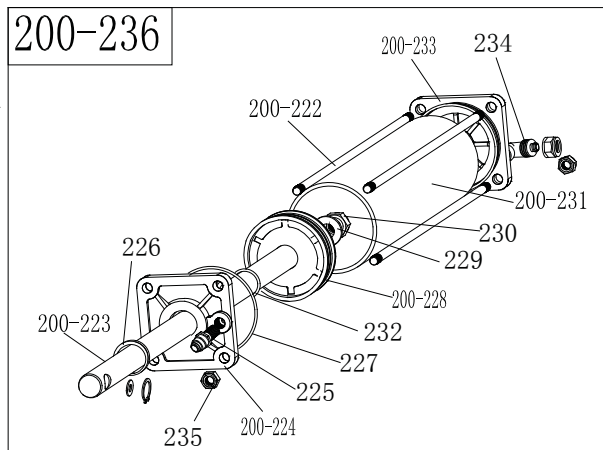
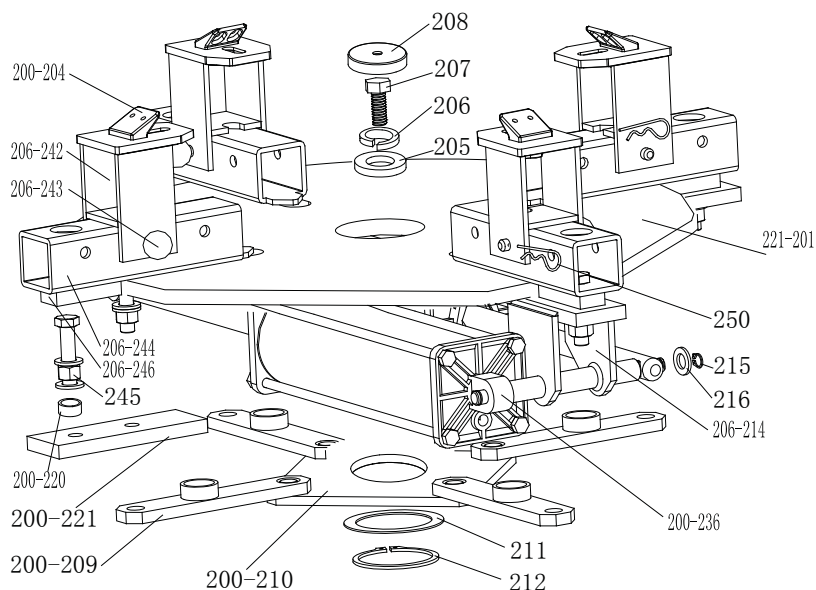


Item	Part Number	Description
200-1	CX-200-010000-0	Machine body
200-2	CX-200-080000-0	Pedal front cover
200-3	CX-200-020000-0	Left cover
4	B-010-060101-0	Hex socket head bolt M6×10
5	B-040-061412-1	Flat washer Ø6*14*1.2
6	B-014-080251-0	Outer hex bolt M8x25
7	B-010-080201-0	Hex socket head bolt M8×20
200-9	C-000-001020-0	Rubber foot buffer
200-10	C-200-500000-0	Bead breaker buffer
11	B-027-060401-0	Grounding screw M6x40
12	C-200-580000-0	Lifting lever
200-14	C-200-510000-0	Bead breaker arm rubber
16	B-010-080201-0	Hex socket head bolt M8×20
17	B-040-081715-1	Flat washer Ø 8*17*1.5
239-22	C-239-333700-0	Oil-water box support



Item	Part Number	Description
600-101	CX-204-250000-0	Square column
200-102	CX-200-190000-0	Swing arm pin
103	B-014-140301-0	Outer hex bolt M14x30
104	B-050-140000-0	Spring washer Ø14
105	CX-200-140000-0	Big washer
200-106	C-200-350000-0	Column adjust handle
119	B-010-100501-0	Hex socket head bolt M10×50
200-120	C-200-490000-0	Vertical arm cap 200
200-121	C-200-390000-0	Vertical arm spring
128	B-040-102020-1	Flat washer Ø10X2
130	B-001-100001-0	Self-locking nut M10
200-133	CX-200-160000-0	Vertical arm 200

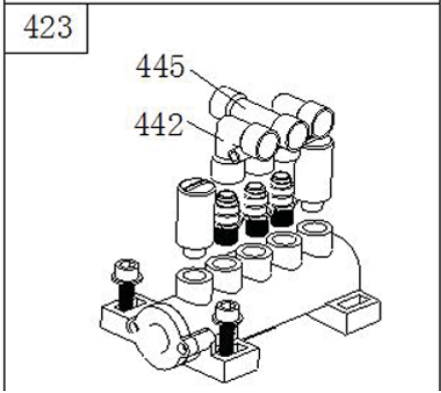
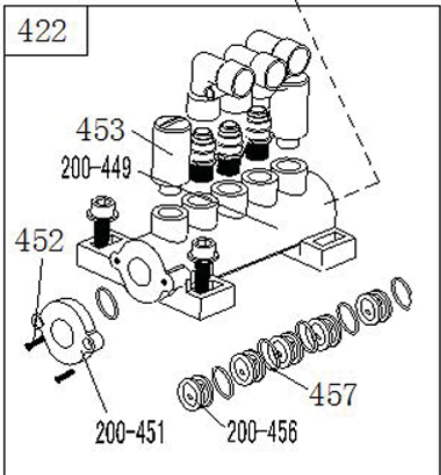
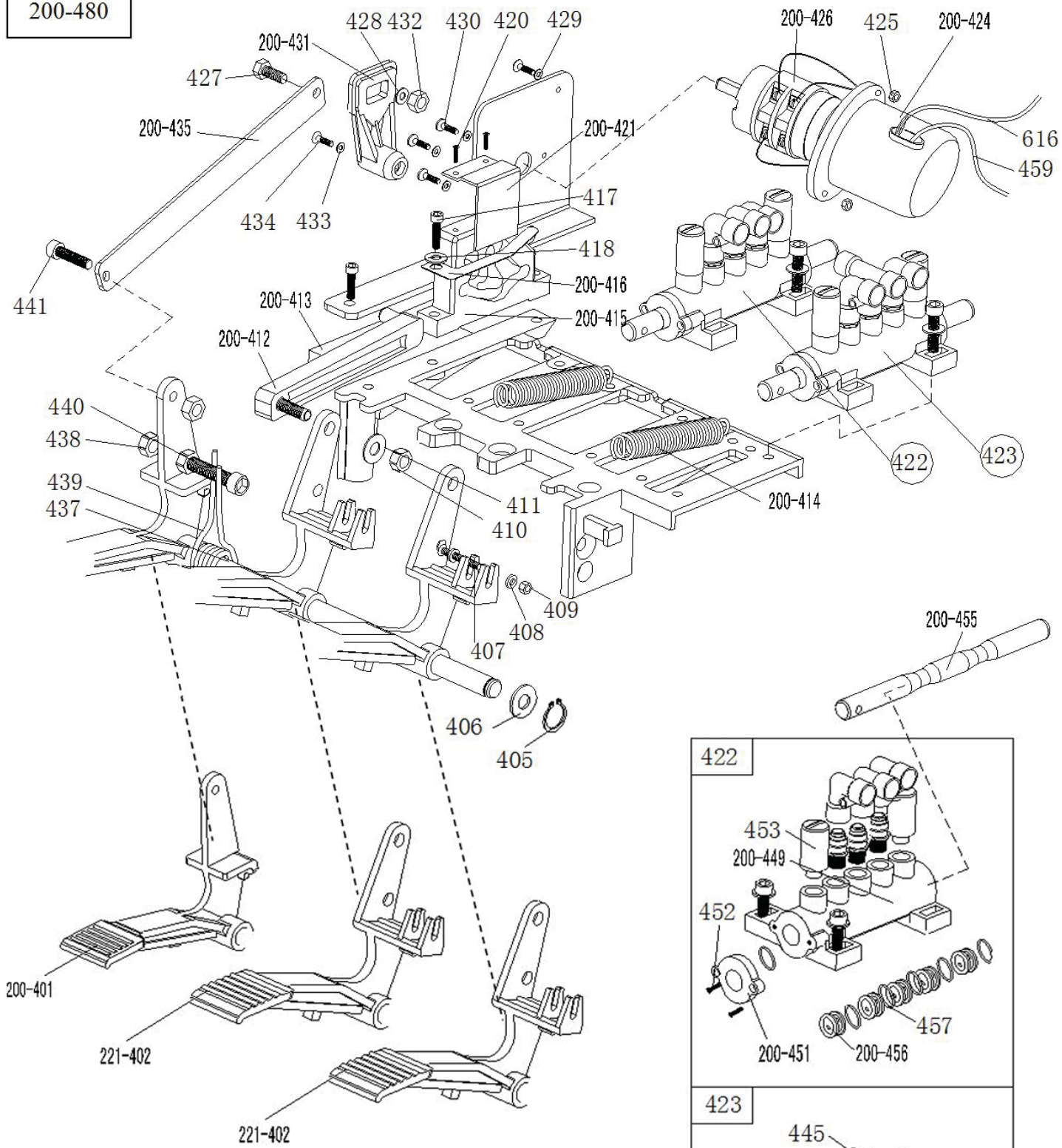
<b>Item</b>	<b>Part Number</b>	<b>Description</b>
200-134	C-200-520000-0	Vertical arm washer
136	CX-200-170000-0	Mount/demount head flat washer
137	B-014-100251-0	Outer hex bolt M10×25
206-135	CW-113-020400-0	Complete mount/demount head (motorcycle)
206-139	C-204-150100-0	Mount/demount head (motorcycle)
206-138	CX-206-150200-0	Mount/demount head pulley motorcycle
200-140	C-200-150400-0	Hex round pin
141	B-007-120161-0	Hex socket head bolt M12X16
200-158	C-200-230200-0	Locking Handle cover
200-160	CX-200-230000-0	Locking Handle
200-161	CX-200-200000-0	Locking plate
200-162	C-200-240000-0	Locking block cover
163	B-050-080000-0	Spring washer Ø8
200-164	C-200-210000-0	Eccentric shaft nut
165	B-014-080251-0	Outer hex bolt M8x25
166	B-004-120071-1	Nut M12X1.75X7
167	B-007-120301-0	Hex socket head bolt M12X30
200-168	C-200-480000-0	Locking plate cap
200-169	CX-200-220000-0	Hex locking board 200
200-170	CX-200-180000-0	Swing arm 470



Item	Part Number	Description
221-201	CX-221-130000-0	Turntable assembly 630
200-204	C-200-570000-0	Jaw
205	CX-200-140000-0	Big washer
206	B-050-160000-0	Spring washer Ø16
207	B-014-160401-0	Outer hex bolt M16×40
208	C-200-440000-0	Turntable cap
200-209	CX-200-310000-0	Connection rod assembly 540
200-210	CX-200-280000-0	Square turntable 540
211	CX-200-290000-0	Square turntable washer
212	B-055-650001-0	Snap ring Ø65(shaft)
206-214	CX-206-110100-0	Jaw slide guide with pin
215	B-040-122520-1	Flat washer Ø12X25X2
216	B-055-120001-0	Snap ring Ø12(shaft)
200-220	CX-200-300000-0	Connection rod nut
206-221	CX-206-110100-0	Jaw slide guide without pin
200-222	C-200-100400-0	Threaded connection rod 310
200-223	C-200-100200-0	Clamping cylinder piston rod 320
224	C-200-100100-0	Clamping cylinder cover without handle
225	S-011-010808-0	Straight union 1/8"-Ø8
226	S-005-020075-0	V- seal 20*28*7.5

<b>Item</b>	<b>Part Number</b>	<b>Description</b>
227	S-000-063265-0	O-seal 63*2.65
228	C-200-540000-0	Clamping cylinder piston $\phi 70$
229	B-040-122520-1	Flat washer $\text{Ø}12 \times 25 \times 2$
230	B-004-120071-1	Nut M12X1.75X7
200-231	C-200-100500-0	Clamping cylinder barrel 279
232	S-000-019262-0	O-seal 19.6X2.62
233	C-200-100300-0	Clamping cylinder cover with handle
234	S-018-010808-0	Union 1/8- $\text{Ø}8$
235	B-001-080001-0	Self-locking nut M8
200-236	CW-105-020001-0	Complete clamping cylinder 200
206-242	CX-206-130000-0	Sliding track
206-243	C-206-120800	Pin handle
206-244	CX-206-120000-0	Sliding track plate
245	B-014-120651-0	M12 bolt
206-246	CX-206-120500-0	Sliding track block
250	C-238-031400-0	Fixing pin spring

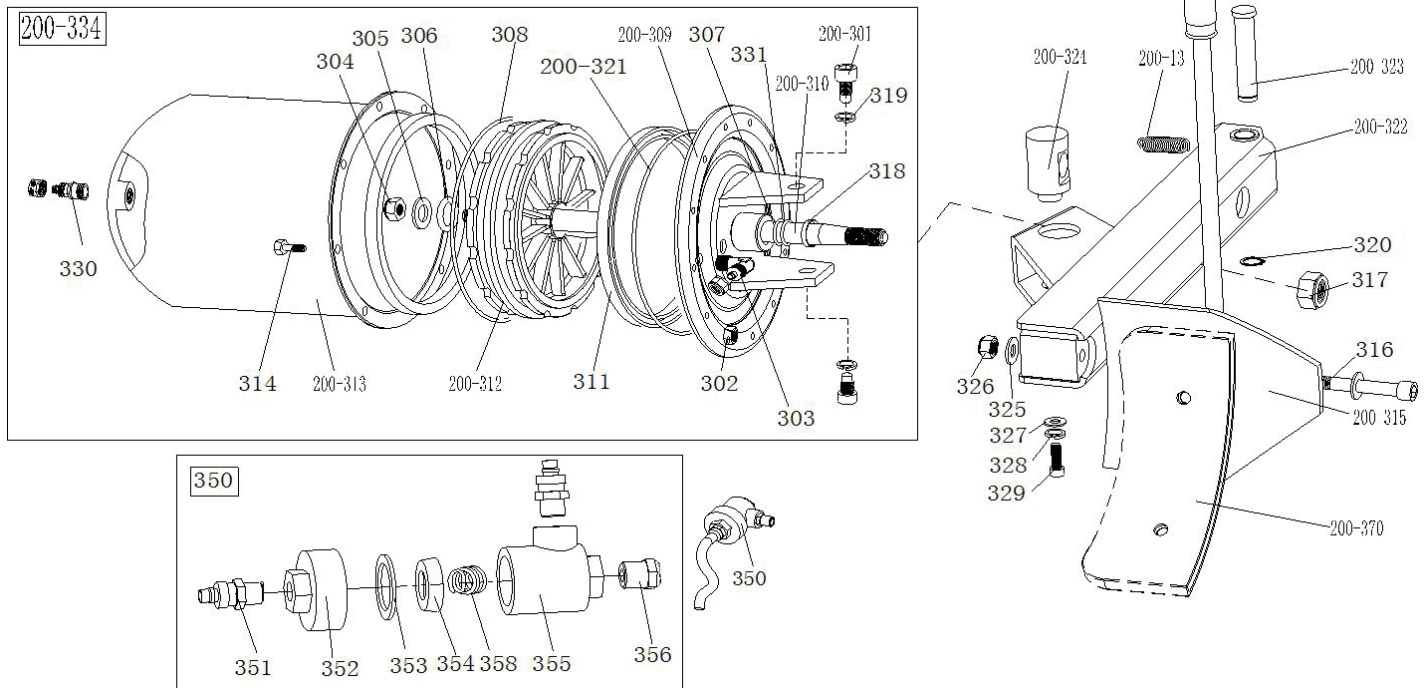
200-480





Item	Part Number	Description
200-13	C-200-360000-0	Bead breaker arm spring
200-301	B-010-140301-0	Hex socket head boltM14×30
302	B-001-060001-0	Self-locking nut M6
303	S-018-010408-0	Union (90°) 1/4-Ø8
304	B-001-160001-1	Nut M16*1.5
305	B-040-162820-1	Flat washer Ø16*28*2
306	S-000-016265-0	O-seal Ø 16*2.65
307	S-000-020265-0	O-seal Ø 20*2.65
200-308	S-000-180500-0	O-seal 180x5
200-309	CX-200-050500-0	Bead breaker cylinder cover assembly
200-310	C-200-050100-0	Bead breaker cylinder piston rod
311	S-005-168115-0	V-seal 185X168X11.5
200-312	C-200-050200-0	Bead breaker cylinder piston
200-313	CX-200-050300-0	Bead breaker cylinder barrel
314	B-010-060161-0	Hex socket head bolt M6×16
200-315	CX-200-070000-0	Bead breaker shovel assembly
316	B-010-120901-0	Hex socket head bolt M12×90
317	B-001-160001-1	Nut M16*1.5
318	U-006-000001-1	Guide belt
200-370	C-200-070600-0	Bead breaker shovel protection cover(optional)
319	B-050-140000-0	Spring washer Ø14
320	B-055-160001-0	Snap ring Ø16
200-321	S-000-175500-0	O-seal Ø170.8x5.3
200-322	CX-200-030000-0	bead breaker arm 200
200-323	CX-200-040000-0	Bead breaker pin
200-324	CX-200-050600-0	Bead breaker cylinder rotating pin
325	B-040-122520-1	Flat washer Ø12X25X2
326	B-001-120001-0	Self-locking M12
327	B-040-083030-1	Flat washer Ø8*30*3
328	B-050-080000-0	Spring washer Ø8
329	B-014-080201-0	Outer hex bolt M8×20

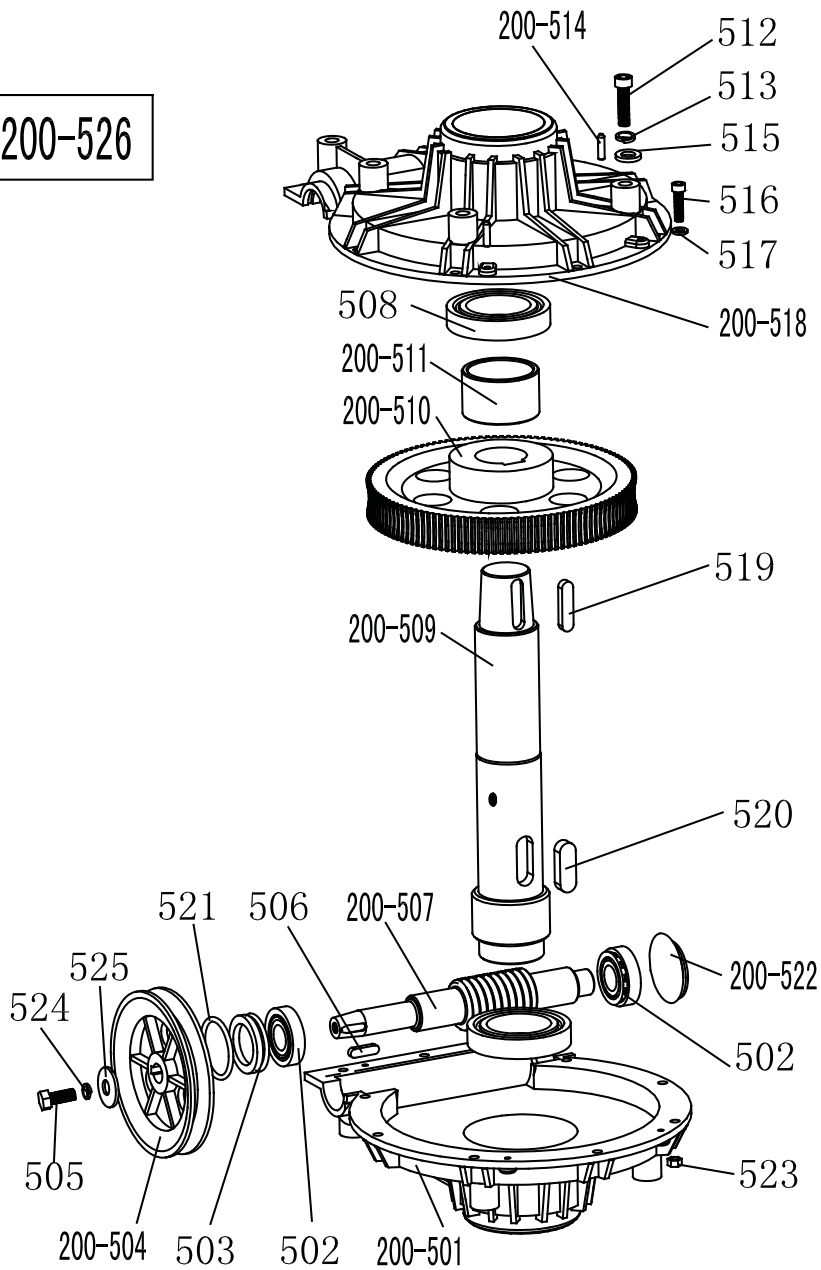
<b>Item</b>	<b>Part Number</b>	<b>Description</b>
330	S-011-010808-0	Straight union 1/8"-Ø8
331	S-000-019262-0	O-seal 19.6X2.62
350	CW-112-209800-0	Bead breaker cylinder exhaust valve
351	S-012-010808-0	Union (90°)1/8-Ø8
352	C-098-600200-0	Bead breaker cylinder exhaust valve cover
353	C-098-600400-0	Seal washer
354	C-098-600300-0	Bidirectional seal
355	C-098-600100-0	Bead breaker cylinder exhaust valve barrel
356	S-023-010401-6	Muffler
357	S-010-010408-0	Straight union 1/4- Ø8
200-334	CW-108-020000-0	Complete bead breaker cylinder
358	C-2098-600500-0	Pressure spring



Item	Part Number	Description
200-401	C-200-060400-0	Reverse switch pedal
221-402	C-221-060300-0	5-way valve pedal(right)
405	B-055-120001-0	Snap ring Ø12(shaft)
406	B-040-122520-1	Flat washer Ø12X25X2
407	B-017-040301-0	Cross head screw M4X30
408	B-040-040000-1	Flat washer Ø 4
409	B-001-040001-0	Self-locking nut M4
410	B-001-080001-0	Self-locking nut M8
411	B-040-081715-1	Flat washer Ø 8*17*1.5
200-412	C-200-061300-0	Cam connection rod
200-413	C-200-060100-0	Pedal support board
200-414	C-200-380000-0	Pedal Spring
200-415	C-200-061500-0	Cam
200-416	C-200-810000-0	Cam washer
417	B-010-060201-0	Hex socket head bolt M6×20
418	B-040-061210-1	Flat washer Ø 6X12X1
420	B-019-290121-0	Cross head self-tapping screw
200-421	CX-200-060500-0	Cam cover

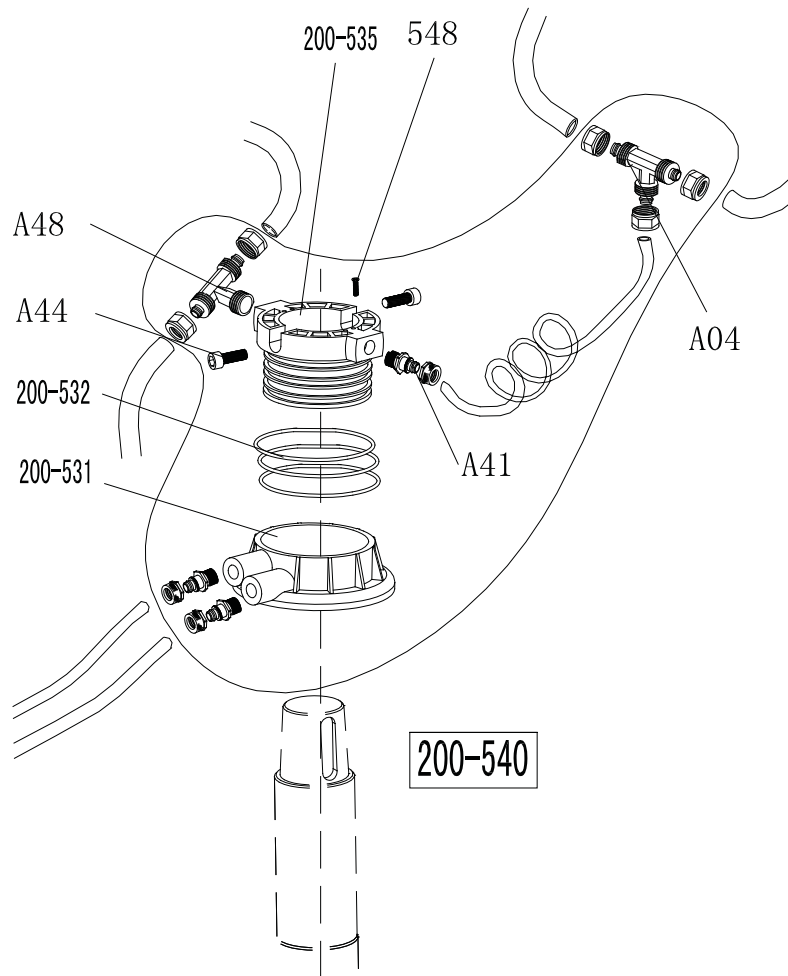
Item	Part Number	Description
422	CW-110-020000-0	Complete 5-way valve for clamping cylinder
423	CW-110-020001-0	Complete 5-way valve for bead breaker cylinder
200-424	C-200-061400-0	Reverse switch cover
425	B-004-040001-0	Nut M4
200-426	S-060-016000-1	Reverse switch
427	B-010-060201-0	Hex socket head bolt M6×20
428	B-040-061210-1	Flat washer Ø 6X12X1
429	B-040-040000-1	Flat washer Ø 4
430	B-024-040161-0	Cross-round head screw M4*16
200-431	C-200-530000-0	Reverse switch handle
432	B-001-060001-0	Self-locking nut M6
433	B-040-030000-1	Flat washer Ø3
434	B-017-030161-0	Cross head screw M3X18
200-435	CX-200-060600-0	Pedal connection rod
437	CX-200-060700-0	Pedal front shaft
438	B-004-080001-0	Nut M8
439	C-200-370000-0	Pedal twist spring
440	B-010-080501-0	Hex socket head bolt M8×50
441	B-010-080201-0	Hex socket head bolt M8×20
442	S-012-010808-0	Union (90°)1/8-Ø8
445	S-016-010808-2	Quick T-union1/8-2* Ø 8
200-449	C-200-060901-0	5-way valve barrel
200-451	C-200-061100-0	5-way valve cover
452	B-024-290121-0	Cross head screw ST2.9*14
453	S-023-010801-0	Muffler 1/8"
200-455	CX-200-061200-0	5-way valve rod
200-456	C-200-061000-0	5-way valve rod spacer
457	S-000-012400-0	O-seal 12*20*4
200-480	CW-109-020000-0	Complete 3-pedals 200

200-526

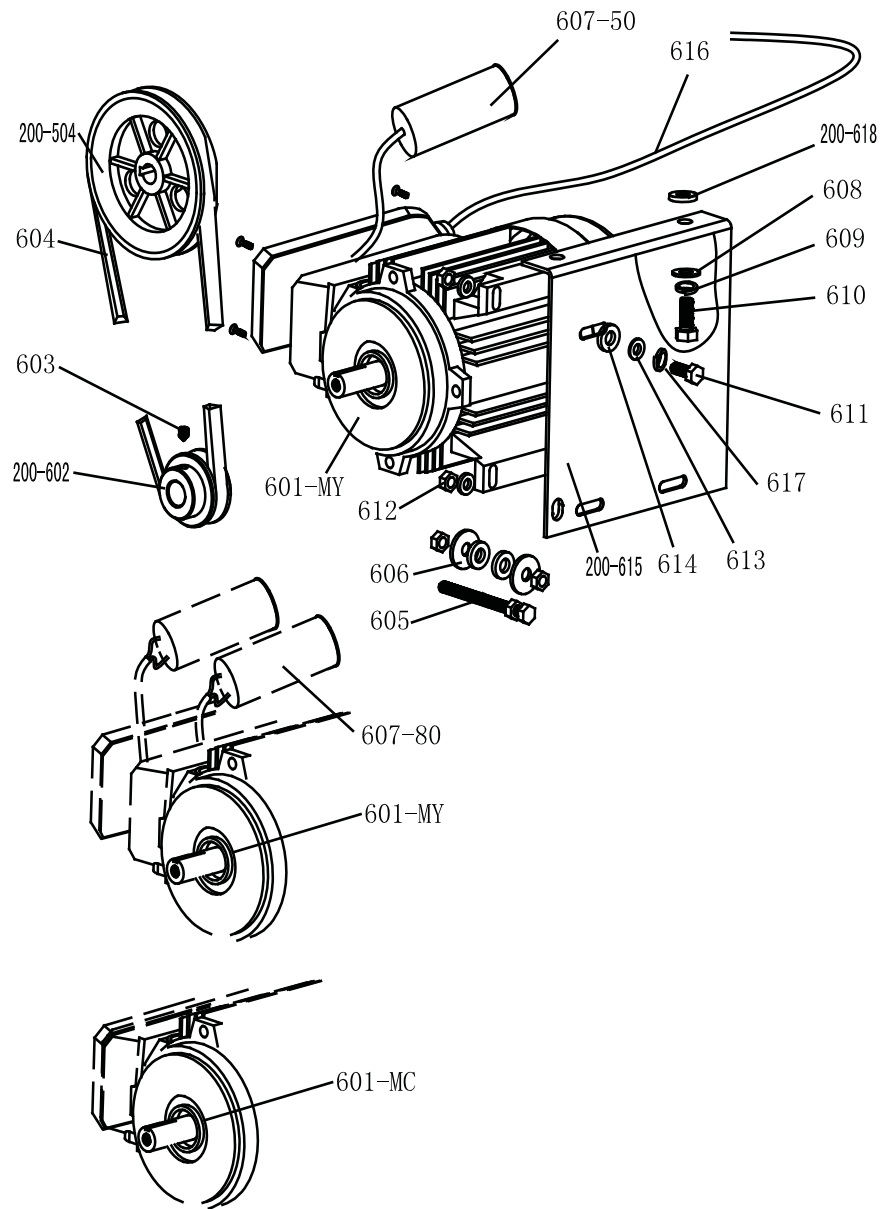


Item	Part Number	Description
200-501	C-300-320302-0	Gear box lower cover
502	S-040-030204-0	Bearing 30204
503	S-005-020080-1	Gear box seal $\phi 20 \times 35 \times 8$
200-504	C-200-320500-0	Gear Belt pulley
505	B-014-080251-0	Outer hex bolt M8x25
506	B-065-006020-0	Key washer 6x20
200-507	C-200-320400-0	Worm rod
508	S-040-006010-0	Bearing 6010
200-509	C-200-320200-0	Worm gear shaft

<b>Item</b>	<b>Part Number</b>	<b>Description</b>
200-510	C-200-320100-0	Worm gear
200-511	CZ-200-320600-0	Worm gear shaft spacer
512	B-014-100551-0	Outer hex bolt M10×55
513	B-050-100000-0	Spring washer Ø10
200-514	B-060-006020-0	Pin 6X20
515	B-040-102020-1	Flat washer Ø10X2
516	B-010-060201-0	Hex socket head bolt M6×20
517	B-040-061412-1	Flat washer Ø6*14*1.2
200-518	C-300-320301-0	Gear box upper cover
519	B-065-010040-0	Key washer 10×40
520	B-065-014040-0	Key washer 14×40
521	S-000-030355-0	O-seal Ø 30*3.55
200-522	C-200-320700-0	Oil resistant seal
200-526	CW-107-020001-0	Complete gear box



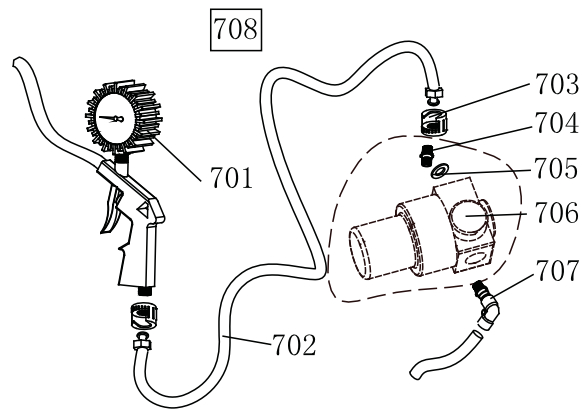
Item	Part Number	Description
A04	S-015-000008-3	T-union 3* Ø 8
A44	B-010-060161-0	Hex socket head bolt M6×16
A48	S-017-010808-2	Quick T-union 1/8-2*Ø 8
200-531	CX-200-430100-0	Rotating valve casing
200-532	S-000-059262-0	O-seal 59.9X2.62
200-535	CX-200-430200-0	Rotating valve mandrel
537	S-035-055080-0	Hose 5.5* Ø 8
A41	S-011-010808-0	Straight union 1/8"-Ø8
548	B-007-040061-0	Hex socket head bolt M4X6
200-540	CW-106-020000-0	Complete Rotating valve



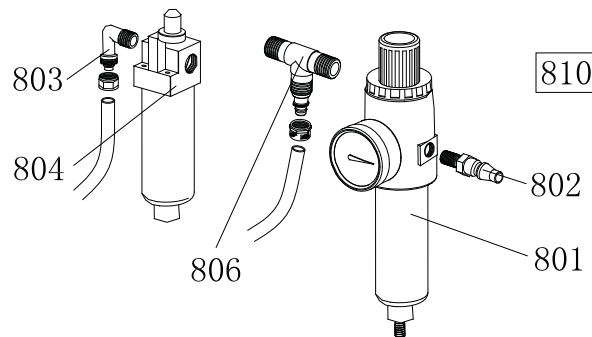
Item	Part Number	Description
200-504	C-200-320500-0	Gear Belt pulley
601-MC		Motor 220V/50HZ
601-MY		Motor 220v
200-602	CX-200-330000-0	Motor Belt pulley
603	B-007-080121-0	Hex socket head bolt M8×12
604	S-042-000686-0	Tire changer belt A-28
605	B-014-080651-0	Outer hex bolt M8X65
606	B-040-083030-1	Flat washer Ø8*30*3
607-80	S-063-008000-0	Capacitor 80µf,110V
607-50	S-063-005000-0	Capacitor 50µf,220V



<b>Item</b>	<b>Part Number</b>	<b>Description</b>
608	B-040-102020-1	Flat washer Ø10X2
609	B-050-100000-0	Spring washer Ø10
610	B-014-100251-0	Outer hex bolt M10×25
611	B-014-080351-0	Outer hex bolt M8X35
612	B-004-080001-0	Nut M8
613	B-040-082220-1	Flat washer φ8X22X2
614	C-200-560000-0	Motor rubber washer
200-615	CX-200-340000-1	Motor support
616	CZ-000-205150-0	Motor cable 5×1.0
617	B-050-080000-0	Spring washer Ø8
200-618	C-200-560000-0	Motor rubber washer

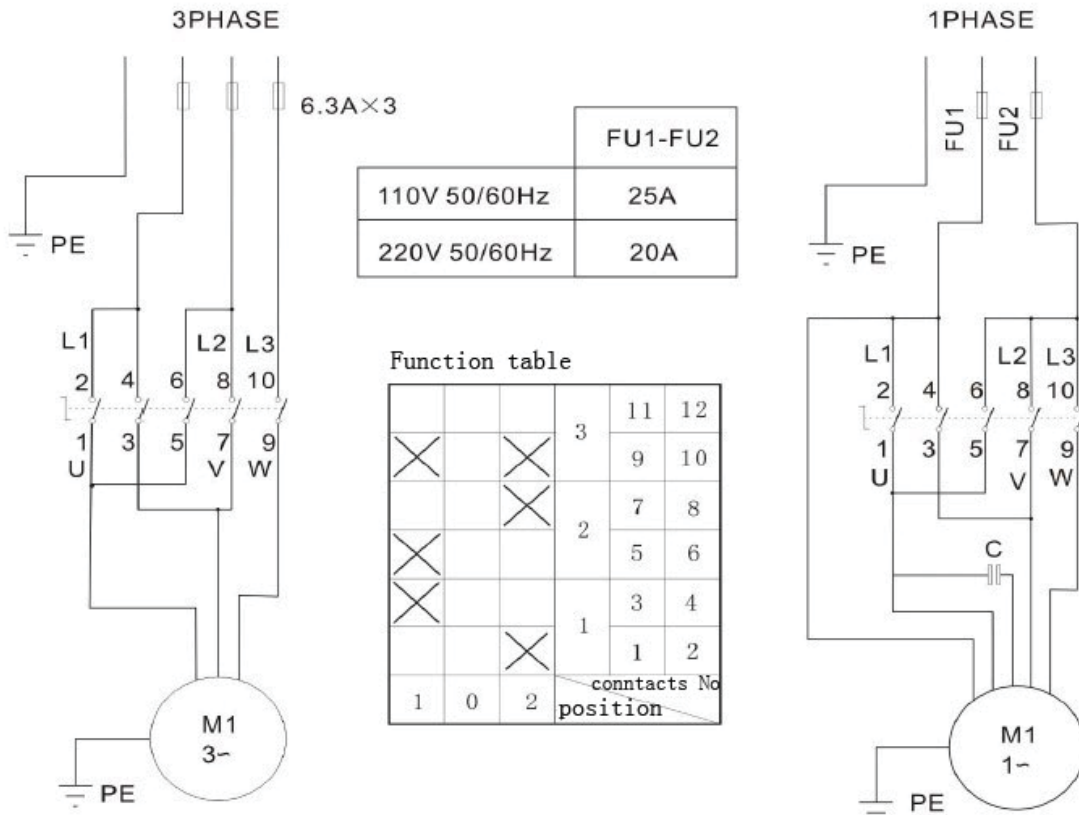


Item	Part Number	Description
701	S-038-000100-0	Inflating gun indicator
702	C-200-900000-0	Rubber connection hose
703	S-025-104008-0	Notch nut
704	S-011-010414-1	Straight union 1/4-1/4
705	B-040-132420-1	Flat washer Ø13
706	S-030-010400-2	Pressure adjust valve(optional)
707	S-012-010408-0	Quick union 1/4-Ø8
708	CW-090-000201-0	Complete inflating gun (with Pressure adjust valve)
708W	CW-090-000201-1	Complete inflating gun (without Pressure adjust valve)

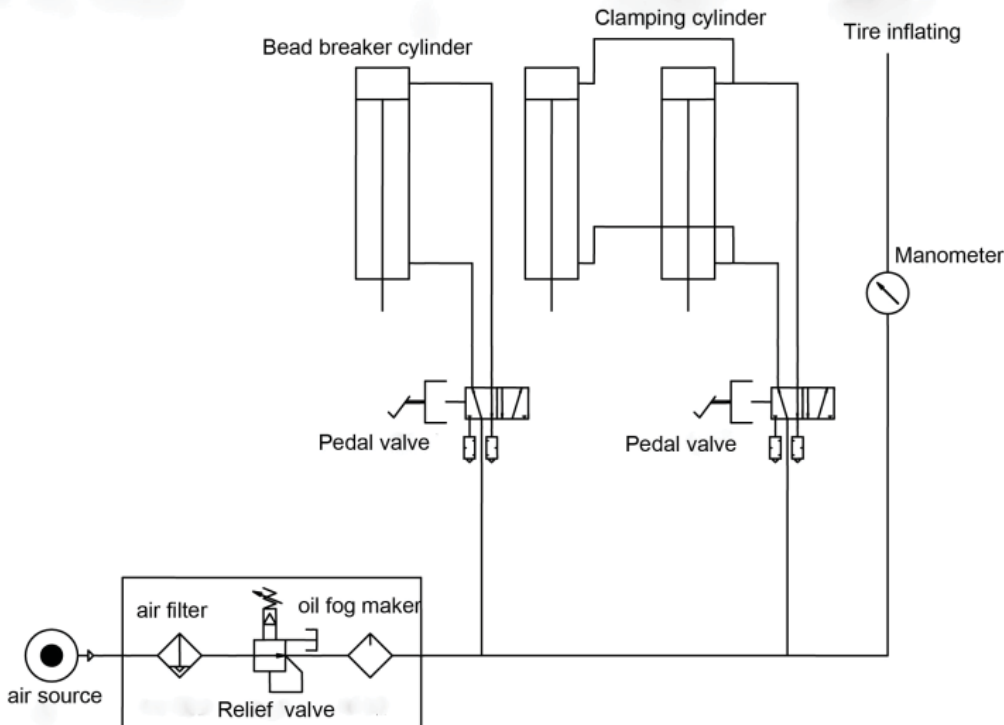


Item	Part Number	Description
801	S-033-200002-1	Relief pressure filter
802	S-025-000050-0	Quick union PM20
803	S-018-010408-0	Union (90°) 1/4-Ø8
804	S-033-200002-2	Oil fog maker
806	S-015-010414-3	T-union 3×1/4
810	CW-114-020000-0	Complete oil fog maker

# 17. Circuit Diagram



# 18. Pneumatic Drawing



# Wheel Balancing Machine

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## 1. Introduction

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An imbalanced wheel will make the wheel jump and steering wheel wobble while driving. It can baffle the driver to drive, aggrandize the cleft of combine area of steering system, damage the vibration damper and steering parts, and increase the probability of the traffic accidents. A balanced wheel will avoid all these problems. This equipment adopts the new LSI (Large Scale Integrated circuit) to constitute the hardware system that acquires processes and calculates information at a high speed.

Read the manual carefully before operating the equipment to ensure normal and safe operation. Dismantling or replacing the parts of equipment should be avoided. When it needs repairing, please contact with technique service department. Before balancing, ensure the wheel fixed on the flange tightly. Operator should wear close-fitting smock to prevent from hanging up. Non-operator does not start the equipment. No use while beyond the stated function range of manual

## 2. Specification and Features

---

### 2.1 Specification

• Max wheel weight: 140 lbs	• Power supply: DC12V 1A
• Rotating speed: about 120r/min	• Cycle time: 8s
• Rim diameter: 10"-24"(256mm-610mm)	• Noise: <70dB
• Rim width: 1.5"-20"(40mm-510mm)	• Net weight: 30Kg

### 2.2 Features

- Adopt 6 LED display, it has flexible interface operating function;
- Energy saving, motor free, hand spin;
- Various balancing modes can carry out counterweights to stick, clamp, or hidden stick etc;
- Intelligent self-calibrating;
- Automatic self-error diagnosis and protection function;
- Applicable for various rims of steel structure and aluminum alloy structure;

## 2.3 Working Environment

- Temperature: 41-100 °F;
- Altitude  $\leq 4000\text{m}$ ;
- Humidity:  $\leq 85\%$

## 3. The Structure of Dynamic Balancer

---

Dynamic balancer consists of mechanical section and electrical section:

### 3.1 Mechanical Section

Mechanical section consists of support bracket and rotary main shaft; they are together fixed on the frame.

### 3.2 Electrical System

1. The microcomputer system consists of the LSI, new high speed Micro CPU, LED display and keyboard.
2. Speed testing and positioning system consists of gear and opto-electronic coupler.
3. Horizontal and vertical pressure sensor

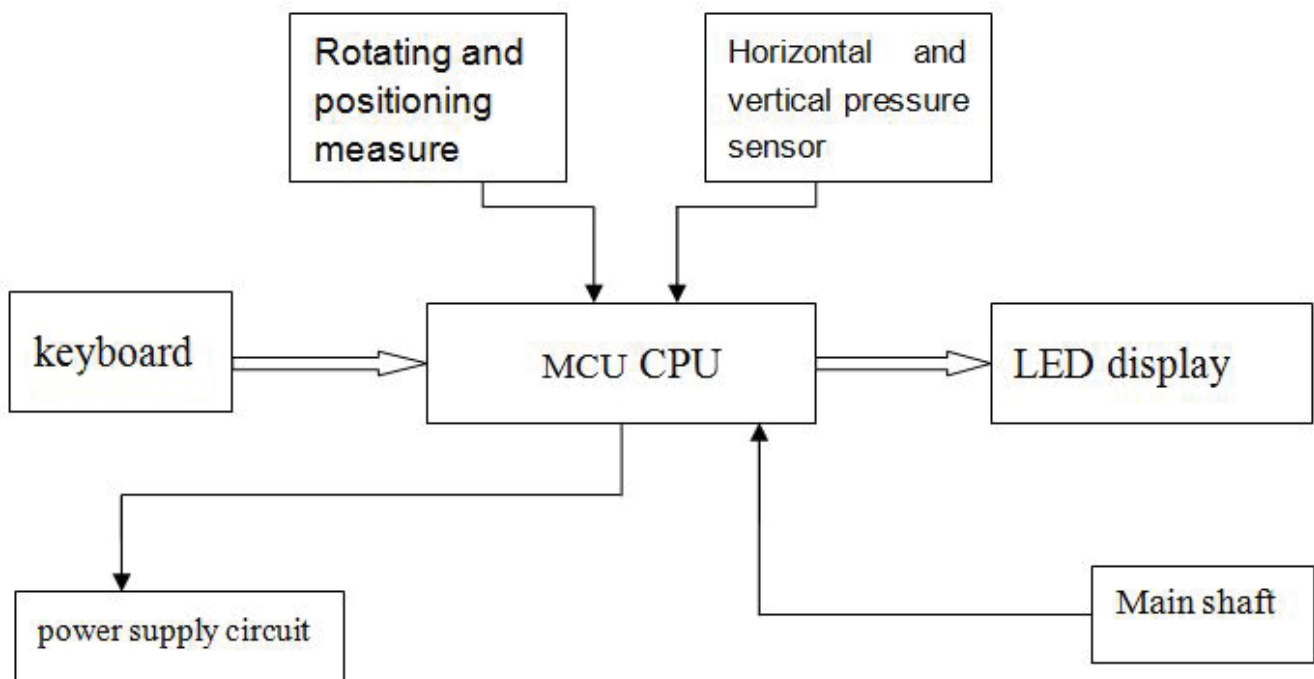


Fig 3-1 Electric System Figure

## 4. Installation of Dynamic Balancer

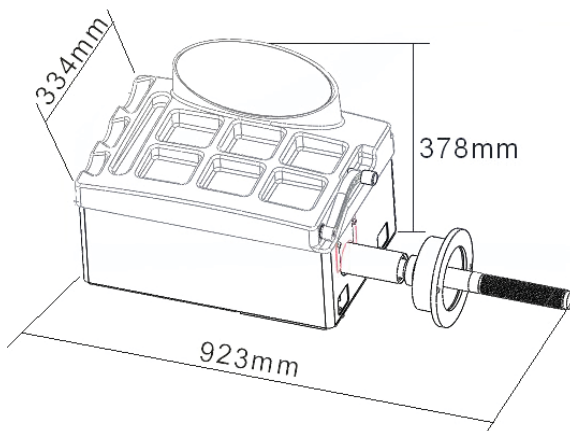
### 4.1 Opening and Checking

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:

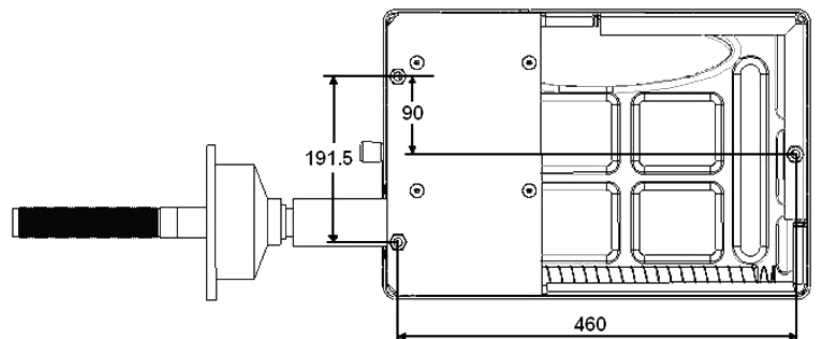
Screw stud of drive axis	1
Balancing pliers	1
Allen wrench	1
Measure caliper	1
Quick release nut	1
Cone	3
Counterweight (100g)	1

### 4.2 Installing Machine

- 4.2.1 The balancer must be installed on firm platform which is more than 60CM high and fixed with 3pcs M8 screws
- 4.2.2 There should be 500mm around the balancer in order to operate conveniently



Overall size



Installation holes position (bottom view)

### 4.3 Installing Screw Rod

Install screw rod on the main axis with M10 × 150 socket bolt, then fasten the bolt. (Refer to Fig 4-1)

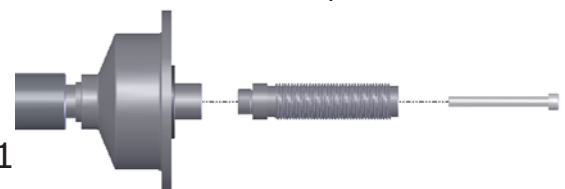


Fig 4-1

## 5. LED Display Control Panel And Function Keys

### 5.1 Introduction Of Display Control Panel

Fig 5-1 is figure of keyboard and display, introduction is as follows:

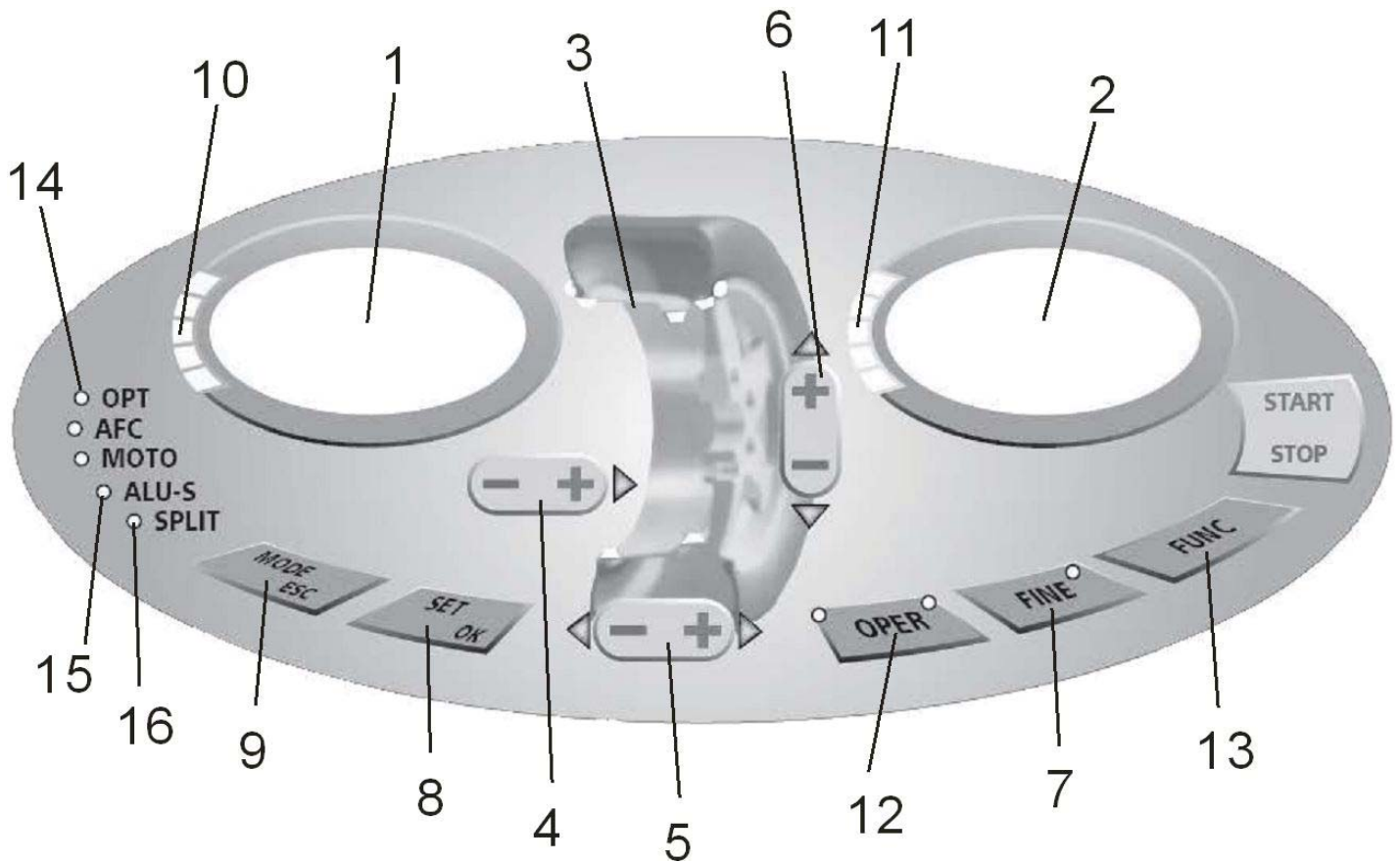


Fig 5-1

- 1- Digital readout, amount of imbalance, inside
- 2- Digital readout, amount of imbalance, outside
- 3- Balancing mode
- 4- Push buttons, manual DISTANCE setting
- 5- Push buttons, manual WIDTH setting
- 6- Push buttons, manual DIAMETER setting
- 7- Show real imbalance amount (less than 5gram), function key, gram/ounce, mm/inch, self-calibration
- 8- Push button, re-calculation
- 9- Function key of selecting balancing mode
- 10- Show imbalance position of outside
- 11- Show imbalance position of inside

- 12- Push button, optimization of unbalance
- 13- Split function
- 14- Indication of optimization
- 15- Indication of ALU-S mode
- 16- Indication of split

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

## 5.2 Main Keys And Keys Combination Functions

- [a↑] or [a↓] input distance (code 4)
- [b↑] or [b↓] input rim width (code 5)
- [d↑] or [d↓] input rim diameter (code 6)
- [SET] re-calculation
- [FINE] Show real imbalance amount
- [MODE] Function key of selecting balancing mode
- [FINE]+ [SET] Self-calibration
- [FINE]+ [a↑] + [a↓] conversion between gram and ounce
- [SET] + [MODE] Self-testing
- [FINE] + [MODE] Machine setting

### NOTE:

1. After selection of gram or ounce, setting can remain after machine power off
2. Choose unit of mm for rim width and diameter, setting cannot remain after machine power off



## 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 tire 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 Fig 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 Fig 6-2): Negative positioning is used to ensure the inner hole of steel rim and main axis 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 axis. 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 axis.

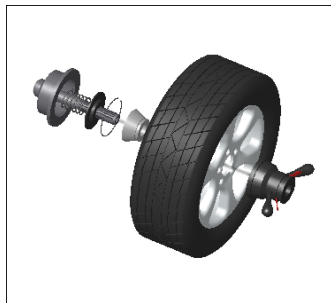


Fig 6-1



Fig 6-2

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

## 7. Rim Data Input Methods And Balancing Operation

---

### 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 enters normal dynamic balancing mode (clamp counterweights on the both rim edge) automatically, as in Fig 7-1, ready for input data of rim

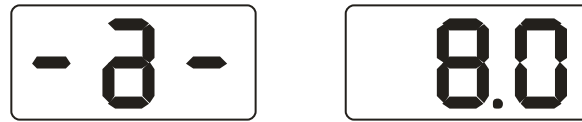


Fig 7-1

### 7.2 Data Of Wheel Input Method For Normal Dynamic Balance Mode And Wheel Balancing Operation

7.2.1 After power is on, machine enters normal balancing mode, as below



7.2.2 Input rim data: Move scale to make handle head touch rim edge inner position as Fig 7-2, get value a, put back scale. Push [a-] or [a+] to input a value

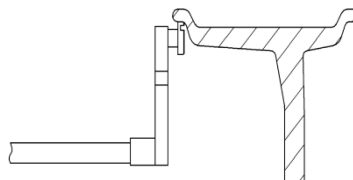


Fig 7-2

7.2.3 Input rim width: Get rim width data showing on rim, or measure rim width by caliper, push [b-] or [b+] to input b value

7.2.4 Input rim diameter: Get rim diameter data showing on rim, or measure rim diameter by caliper, push [d-] or [d+] to input d value

7.2.5 Balancing operation against normal dynamic balancing mode: Input rim data, manually rotate wheel, when display shows "RUN ---", move hand

away to let wheel rotate. When display shows "STOP", wheel stops and display shows data. Slowly rotate wheel, when inside position indication LEDs all light, (Fig 5-1 (10)), at the 12 o'clock position of rim inside, clamp weights equal to value shown on the left side display (Fig 7-3). Then slowly rotate wheel, when outside position indication LEDs all light, (Fig 5-1 (11)), at the 12 o'clock position of rim outside, clamp weights equal to value shown on the right side display (Fig 7-4). Rotate wheel by hand again, move hand away when display is off. When both side display are on, wheel stops and balancing is completed.

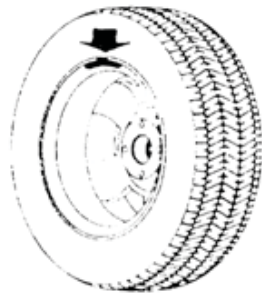


Fig 7-3

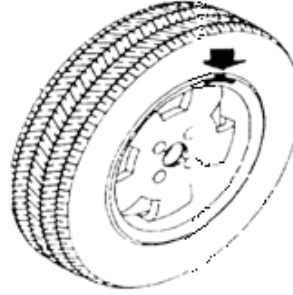


Fig 7-4

### 7.3 Static (ST) Balancing Mode Data Input Method And Balancing Operation

(ST) mode is suitable for rims on which weights only can be stucked at middle position, such as motorcycle rims.

Under normal mode, measure diameter d value (Fig 7-5), press [d-] or [d+] to input d value. (a value and b value can be any value) . Press [MODE] key to make ST mode indication light on, enter static (ST) balancing mode, mode indication as following figure.

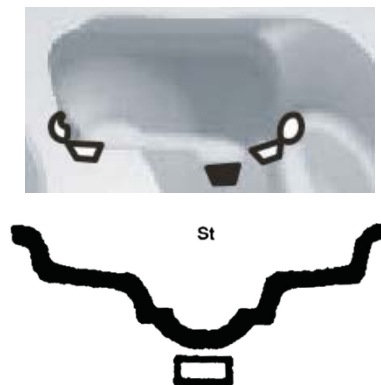


Fig 7-5

Input rim data, manually rotate wheel, when display shows "RUN ---", move hand away to let wheel rotate. Then right display shows ST and left display shows static imbalance amount as Fig 7-6. After wheel stops rotating, slowly rotate wheel, when inside position indication LEDs (Fig 5-1 (10)) and outside

position indication LEDs (Fig 5-1 (11)) all light, stick weights equal to value shown on the left side display, at the 12 o'clock position of middle rim (Fig 7-5). Again manually rotate wheel, when display shows "RUN ---", move hand away to let wheel rotate. When both side display are on, wheel stops and balancing is completed.



Fig 7-6

#### 7.4 ALU-1 Mode Data Input Method And Balancing Operation

Follow 7.2 to input rim data, press [MODE] key, mode indication as below figure, then enter ALU-1 mode to balance wheel



Input rim data, manually rotate wheel, when display shows "RUN ---", move hand away to let wheel rotate. When display shows "STOP", wheel stops and display shows data. Slowly rotate wheel, when inside position indication LEDs all light, (Fig 5-1 (10)), at the 12 o'clock position of rim inside edge, stick weights equal to value shown on the left side display (Fig 7-7 left). Then slowly rotate wheel, when outside position indication LEDs all light, (Fig 5-1 (11)), at the 12 o'clock position of rim outside edge, stick weights equal to value shown on the right side display (Fig 7-7 right) . Rotate wheel by hand again, when display shows "RUN ---", move hand away to let wheel rotate. When both side display are on, wheel stops and balancing is completed.

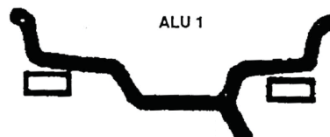


Fig 7-7

## 7.5 ALU-2 Mode Data Input Method And Balancing Operation

Follow 7.2 to input rim data, press [MODE] key, mode indication as below figure, then enter ALU-2 mode to balance wheel



Input rim data, manually rotate wheel, when display shows "RUN ---", move hand away to let wheel rotate. When display shows "STOP", wheel stops and display shows data. Slowly rotate wheel, when inside position indication LEDs all light, (Fig 5-1 (10)), at the 12 o'clock position of rim inside edge, stick weights equal to value shown on the left side display (Fig 7-8 left). Then slowly rotate wheel, when outside position indication LEDs all light, (Fig 5-1 (11)), at the 12 o'clock position of rim inside, stick weights equal to value shown on the right side display (Fig 7-8 right) . Rotate wheel by hand again, when display shows "RUN ---", move hand away to let wheel rotate. When both side display are on, wheel stops and balancing is completed

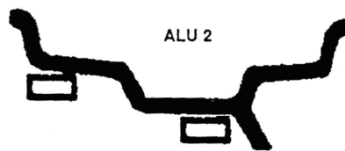


Fig 7-8

## 7.6 ALU-3 Mode Data Input Method And Balancing Operation

Follow 7.2 to input rim data, press [MODE] key, mode indication as below figure, then enter ALU-3 mode to balance wheel



Input rim data, manually rotate wheel, when display shows "RUN ---", move hand away to let wheel rotate. When display shows "STOP", wheel stops and display shows data. Slowly rotate wheel, when inside position indication LEDs all light, (Fig 5-1 (10)), at the 12 o'clock position of rim inside edge, clamp weights equal to value shown on the left side display (Fig 7-9 left). Then slowly rotate wheel, when outside position indication LEDs all light, (Fig 5-1 (11)), at the 12 o'clock position of rim inside, stick weights equal to value shown on the right side display (Fig 7-9 right) . Rotate wheel by hand again, when display shows

"RUN ---", move hand away to let wheel rotate. When both side display are on, wheel stops and balancing is completed

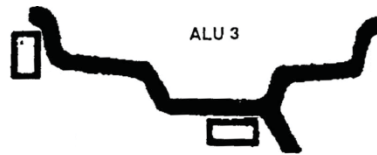


Fig 7-9

## 7.7 ALU-S Mode Data Input Method And Balancing Operation

Above three ALU modes may not be suitable for all structure rims. Balancing performance is not good under above three ALU modes for some rims. Then ALU-S mode can be adopted. Input rim data method as follows:

Press [MODE] key, to make ALU-S mode indication light on. Mode indication as following figure:



As per Fig 7-8 or Fig 7-9, move scale to rim inside (aI position), measure rim inner distance (aI) value, press [a-] or [a+] to input aI value

Move scale further inside to aE position, measure distance aE value, press [b-] or [b+] to input aE value

Measure rim diameter at aI position, press [d-] or [d+] to input dI value

Measure rim diameter at aE position, press [FINE] and [d-] or [d+] to input dE value

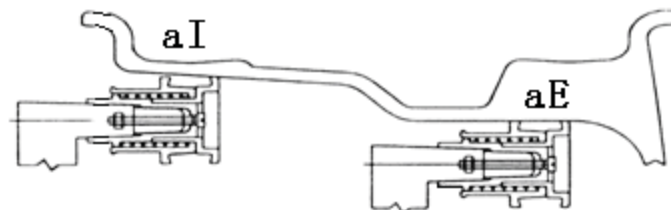


Fig 7-8

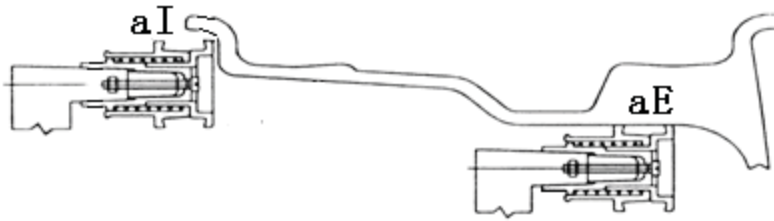


Fig 7-9

Input rim data, manually rotate wheel, when display shows "RUN ---", move hand away to let wheel rotate. When display shows "STOP", wheel stops and display shows data. Slowly rotate wheel, when inside position indication LEDs all light, (Fig 5-1 (10)), at the 12 o'clock position of rim inside aI position, stick weights equal to value shown on the left side display. Then slowly rotate wheel, when outside position indication LEDs all light, (Fig 5-1 (11)), at the 12 o'clock position of rim outside aE position, stick weights equal to value shown on the right side display. Rotate wheel by hand again, when display shows "RUN ---", move hand away to let wheel rotate. When both side display show 0, balancing is completed

## 7.8 Counterweight Split And Hidden-Stick Mode

This mode can split counterweights between two spokes into two section counterweight and the two section counterweights may be stuck behind two adjacent spokes so that counterweights are hidden . This mode is based on ALU-S mode.

Follow 7.7 operation, if outer side counterweight sticking position is not behind spokes, and user needs to hide counterweight behind spokes, user can operate as follows:

Press [FUNC] key, SPLIT indicator light (Fig 5-1 (16)) is on, spoke numbers inputting interface appears (Fig 7-10) . Press b+ or b- key to input spoke numbers, press [FUNC] key;



Fig 7-10

Slowly rotate wheel, make one piece spoke vertical upwards, press [FUNC] key

Slowly rotate wheel, find two imbalance positions following the imbalance position indication light, stick counterweights equal to two sections value at 12 o'clock position behind spokes. Quickly rotate wheel to balance wheel. Counterweights split and hidden operation is completed.

## 7.9 Recalculation

Before wheel balance testing, sometimes operator may forget input current data of rim. Data can be inputted after wheel balance testing. Then it is not necessary to make balancing test again. Operator only needs to press [SET] key, system can re-calculate imbalance value with new data. Under interface showing imbalance value, press [SET] key to check current inputted data of rim

## 8. Imbalance Optimize

---

If wheel imbalance value over 30 gram, system will be display "OPT", indicate to carry out imbalance optimize

Imbalance optimize have two operation method:

### 8.1 Already Display Balance Value

If already finish balance testing, when you need process imbalance optimize, press OPT key, display Fig 8-1;



Fig 8-1

Use chalk mark a reference point on the flange and rim and tire, use tire changer to exchange rim and tire by 180°

Re-install wheel on the balancer and make sure mark of reference point between the flange and rim must be on the same position. Quickly rotate wheel to balance wheel, after rotation stop, display Fig 8-2;



Fig 8-2

As per above Fig 8-2, left display shows percent of optimize. If before optimize static value is 40 gram, optimized percent is 85%, so after optimize static value only 6 gram remain ( $15\% \times 40\text{gram} = 6\text{gram}$ );

Slowly rotate wheel by hand, when both end sides two of position indicator light flash (Fig 8-3), use chalk to make a mark on the tire



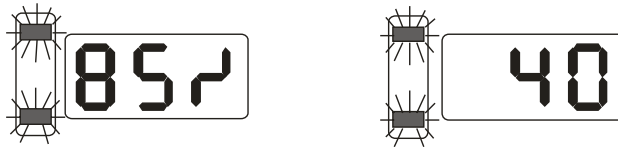


Fig 8-3

Slowly rotate wheel by hand again, when both side middle position indicator light flash (Fig 8-4), use chalk to make a mark on the rim

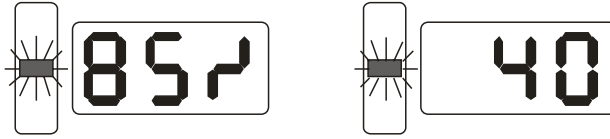


Fig 8-4

Demount wheel from balancer, use tire changer to demount tire from rim. Remount tire on rim to make tire and rim marks at same position. Optimize complete.

## 8.2 After Power On And Before Balancing, Also May Process Imbalance Optimize Directly

Turn on the power, install wheel, press OPT key, left side display shows OPT, quickly rotate wheel for balance testing. When rotation stops, display shows Fig 8-1, follow 8.1 operation. Press [SET] key to stop operation

## 9. Self-Calibrating Of Dynamic Balancer

---

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

9.1 After the power-on of the machine, the initialization is finished (Fig 7-1), install a middle size balanced rim which can be clamped with counterweight, follow 7.2 to input data of rim;

9.2 Press [FINE] + [SET] key (Fig 9-1), manually rotate wheel, when display is off, move hand away to let wheel rotate. When display shows "REDUCE", it means rotary speed is too faster now. When rotary speed reaches normal speed, display shows "RUN ---". When display shows "STOP", wheel stops rotating, display is as Fig 8-2 .Press [SET] key to exit;



Fig 9-1

9.3 As per Fig 9-2, clamp a 100 gram counterweight on anywhere of outside of rim, manually rotate wheel, when display is off, move hands away to enter next step, Press [SET] key to exit;



Fig 9-2

9.4 As per Fig 9-3, wheel stops rotating, calibration ends. Demount tire, now balancer is ready to work.



Fig 9-3

**NOTE: when doing self-calibration, input data 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. Gram-Oz Conversion Operation

---

This operation for counterweight weight unit conversion (gram-Oz)

1. Press [a-] or [a+] key, Fig 7-1;
2. Press [FINE] and hold it, then press [a+] and [a-] keys, weight unit is converted to Oz
3. Again press [FINE]+ [a+]+[a-] keys, weight unit is converted to Gram
4. Repeat 10.3 operation to convert weight unit between Gram and Oz

## 11. Other Function Settings

---

### 11.1 Minimum Value Display Settings

Select minimum display value, if wheel imbalance value is less than setting value, displayed result will be 0. Press FINE key, real imbalance value can be shown.

Press [FINE] + [MODE] keys, show Fig 11-1 which means if imbalance value is less than 5 gram, displayed result will be 0, press [b-] or [b+] key to set

minimum display value : 5,10 or15. Press [a+] key to save current setting and enter next step.



Fig 11-1

### 11.2 Key-Tone Clue On Function Settings

This function can turn on or off key-tone. When turn on this function, every time press key, system will emit a "di" tone. When turn off this function, press key and there is no tone

Follow 10.1 and press [a+] key to enter, show Fig 11-2, right side display shows ON, means the function has been turned on. Display showing OFF means the function has been turned off. Press [b-] or [b+] key to shift function between "ON" and "OFF". Press [a+] key to save current setting and enter next step.



Fig 11-2

### 11.3 Display Monitor Brightness Settings

This function is for setting display brightness according working environment and user need

Follow 10.2 and press [a+] key to enter, show Fig 11-3, right side display shows brightness level. Totally 8 levels. Level 1 means dimmest display. Level 8 means brightest display. Default level is 4 . Press [b-] or [b+] key, to change levels. Press [a+] key to save current setting and enter next step .



Fig 11-3

### 11.4 INCH And MM Conversion Operation

Most rims has sizes unit INCH. If the unit is MM, system unit can be set to MM. If value has decimal, current unit is INCH. If value has no decimal, current unit is MM. This setting does not retain when machine is power off. System default unit is INCH

Follow 10.3, press [a+] key to enter (Fig 11-4), right side display shows ON, means unit is INCH, shows OFF, means unit is MM. Press [b-] or [b+] key, to shift "ON" and "OFF". Press [a+] key to save current setting and exit.

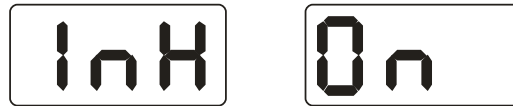


Fig 11-4

## 12. Machine Self-Test Function

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This function is for checking whether all inputted signals are normal and supports trouble analyses.

### 12.1 LED And Indicator Light Check

Press [SET] + [MODE] keys, indicator light and LEDs light. This function can check whether LEDs or indicator light are damaged. Checking ends and display shows Fig 11-1. Enter position sensor signal check. Press [SET] key to exit.

### 12.2 Position Sensor Signal Check

This function can check whether position sensor, main shaft, main board circuit are with error. As per Fig 12-1, slowly rotate main shaft, value shown in right side display changes accordingly. Rotate clockwise, value increases; Rotate anticlockwise, value decreases. Normally, value changes among 0-63. Press [a+] key to enter press sensor signal check. Press [SET] key to exit.



Fig 12-1

### 12.3 Press Sensor Signal Check

This function can check whether press sensor, main board signal circuit and power board are with error.

Follow 12.2 and press [a+] key to enter (Fig 12-2). Then lightly press main shaft, if normally, values shown on display should be changed. Press [a+] or [SET] key to exit.



Fig 12-2

## 13. Trouble Shooting

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13.1 Manually rotate wheel to rating speed, LEDs are not off and balancing test is going on. Computer board, position sensor and cables should be checked.

13.2 After machine power on, there is no display. Check power switch indicator light. If light is off, power supply gets problem. Otherwise, check power board, computer board and cables.

13.3 Inaccuracy of precision normally is not caused by balancer. It may be caused by wrong wheel installation, inaccurate counterweight or inaccurate 100g weight. The original 100g weight must be kept properly for self-calibration only

13.4 Unstable data and poor repeatability of data normally are not caused by balancer. It may be caused by wrong wheel installation or unstable installation of machine. Machine should be well fixed on ground by bolt.

### **Hint: check precision right method:**

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

## 14. Maintenance

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### 14.1 The Daily Maintenance Of Non-Professionals

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

13.1.1 Check whether the wire of electricity part connects reliably.

13.1.2 Check whether the pressed screw of the main axis is loose

13.1.2.1 Locking nut cannot fix wheel tighten on main-axis

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

## 14.2 The Maintenance Of Professionals

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

14.2.1 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

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

The steps are as follows:

1. Unlash the No.1, 2,3,4,5 nuts.
2. Dismantle the sensor and nut.
3. Replace No.6, 7 the sensor organ.
4. Install the sensor and the nut according to the Fig 14-1. (Pay attention to the sensor's direction.)
5. Tighten No.1 nut emphatically.
6. Tighten the No.2 nut to make the main axis and the flank of cabinet, and then emphatically tighten the No.3 nut.
7. Tighten the No.4 nut (not too emphatically), then tighten No.5 nut.

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

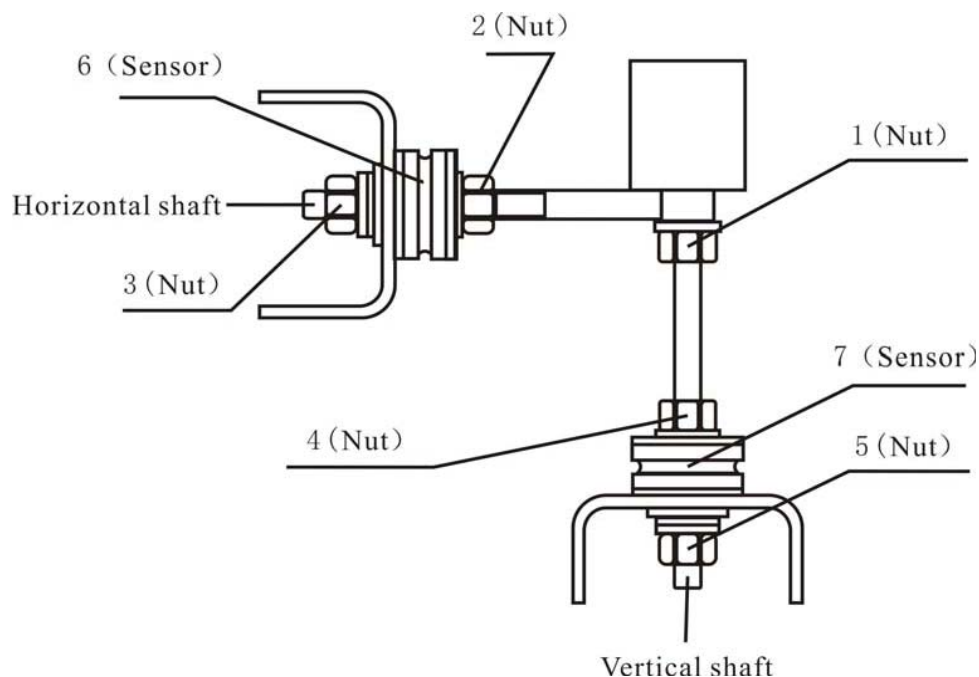


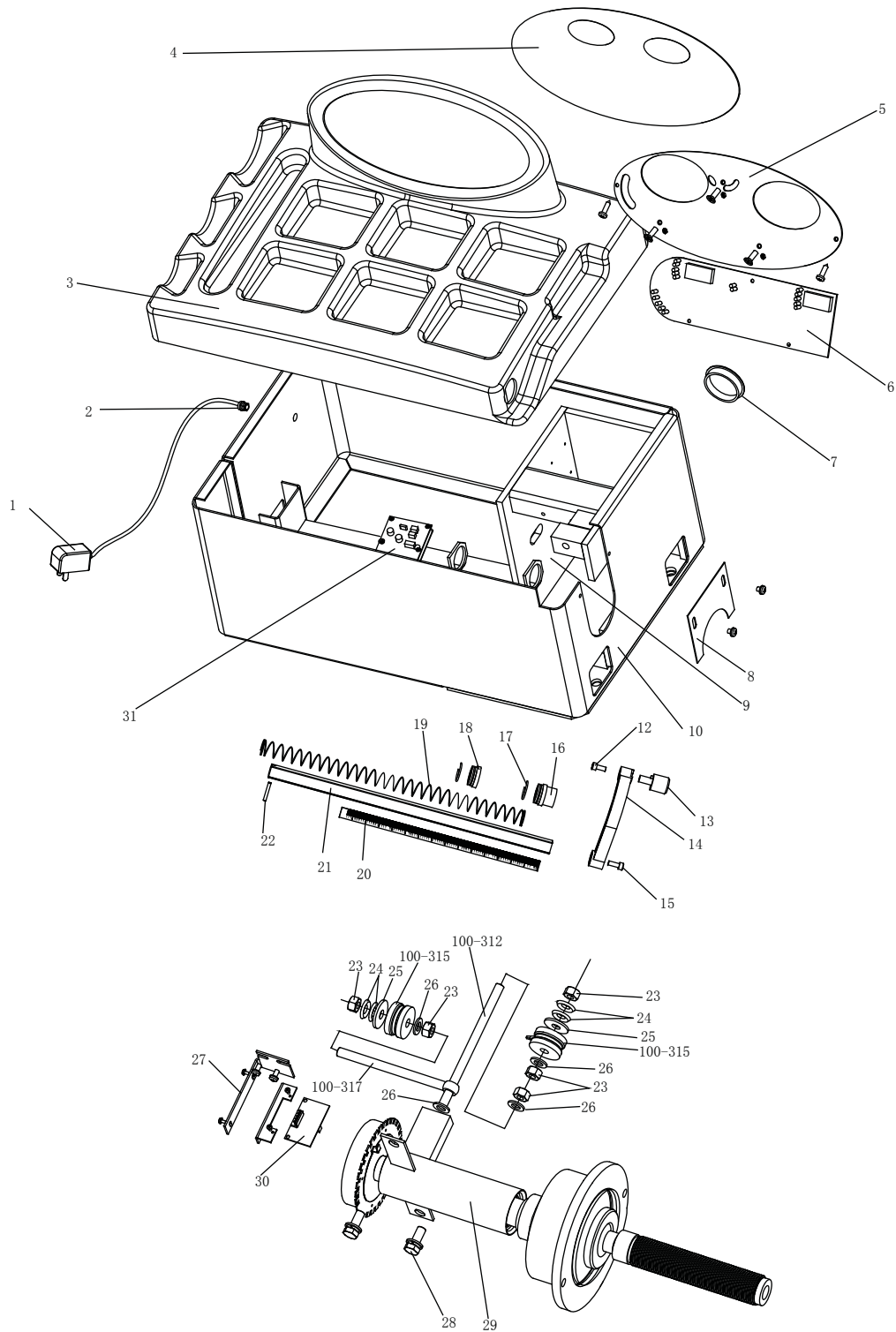
Fig 14-1

## 15. Trouble-Error Code List

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

Code	Meanings	Cause	Remedy
Err 1	principal axis not spin or have not spin signal	1. computer board fault 2. connection-peg untouched	1. change computer board 2. check cable connections
Err 2	The rotation speed is low	1. position sensor fault 2. wheel not impacting or weight too light 3. computer board fault	1. change position sensor 2. repeat impacting wheel 3. change computer board
Err 3	Miscalculation	too high imbalance	Repeat the self-calibration or change computer board
Err 4	principal axis wrong rotation direction	1. position sensor fault 2. computer board fault	1. change position sensor 2. change computer board
Err 6	Sensor signal transact circuit not working	1. power supply board fault 2. computer board fault	1. change power supply board 2. change computer board
Err 7	Lose date of interior	1. Incorrect self-calibration 2. computer board fault	1. Repeat the self-calibration 2. change computer board
Err 8	Self-calibration memory fault	1. not put 100 gram on the rim when self-calibration 2. power supply board fault 3. computer board fault 4. press sensor fault 5. connection-peg untouched	1. follow right method repeat self-calibration 2. change power supply board 3. change computer board 4. change press sensor 5. check cable connection

# 16. Exploded Drawings





## 17. Spare Parts List

No.	Code	Description	Qt.
1	S-052-000012-0	Power Adapter	1
2		Power Interface	1
3	P-110-190000-0	Head with tools-tray	1
4	S-115-001100-0	Key board	1
5	P-110-110000-0	Key fixed plate	1
6	PZ-000-010110-0	Computer board	1
7	S-036-404500-0	Plastic cover	1
8	PX-100-110000-0	Plate	1
9	PX-110-010200-0	Mounting base	1
10	PX-110-010000-0	Chassis	1
12	B-024-050101-1	Screw	1
13	P-100-160200-0	Head	1
14	P-822-160100-0	Handle	1
15	B-010-060161-0	Screw	1
16	P-100-170000-0	Plastic bush	1
17	P-100-520000-0	Spring	1
18	P-100-170000-A	Plastic bush	1
19	P-100-210000-0	Spring	1
20	Y-004-000070-0	Graduated strip	1
21	P-100-900000-0	Rim distance gauge	1
22	B-061-004030-0	Pin	1
23	B-004-100001-2	Nut	5
24	B-048-102330-1	Washer	4
25	B-040-124030-1	Washer	1
26	B-040-102020-1	Washer	6
27	PX-110-220000-0	Support	1
28	B-014-100251-0	Screw	2
29	S-100-000110-0	Complete Shaft	1
30	PZ-000-040110-0	Position Pick-up Board	1
31	PZ-000-020110-0	Power Board	1
100-312	P-100-080000-0	Screw	1
100-315	S-131-000010-0	Sensor Assembly	2
100-317	P-100-070000-0	Screw	1