Wheel Balancer Operation Manual
Models: 750F-760F





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IMPORTANT SAFETY INSTRUCTIONS

The equipment can only be operated by qualified personnel trained to use this equipment. Misuse of the machine for other purpose or modifying any components of the equipment without receiving the permission from the manufacturer may result in direct or indirect damage to the equipment.

Due to the many variations in procedures, techniques, tools, and parts for changing tires as well as the skill and training of the individual performing the work, the manufacture cannot anticipate any or all warnings necessary for the safe operation of the Tire Balancer. It is the technician's responsibility to be knowledgeable in the safe and acceptable means of changing tires on the wheels that are being serviced. Never endanger your safety, the safety of others in the work area or the equipment or vehicle being serviced.

1. Eye and face protection recommendations:
   "Protective eye and face equipment is required while using this equipment due to potential of injury." O.S.H.A. 1910.133(a) Protective goggles, safety glasses, or a face shield must be provided by the owner and worn by the operator of the equipment. Care should be taken to see that all eye and face safety precautions are followed by the operator. ALWAYS WEAR SAFETY GLASSES. Everyday glasses only have impact resistant lenses, they are not safety glasses.
2. Be sure that wheels are mounted properly, the hub nut engages the arbor for not less than four (4) turns, and the hub nut is firmly tightened before spinning the wheel.
3. Read and understand this manual before operating. Abuse and misuse will shorten the functional life.
4. Be sure the balancer is properly connected to the power supply and electrically grounded.
5. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged until it has been examined and repaired by a qualified serviceman.
6. Do not let cord hang over edge of table, bench, or counter or come in contact with hot manifolds or moving fan blades.
7. If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
8. Keep guards and safety features in place and in working order.
9. Wear proper clothing. Safety toe, non-slip footwear and protective hair covering to contain hair is recommended. Do not wear

jewelry, loose clothing, neckties, or gloves when operating the balancer.

10. Keep work area clean and well lighted. Cluttered and/or dark areas invite accidents.
11. Avoid dangerous environments. Do not use power tools or electrical equipment in a damp or wet environment, or expose them to rain.
12. Avoid unintentional starting. Be sure the balancer is turned off and power disconnected before servicing.
13. Disconnect the balancer before servicing.
14. Use only manufacturer's recommended accessories. Improper accessories may result in personal injury or property damage.
15. Repair or replace any part that is damaged or worn and that may cause unsafe balancer operation.
16. Do not operate damaged equipment until it has been examined and repaired by a qualified service technician.
17. Never overload or stand on the weight tray or any part of the balancer.
18. To reduce the risk of fire, do not operate equipment in the vicinity of open containers or flammable liquids (gasoline).
19. Adequate ventilation should be provided when working on or operating internal combustion engines.
20. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
21. Use equipment only as described in this manual.
22. Use only manufacturer's recommended attachments and accessories.
23. The equipment should be installed on the stable surface and not on a wooden pallet.
24. Keep the back panel 0.6 meters away from the wall to allow adequate ventilation. Enough room should be left on both sides for convenient operation.
25. Do not install the equipment in a place with high temperature or moisture, near the heating system, water tap, air-humidifier or chimney.
26. Avoid contact with lots of dust, ammonia, alcohol, thinner or spraying binder.
27. People who are not operating the machines should be kept away during normal operation.
28. Pay special attention to the warning labels on the machine.
29. Do not touch or approach the moving parts by hand during operation.
30. Do not remove the safety device or prevent it from working properly.

SAVE AND FOLLOW THE ABOVE INSTRUCTIONS

Owner's Responsibility

To maintain machine and user safety, the responsibility of the owner is to read and follow these instructions:

- Follow all installation instructions.
- Make sure installation conforms to all applicable Local, State, and Federal Codes, Rules, and Regulations; such as State and Federal OSHA Regulations and Electrical Codes.
- Carefully check the unit for correct initial function.
- Read and follow the safety instructions. Keep them readily available for machine operators.
- Make certain all operators are properly trained, know how to safely and correctly operate the unit, and are properly supervised.
- Allow unit operation only with all parts in place and operating safely.
- Carefully inspect the unit on a regular basis and perform all maintenance as required.
- Service and maintain the unit only with authorized or approved replacement parts.
- Keep all instructions permanently with the unit and all decals/labels/notices on the unit clean and visible.
- Do not override safety features.

Operator Protective Equipment:

Personal protective equipment helps make tire servicing safer. However, equipment does not take the place of safe operating practices. Always wear durable work clothing during tire service activity. Loose fitting clothing should be avoided. Tight fitting leather gloves are recommended to protect operator's hands when handling worn tires and wheels. Sturdy leather work shoes with steel toes and oil-resistant soles should be used by tire service personnel to help prevent injury in typical shop activities. Eye protection is essential during tire service activity. Safety glasses with side shields, goggles, or face shields are acceptable. Back belts provide support during lifting activities and are also helpful in providing operator protection. Consideration should also be given to the use of hearing protection if tire service activity is performed in an enclosed area, or if noise levels are high.

Definitions of Hazard Levels

Identify the hazard levels used in this manual with the following definitions and signal words:

DANGER

Watch for this symbol:



It Means: Immediate hazards, which will result in severe personal injury or death.

WARNING

Watch for this symbol:



It Means: Hazards or unsafe practices, which could result in severe personal injury or death.

CAUTION

Watch for this symbol:



It Means: Hazards or unsafe practices, which may result in minor personal injury or product or property damage.

BE ALERT

Watch for this symbol! It means BE ALERT! Your safety, or the safety of others, is involved!



Safety Notices and Decals



Failure to follow danger, warning, and caution instructions may lead to serious personal injury or death to operator or bystander or damage to property. Do not operate this machine until you read and understand all the dangers, warnings and cautions in this manual. For additional copies of either, or further information, contact:

Standard Safety Devices



Keep hair, loose clothing, fingers and all parts of body away from moving parts.

• Press STOP key for stopping the wheel under emergency conditions.

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INTRODUCTION

Congratulations on the purchase of the KATOOL 750F-760F wheel balancer. This wheel balancer is designed for ease of operation, safe handling of wheels, reliability, and speed. This equipment will provide many years of trouble-free operation requiring minimum maintenance and care. Please read this manual thoroughly before operating the unit. Instructions on use, maintenance and operational of the machine are covered in this manual.

USAGE: This Wheel Balancer has been designed and manufactured specially for balancing automotive wheels.



Any other use is to be considered incorrect and unreasonable. The manufacture will not be responsibility for any damage caused from misuse of this Tire Changer. Any use other than that specified in this manual is inappropriate, incorrect, and unreasonable.

KEEP THIS MANUAL NEAR THE MACHINE FOR FUTURE REFERENCE

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Failure to follow the instructions and safety precautions in this manual can result in serious injury or death.
Make sure all other operators also read this manual. Keep the manual near the product for future reference.
By proceeding with setup and operation, you agree that you fully understand the proper use of this product and assume full responsibility of product use.

1.0 Product Specifications

KT-750F/760F Wheel Balancer

- The equipment is built with 3mm (1/8”) thick steel with continuous welds to avoid induced vibration
- All-in-one pressure sensor supported design with 8mm thick bottom and side boards to ensure high precision sensor performance.
- High quality motor design with pure Copper windings that provide consistent power, quick heat dissipation, lower defect rate and long life.
- 36mm threaded shaft is made of high strength steel.
- All electronics are moisture proof, dust proof and have antistatic protection.
- Multiple balance modes for different types of rims for high precision wheel balancing.
- Built-in fault diagnostics and double side self-calibration system. No preset parameters to allow ease of use for the operators.
- Unit selection (Ounce/Gram, MM/Inch)
- High quality integration power board, for stable and reliable operation.
- Optional wheel guard
- Longer mounting shaft compatible with wider wheels.

SPECIFICATION

MODEL	750F-760F
Rim Diameter:	<30"
Wheel Width:	15"
Wheel Diameter:	< 880mm/34.64"
Balancing Speed:	180 rpm
Power Supply:	110V Single Phase
Motor Power:	0.25KW
Rim Center Hole Dia.:	<135mm/5.31"
Wheel Weight:	< 65KG/143lbs
Balancing Accuracy:	±1 gram
Measuring Time:	7 seconds

2.0 Wheel Balancer Set Up Instructions

2.1 Mechanical installation

2.1.1 The equipment should be installed on flat and stable ground, not on a wooden pallet, to ensure high equipment performance accuracy. The balancer must sit solidly on its feet. If the balancer is not level, does not sit solidly on its feet, or is placed on an unstable floor, the balancer will not function properly and may produce inaccurate balance readings.

2.1.2 Keep the back panel 0.6 meters away from the wall for good ventilation (Figure 2.0). Enough room should be left on both sides for convenient operation. Select a location for the balancer that provides a level, solid floor, and adequate clearance around and above the balancer. The location must also provide working room for mounting and removing wheels. Make sure the area has adequate lighting.

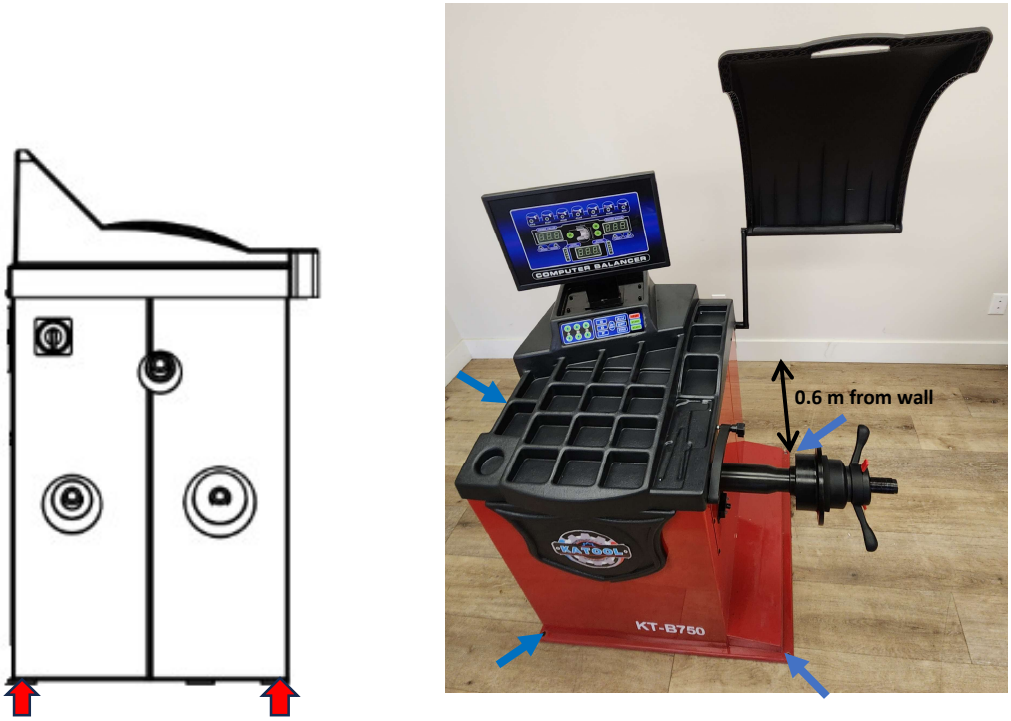


Figure 2.0 – Always lift the machine upright evenly from the front and back (See the red arrows)

2.1.3 Secure the balancer to floor with concrete screws at 4 locations marked by the blue arrow in the picture shown above (Figure 2.0).

2.1.4 Mechanical Installation for **750F**



Figure 2.1 Secure the display panel to the balancer

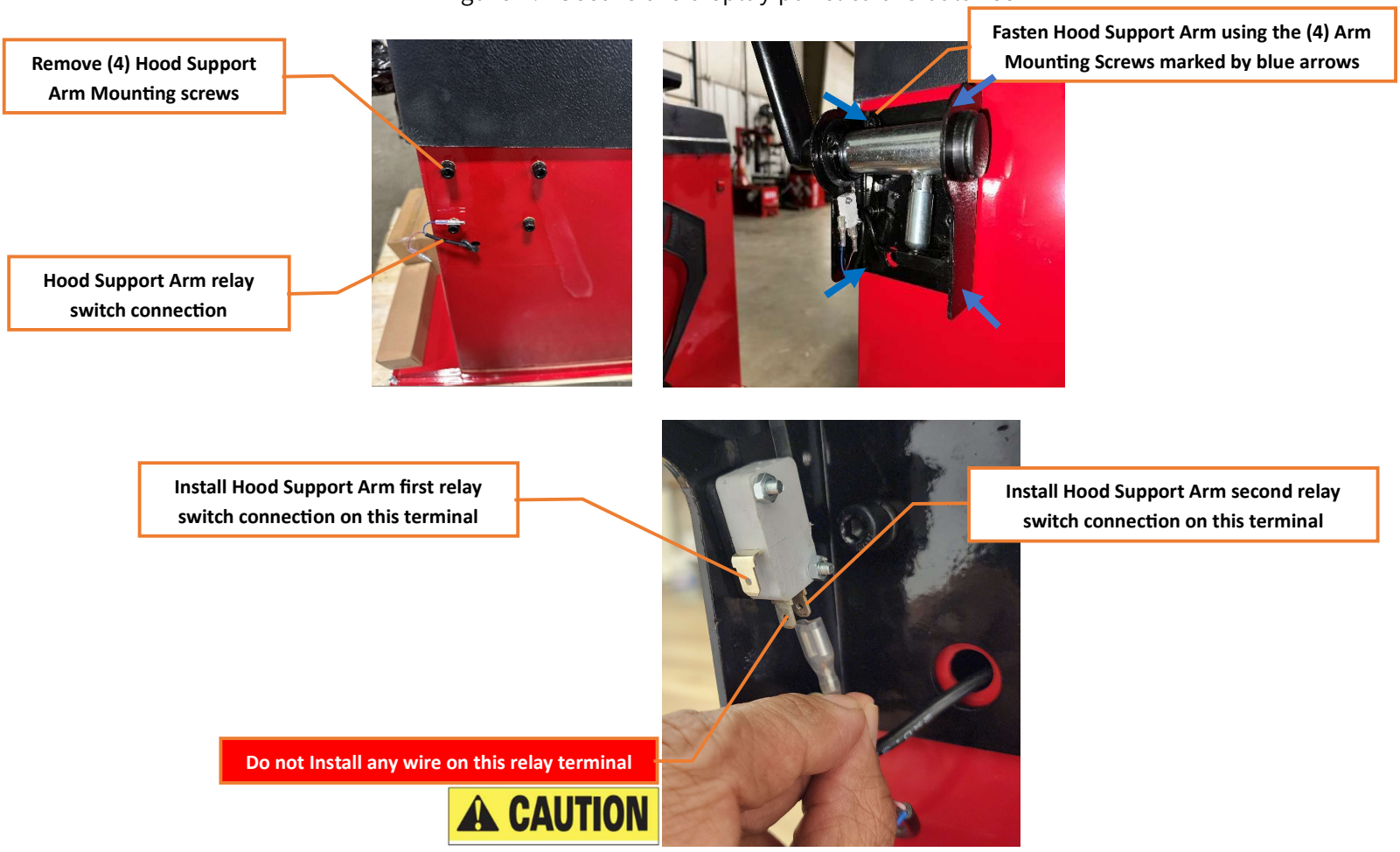


Figure 2.2 Install hood support arm bracket assembly

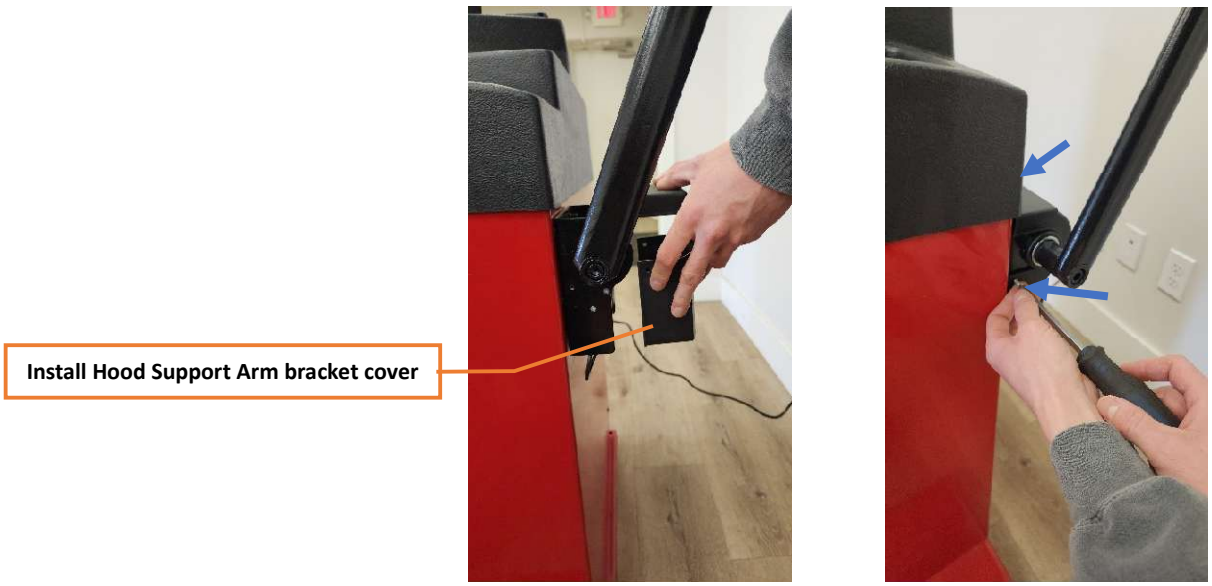


Figure 2.3 Install hood support arm bracket assembly cover and secure with (2) screws provided marked by blue arrows

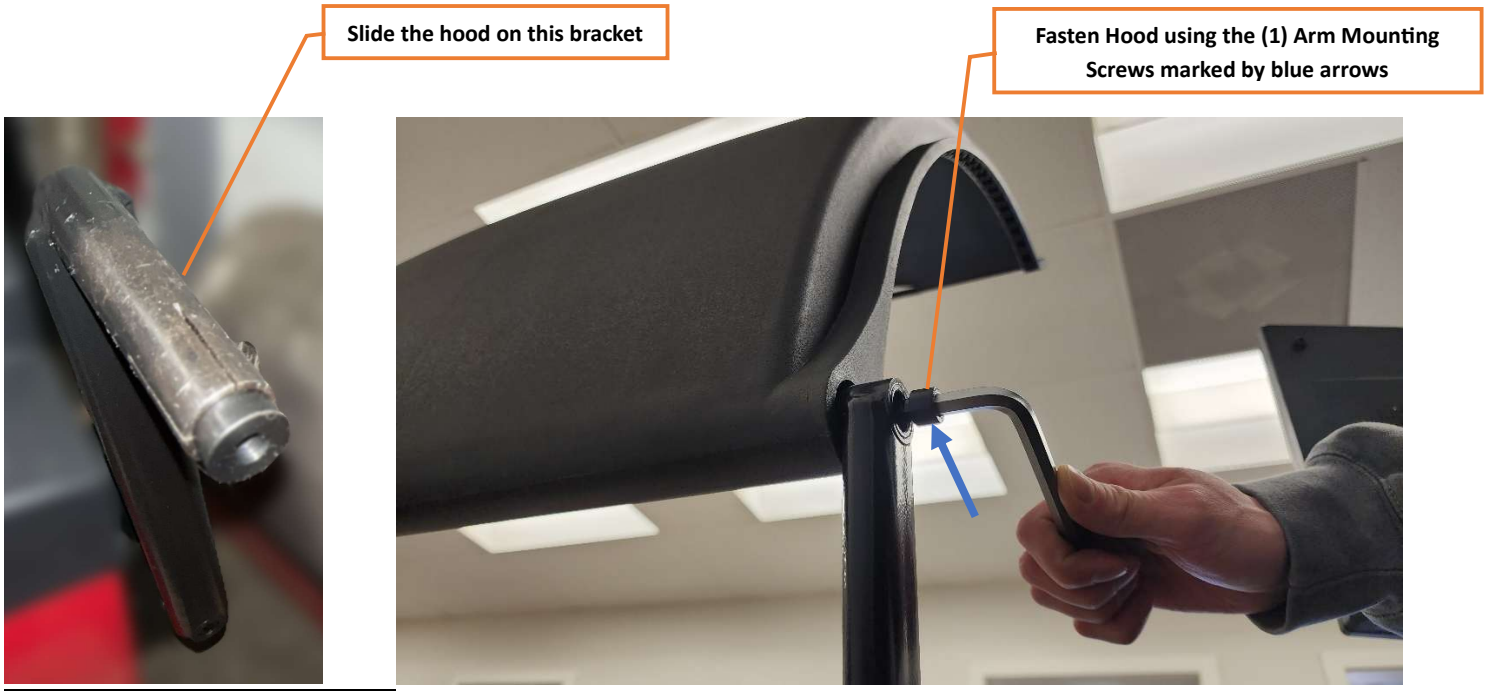
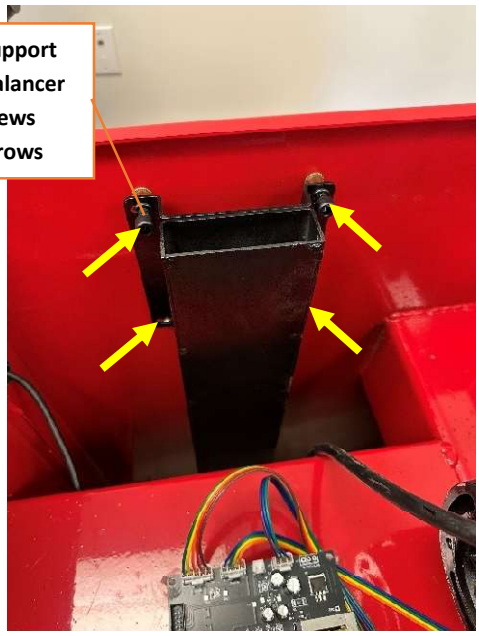


Figure 2.4 Slide hood on arm bracket assembly secure with the screw provided marked by blue arrow

2.1.2 Mechanical Installation for **760F**

Remove the display support tube from inside the balancer by removing the screws marked by yellow arrows





Reuse the screws removed in the picture above to fasten the display tube on the outside of the balancer marked by the blue arrows.

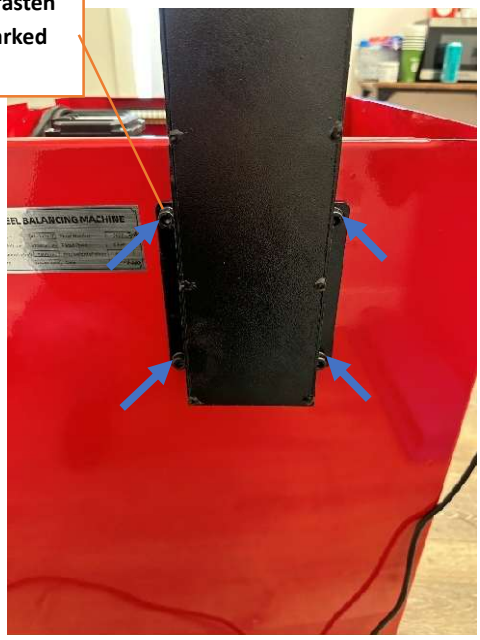


Figure 2.5 Removal and installation of the display panel support tube.

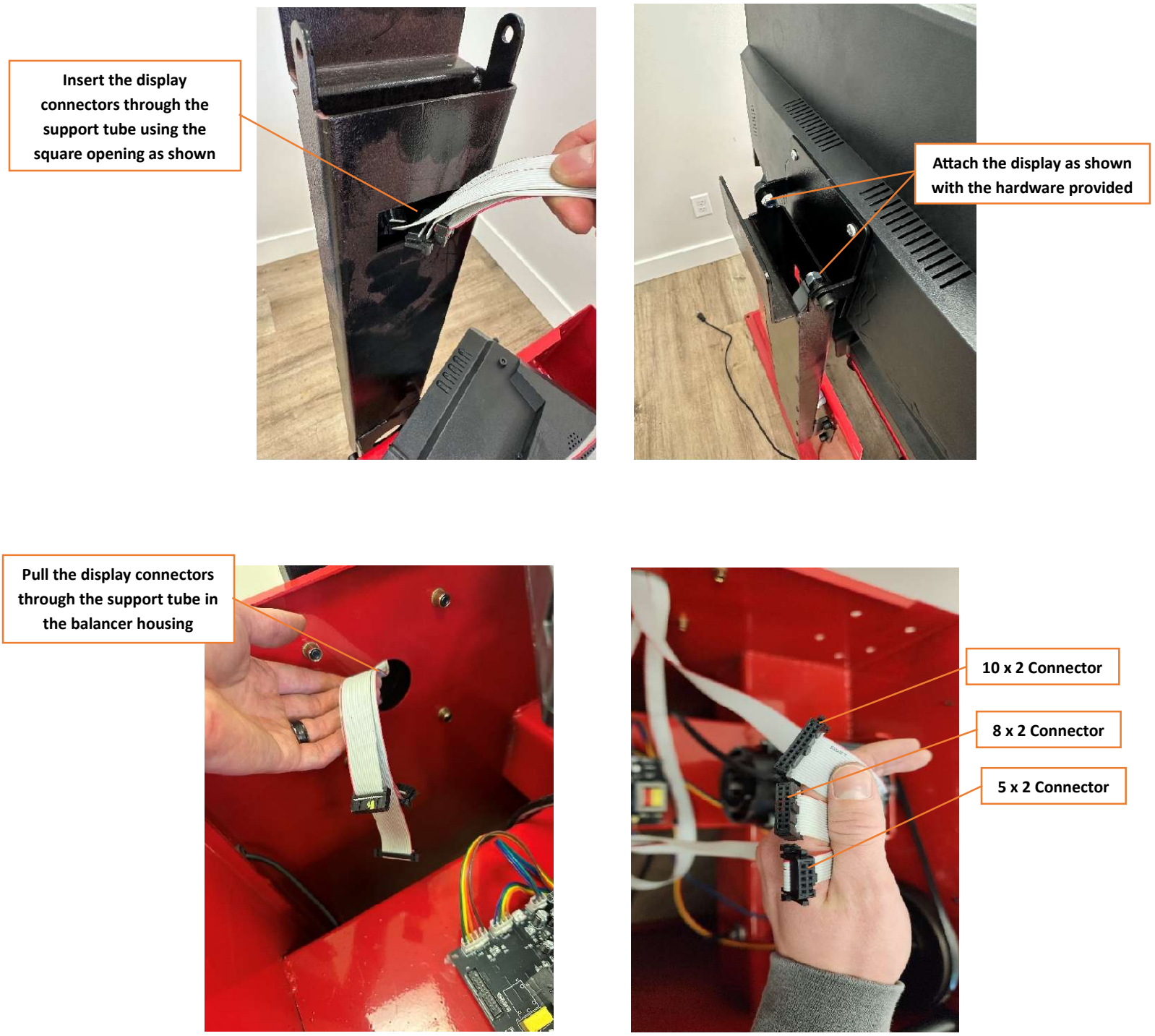


Figure 2.6 Installation of the display panel cables.

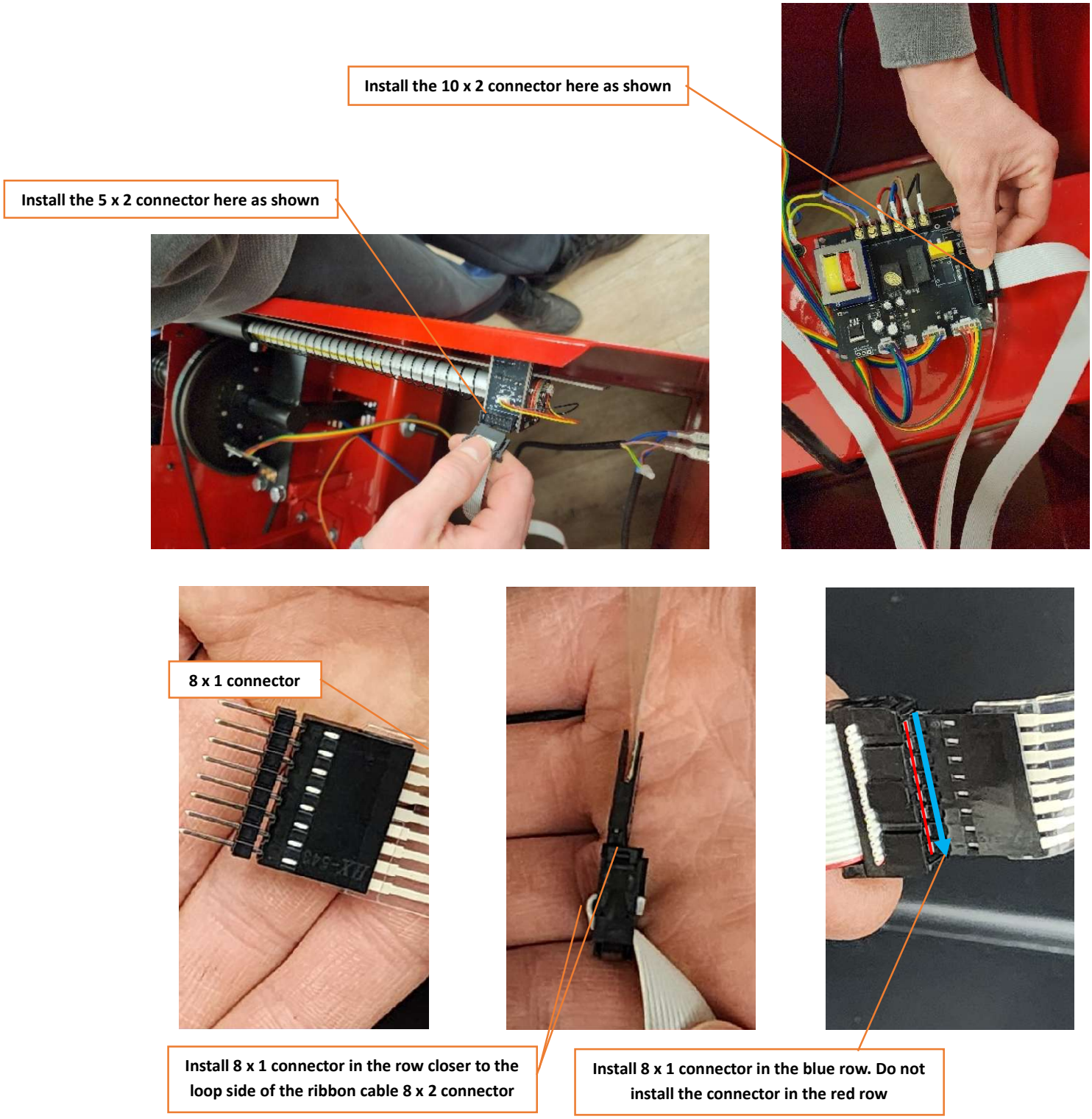


Figure 2.7 Installation of the display panel cables.





Figure 2.8 Installation of the top cover screws.

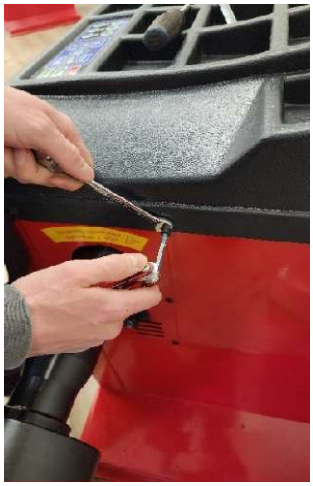




Figure 2.9 Installation of the support arm screw.

2.2 Electrical installation

2.2.1 Electrical Installation for **750F/760F**

Plug in the power cord to the wall outlet (110V, 60 Hz).

2.3 Wheel installation

The wheel balancer includes a cone type adaptor to secure the wheel to the center bore as shown below:

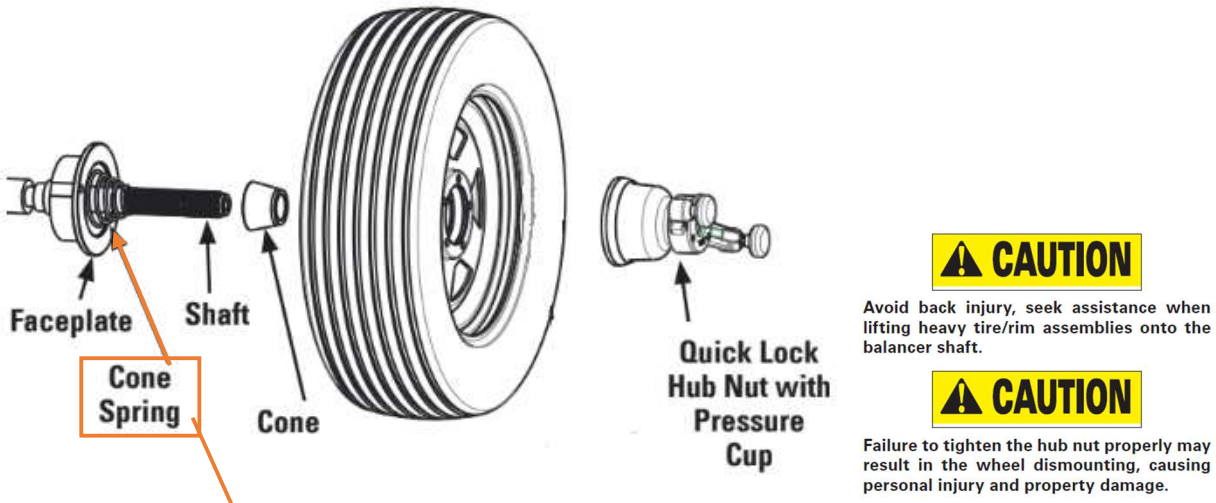


Figure 2.10

The center shaft Cone Spring is factory-installed.

2.4 SAFETY INSTRUCTIONS

Exploding tires can cause death or serious injury.

- **Read Operator's Manual before using this Tire Balancer.**
- **ALWAYS wear Safety Glasses or Goggles.**
- **Mismatched tires and rims or over-pressurized tires can explode causing flying debris.**
- ***Exploding tires can cause serious injury or death!***
- **NEVER exceed tire manufacturer's pressure limits.**
- **NEVER attempt to bypass or alter the built-in air pressure limiter.**
- **Keep bystanders away from work area.**

Contact with line power voltages can cause death or serious injury.

- **Do not operate equipment with a damaged power cord.**
- **If an extension cord is necessary, a cord with a current rating equal to or greater than that of the equipment should be used.**
- **Do not expose the equipment to rain or wet environment.**
- **Make sure to connect the unit with proper electrical power.**
- **Do not remove or bypass grounding pin.**
- **Only qualified service personnel should service this equipment.**
- **Disconnect power to the unit before servicing.**

Contact with moving parts could cause injury.

- **Keep hands and other body parts away from moving surfaces.**
- **Do not use tools other than those supplied with wheel balancer.**
- **Do not bypass any safety features.**

Debris, dirt, and fluids can cause serious eye injury.

- **Remove any debris from tire tread and wheel surfaces.**
- **Remove excess tire lubricant before mounting the wheel.**
- **Wear approved safety glasses during mount and demount procedures.**

Tools that break or slip can cause injury.

- **Read and understand the operation instructions before using the equipment.**
- **Use only the mount/demount tire tool supplied with the Wheel balancer.**
- **Frequently inspect, clean, and lubricate (if recommended) where designated.**

Contact with moving parts can cause injuries.

- **Do not rotate the turntable without a wheel unless troubleshooting.**
- **Do not approach the turntable if it is moving.**
- **Pay attention to the claws when they project from the turntable.**
- **Do not overhang objects on the turntable.**
- **Do not place objects close to the turntable.**

2.5 KEY MACHINE COMPONENTS

A - Control Panel
B - ON/OFF Switch
C – Power Cable
D - Weight Tray with Pockets for Weights
E - Offset Arm, Measures A & D of Tire/Wheel
F – Quick Lock Hub Nut W/Cap
G - 40 mm Shaft
H – Cone Holder
I – Display Panel
J – Hood
K – Laser Marker



Figure 2.11

CONTROL PANEL LAYOUT FOR 750F/760F

750F/760F CONTROL PANEL



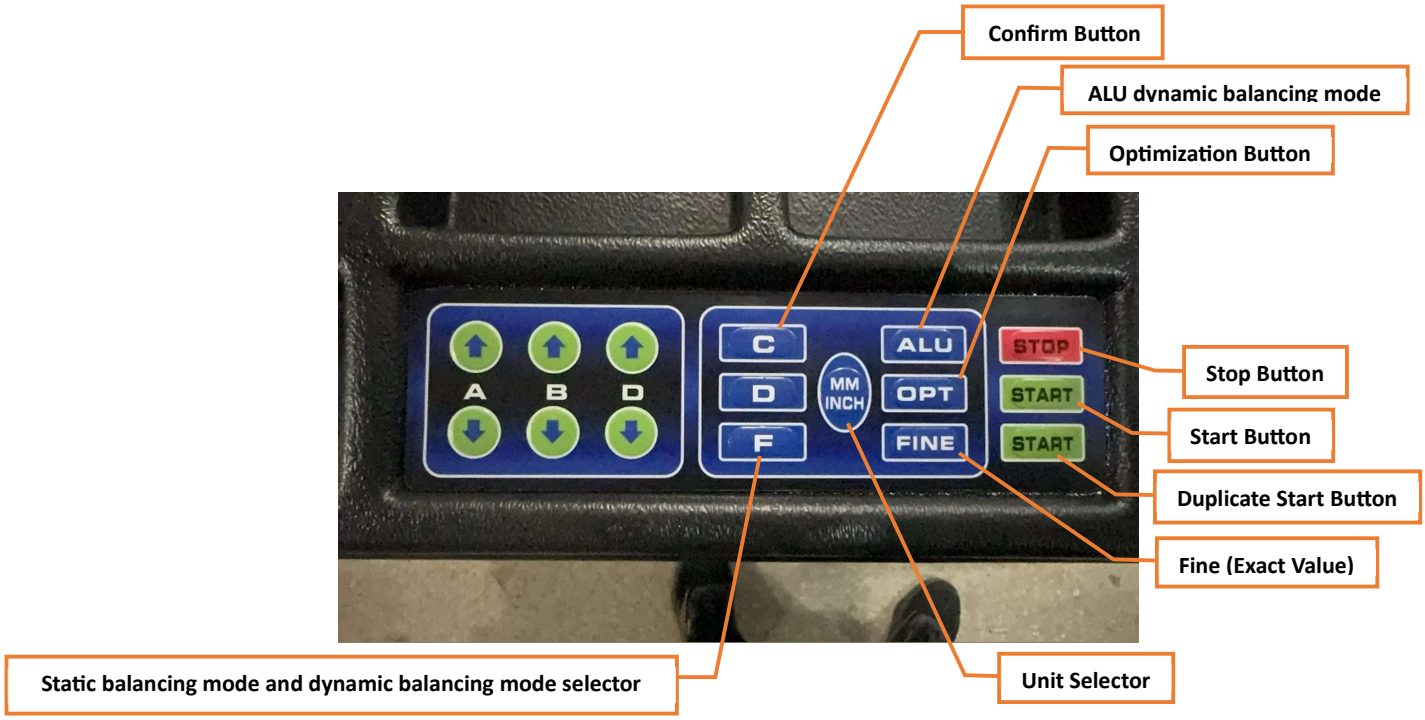


Figure 2.12

2.6 Weights Used for Balancing

Note: Throughout this manual, wheel weights are referred to as Clip-on or Tape-A-Weight®. Figure 4 shows an example of each weight.



Clip-on or Tape-A-Weight®

Figure 4 – Corrective Weight Examples

All weights are to be applied at 6 o'clock position with the exception of STD mode where the weights are applied at 12 o'clock position (STD mode is the default mode when the machine is first powered on)

2.7 Using The Offset Arm

When not in use or when prompted by the balancer instructions, store the offset arm in the home position as shown below:

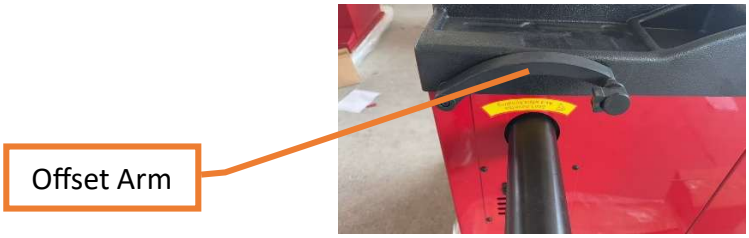


Figure 2.13

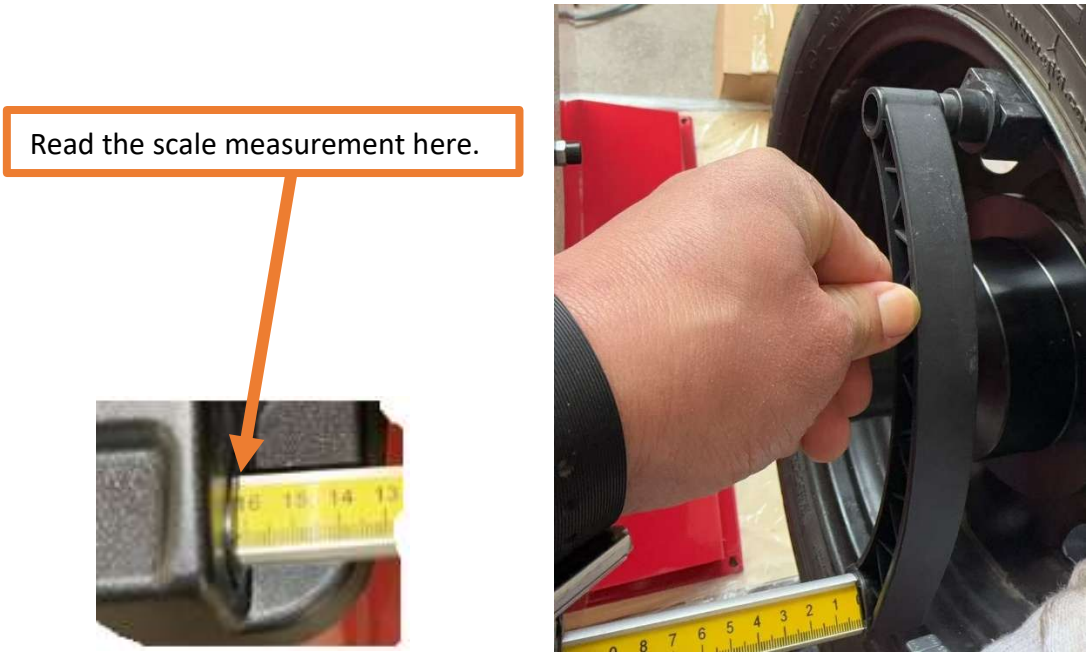


Figure 2.14

When prompted by balancer instructions, use the offset arm (Figure 2.4) to enter A & D measurements. Pull the arm out and up against the wheel flange; hold it still at the clip-on weight location (figure 2.5), against the wheel flange, and then read the measurement. Input for value “A” (Also value “AE” for ALS mode).

3. Wheel Balancer Operation

3.1 Balancing modes

The wheels can be balanced in following six different modes:

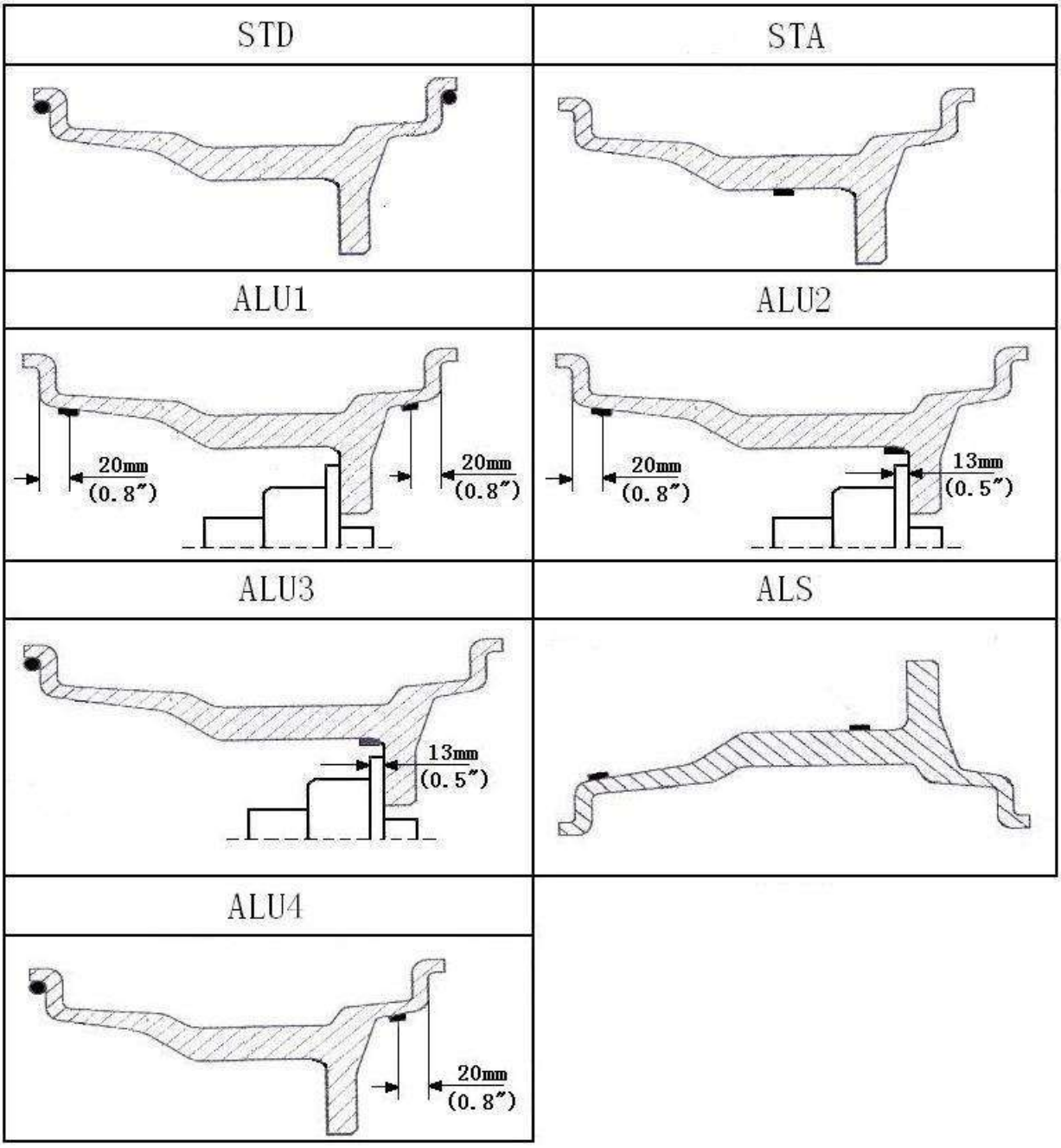


Figure 3.0
Balancing Modes and different weight positions in each balancing mode

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- Static balancing mode and dynamic balancing mode are toggled by pressing【F】key. In STA mode the screen will show as below Figure 3.1



Figure 3.1 Static Balancing Display

- ALU dynamic balancing mode can be toggled by pressing【ALU】button. When the machine is in non-static measurement mode (STD Mode), press【ALU】to choose between different ALU balancing modes.

  Note 1：When the machine is turned on, the default mode is STD dynamic balancing mode.

  Note 2：When the machine is in ALU dynamic balancing mode, Press【F】to switch back to STD dynamic balancing mode.

  Note 3： For motorcycle wheel balancing, choose static balancing mode to balance the wheel.

  Note 4： Only specific models support ALU3 mode

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3.2 Manual input of tire parameters under STD and ALU modes

Tire parameter can be input manually under STD and ALU1, 2, 3, 4 modes.

Procedure：

- Install the tire on the axle (See Figure 2.1).
- Pull out the offset arm so that it touches the inner lip of the rim (See Figure 3.2).
- Read the length value. As marked by the arrow in Figure 3.2, the distance unit is mm.
- Press the 【A+】 or 【A-】key to modify the distance value. The system will save the current set value if no【A+】 or 【A-】key is pressed within 2 seconds, and return to the interface before modification.
- Use a tire width caliper to measure the tire width or read the width marked on the rim. The unit of the tire width value can be inches or millimeters depending on the selected unit system.
- Pressing the 【B+】 or 【B-】 key to modify the width value. The system will save the current set value if no【B+】 or 【B-】key is pressed within 2 seconds, and return to the interface before modification.
- Read the diameter marked on the rim or tire. The unit of the tire diameter value can be inches or millimeters depending on the selected unit system.

  Press the 【D+】 or 【D-】 key to modify the diameter value. The system will save the current set value if no【D+】 or 【D-】key is pressed within 2 seconds, and return to the interface before modification.

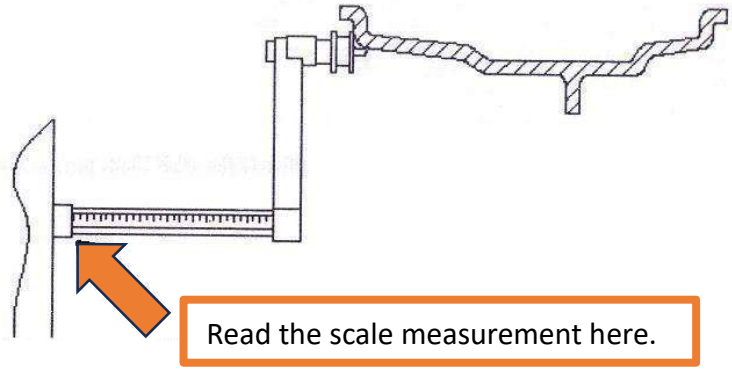


Figure 3.2 Manually obtain tire distance parameters

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3.3 Manual input of tire parameters under ALS mode

Tire parameter can be input manually under ALS modes.

Procedure：

- Install the tire on the axle (See Figure 2.1).
- Pull out the offset arm so that it touches the inner lip of the rim and lean it against the position where you want to attach the balance weight (See Figure 3.4).
- Read the length value. As shown in Figure 3.4, the distance unit is mm. Press the 【A+】 or 【A-】 key, to modify the AI parameter (the inner distance of the rim), and input the current inner distance parameter. The system will save the current set value if no【A+】 or 【A-】key is pressed within 2 seconds, and return to the interface before modification.
- Press the【D+】 or 【D-】 key, to modify the DI parameter (the inner diameter of the rim), and input the current inner diameter. The system will save the current set value if no【D+】 or 【D-】key is pressed within 2 seconds, and return to the interface before modification.
- Pull out offset arm and lean it against the position on the outer side of the rim where you want to attach the balance weight as shown in F3.5. Read the length value of the ruler, the distance unit is mm
- Press the 【C】+【A+】key or 【C】+【A-】key, to modify the AE parameter (Rim outer distance), and input the current outer distance parameter. The system will save the current set value if no key is pressed within 2 seconds, and return to the interface before modification.
- Press the 【C】+【D+】key or 【C】+【D-】key, to modify the DE parameter (Rim outer diameter), and input the current outer diameter parameter((For the value of rim diameter, please refer to the remarks) . The system will save the current set value if no key is pressed within 2 seconds, and return to the interface before modification.

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Note: The inner and outer diameters of the rim can be obtained by two methods

Method 1: Measure the inside dI and outside dE diameters of the rim with a soft ruler manually.

Method 2: According to the diameter marked on the rim, subtract 1 inch (25mm) from the inner diameter and 2 inches (50mm) from the outer diameter to obtain the inner and outer diameters of the rim.

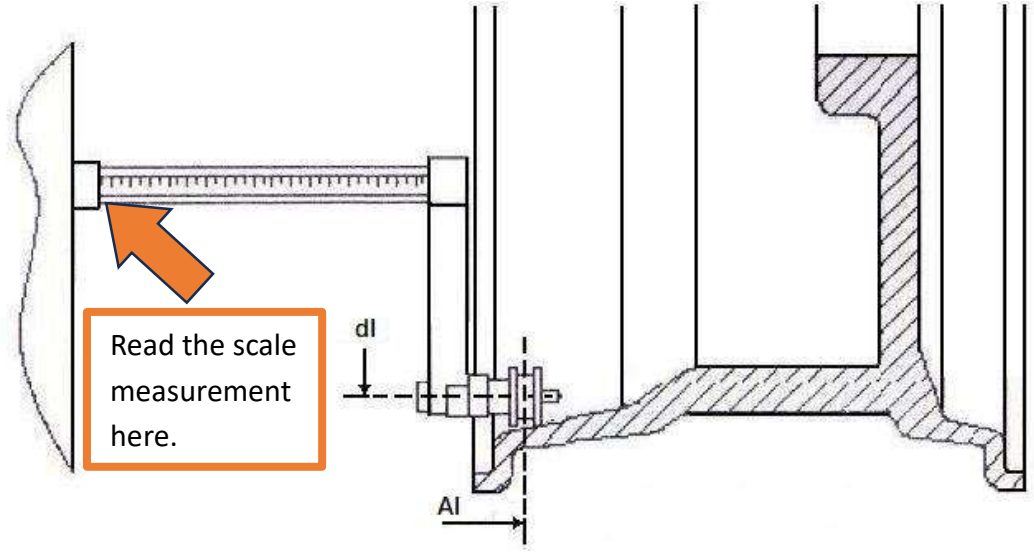


Figure 3.4 ALS mode measure rim inner side distance AI and Inside diameter dI

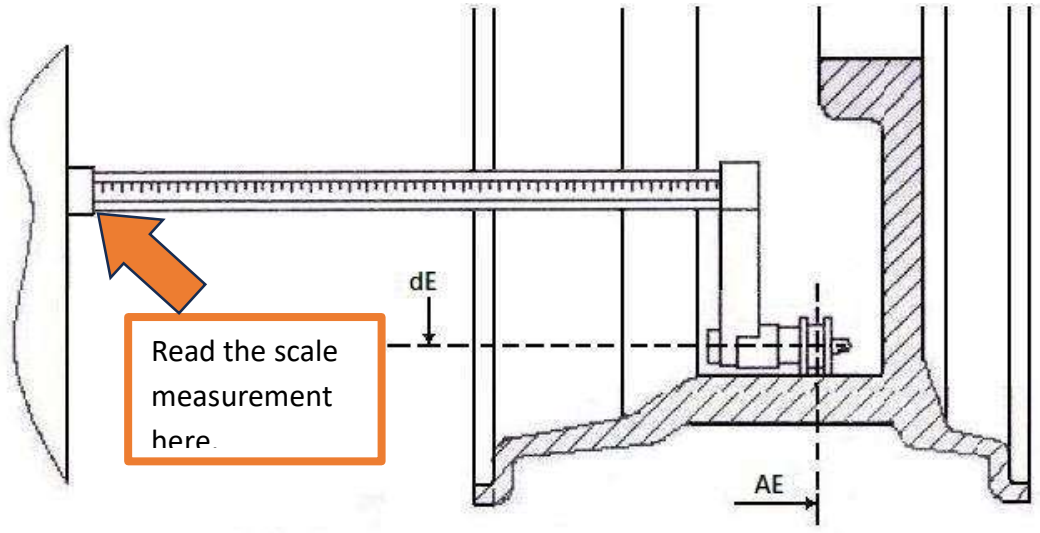


Figure 3.5 ALS mode measure rim outer side distance AE and outside diameter dE.

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3.4 Balance weight block split hidden function

This function divides the outer weight “W” into two smaller weights W1 and W2 and allow the user to paste them on the operator-selected any two points. The positions of the two balance weights W1 and W2 must be located on both sides of the balance weight W. Make sure that the angle does not exceed 120 degrees. See Figure 3.6 for location selection diagram.

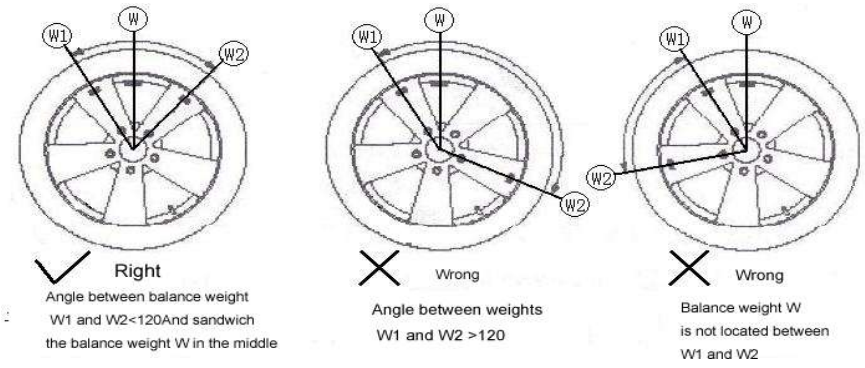


Figure 3.6 Schematic diagram of the hidden position of the balance weight

The balance weight concealment function is used for aluminum alloy rims, which hides the outer balance weight behind the two spokes.

Do not use the balance piece split hidden function when the position of the outer balance patch is consistent with the spoke.

Balance weight hidden function can be used in static balance mode, which gives you the ability to split one static balance weight into two (especially suitable for motorcycle tires) 。

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Procedure：

- Press the【F】+【ALU】Key, If the outer unbalance value is not 0, the machine will enter the balance weight split hidden mode. The information displayed by the machine is shown in Figure 3.7.



Figure 3.7 Inputting the position of balance weight W1

- If the outer unbalance value is 0, the machine will display the information shown in Figure 3.8 for 2 seconds, and the buzzer will emit 3 short beeps, indicating that the operation is not available.



Figure 3.8 Balance block split hide function is not available

- Manually turn the wheel until all the indicator lights of the outer unbalanced position are on.
- Manually turn the tire to the selected W1 position, and then press the 【C】key to confirm. The angle between W1 and W must be less than 120 degrees.
- If the angle is greater than 120 degrees, the buzzer of the machine will emit 3 short beeps, indicating that the position selection is wrong. If the angle is less than 120 degrees, the machine will display the information shown in Figure 3.9, and enter the position W2 selection state.



Figure 3.9 Input the position of the balance weight W2

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- Manually turn the tire to the selected W2 position, and then press the【C】key to confirm. The angle between W1 and W2 must be less than 120 degrees and sandwich the position of the balance weight W.
- If the angle between W1 and W2 is greater than 120 degrees, the buzzer of the machine will emit 3 short beeps, indicating that the position selection is wrong, and the machine is still in the position W2 selection state. If the angle between W1 and W2 is less than 120 degrees, the machine screen will immediately display the value of the balance weight W2.
- Lock the tire, and paste the balance weight W2 according to the grams on the screen.
- Manually turn the tire to the previously selected W1 position, until all the unbalance position indicator lights are on. Lock the tire, and paste the balance weight W1 according to the grams on the screen.

- After pasting the blocks at the two positions W1 and W2, press the【F】+【ALU】key to exit the balance block split hidden mode.
- Restart the measurement to verify the balance effect of the balance block division.

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3.5 Wheel balancing procedure

- Install the tire on the axle (See Figure 2.1).
- Select the appropriate balance mode, and the installation position of the balance weight under different balance modes as shown in Figure 3.0.

The default mode for the balancer for standard metal wheels is STD balance mode. For aluminum alloy rims select the ALU2 balance mode by pressing the ALU key until the ALU2 indicator lights up.

If the balance weight can be installed on the inner side of the aluminum alloy wheel, the ALU3 mode can be selected. ALU1, ALU4 and ALS are designed for special rims (rims with complex spoke patterns), and generally there is no need to select these balance modes.

Enter the rim information as described in Chapter 3.

- Press the 【START】 key or for 750F balancer close the wheel guard to start the balancing operation. The wheel will start spinning.
- After the wheel comes to a stop, open the wheel guard. The left display will show the unbalance value inside the tire, and the right display shows the unbalance value outside the tire. For models equipped with an automatic point-seeking device, after the tire stops, it will stay at the inner unbalanced phase point and lock it. At this time, the indicator lights at the corresponding positions of the inner unbalance are all on. According to different balance modes, install the balance weight at the corresponding position.
- Install the balance weight at the corresponding position (**All weights are to be applied at 6 o'clock position with the exception of STD mode where the weights are applied at 12 o'clock position, STD mode is the default mode when the machine is first powered on**). According to different balance modes, install the balance weight at the corresponding position. See Figure 3.0.
- After the inner and outer unbalance correction weights are installed, press【START】 key to re-start the balancing operation.
- **If the indicator display shows a value of 0 or < 0.25 grams the balancing operation is complete.**

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Figure 3.8.1 Balance block installation 6 o’clock position

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4.0 Machine Calibration Method

The machine is shipped completely calibrated from the factory.

The balancer will need to be calibrated only under the following circumstances:

1. **Replacement of the Main control board.**
2. **Replacing or adjusting the measurement sensor.**
3. **If the machine indicates inaccurate measurements.**

4.1 Calibration Procedure

To calibrate the machine, you need to prepare a balanced iron rim with or without a tire (diameter of 14 or 15 inches) and a width of about 6 inches. You will also need the 100-gram calibration weight that is supplied with the machine.

- Start the machine.
- Install tire on the balance shaft, enter the tire size parameter correctly.
- Press【F】+【C】 key, to enter the calibration mode.
- The screen will display CAL-CAL .
- After pressing the【START】key, the machine will start the calibration process.
- After finishing the calibration process the inner measurement screen will display 100-ADD.
- Rotate the tire by hand until all 5 inner corresponding LED indicators light up.
- Install a 100g balance weight at the 12 o'clock position on the inside of the rim.
- Press the [START] key again.
- The machine will start the balance measurement process. After the machine stops, the outer measurement screen will display 100-ADD.
- Remove the 100g calibration weight mounted on the inside of the rim.
- Rotate the tire by hand until all 5 outer corresponding LED indicators light up.
- Install a 100g calibration weight at the 12 o'clock position on the outer lip of the rim.
- Press the [START] key again or close the wheel guard.
- The machine will re-start the balance measurement process.
- When the balance measurement process is complete, the screen will display END CAL, and will automatically exit the calibration procedure after 3 seconds.

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- If the self-calibration is not successful, the screen will display **Err 008**. (See the error code troubleshooting table)
- At this time press【C】key or【STOP】key to exit the calibration procedure.

4.2 Calibration Procedure of Diameter Ruler

- Start the machine.
- Install tire with a known diameter on the balance shaft, manually enter the tire size parameter correctly.
- Press【F】+【C】 key, to enter the calibration mode.
- The screen will display CAL-CAL .
- Press the【START】key, and then Press the【A-】key, the machine will enter the photoelectric disk self-test program, and the screen will display ENC-***, where "***" is the current position information of the photoelectric disk.
- Turn the shaft of the machine until the position information of the photoelectric disc is displayed as 36, press the 【START】 key to confirm.
- The machine will enter the calibration procedure of the diameter scale, the screen will display Di1-***, "***" is the measured value of the current diameter scale.
- Putt the diameter ruler on the balance shaft at the initial position (that is, at the zero point of measurement) and press 【START】 key to confirm.
- Hold the measuring head of the diameter ruler against the inner side of the rim of the tire to be tested, as shown in Figure 4.1 (the screen will display Di2-*** , "***" is the current measurement value of the diameter ruler). Press【START】key to confirm.
- At this point the calibration of the diameter scale is completed, and the machine will return to the photoelectric disk self-test program.

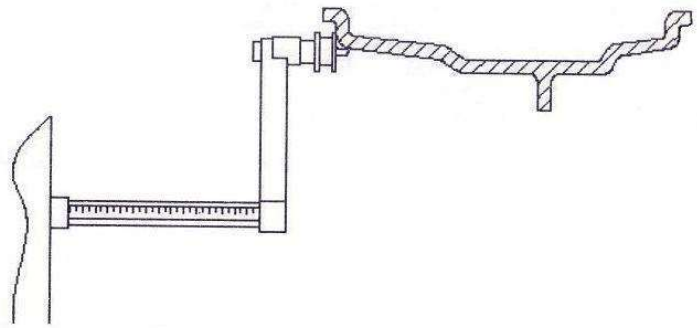


Figure 4.1 Inputting the position of balance weight W1

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4.3 Calibration Procedure of Balance Shaft

Start the machine, do not install the tire or any attachments.

- Press【F】+【C】 key, to enter the machine calibration mode.
- The screen will display CAL-CAL.
- Press the【A-】key.
- The machine will enter the photoelectric disk self-test program, and the screen will display ENC-***, where "***" is the current position information of the photoelectric disk.
- Rotate the shaft of the machine until the position information of the photoelectric disc is displayed as 0.
- Press the 【START】key to confirm.
- The machine will enter the balance shaft calibration procedure, and the screen will display AIS-CAL
- Press the【START】key.
- The machine will start the balance measurement process.
- After the measurement, the calibration of the balance shaft of the machine is complete.
- The screen will display CLR-END, and the machine will automatically exit the calibration procedure after 3 second.

Note: When the screen displays AIS-CAL, press the 【C】key to clear the calibration data of the balance shaft, the screen will display CLR-Err, and the machine will then automatically exit the calibration program after 3 seconds.

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5. Machine service program

5.1 Photoelectric disk self-test

- Press the【F】+【C】key, to enter the calibration mode, the screen will display CAL-CAL.
- Press the【A-】key.
- The machine will start the photoelectric disk self-test program,
- The screen will display ENC-***, where "* **" is the current position information of the optical disc.



Figure 5.1. Corresponding location photoelectric panel test results

5.2 Hide grams setting

- After the machine enters the photoelectric disk self-test program.
- Rotate the measuring shaft until the screen displays ENC-005.
- Press the 【START】 key to confirm.
- The screen will display the current hidden grams.
- Press 【B+】 or 【B-】key to toggle between 5, 10, 15 grams.
- Press【C】 key to save and return.
- Press【STOP】key to exit the setting menu.

5.3 Millimeter/inch change

- After the machine enters the photoelectric disk self-test program.
- Rotate the measuring shaft until the screen displays ENC-017
- Press the 【START】 key to confirm.
- The machine will switch to length unit setting mode.
- There are two length unit options, which can be selected by pressing the 【B+】 or 【B-】 key.
- One option is millimeter, expressed in mm, as shown in Figure F5.2.

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- One unit is inch expressed in CH, as shown in Figure F5.3.
- Press【C】key to save and return,
- Press【STOP】key to exit the setting menu



Figure 5.2 Unit setting to millimeter



Figure 5.3 Unit setting to Inch

5.4 Gram /Ounce change

- After the machine enters the photoelectric disk self-test program
- Rotate the measuring shaft until the screen displays ENC-029
- Press the 【START】key to confirm.
- The machine is now in the weight unit setting mode. and there are two weight unit Press the 【B+】 or 【B-】 key to toggle between gram represented by Gr (Figure F5.4) and Ounce represented by Gr (Figure 5.5).
- After selecting the weight unit, press【C】key to save and return.
- Pressing【STOP】key to exit the setting menu.



Figure 5.4 weight unit setting to Gr

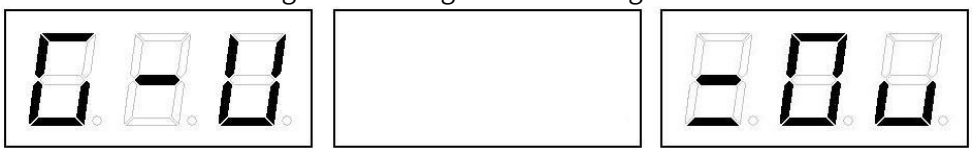


Figure 5.5 Weight unit setting to Ou

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5.5 Adjust machine structure parameter B

- After the machine enters the photoelectric disk self-test program.
- Rotate the measuring shaft until the screen displays ENC-114.
- Press the【START】key to confirm.
- The machine enters the state of machine structure parameter b adjustment.
- The value of structural parameter b can be modified by pressing the【B+】or【B-】key (adjustment range 150-350).
- Press【C】key to save and return.
- Press【STOP】key to exit the setting menu.

5.6 U/F conversion unit test

- Press the key 【F】+【C】to enter the calibration mode.
- The screen will display CAL-CAL.
- Press the button 【A+】, to enter the U/F conversion unit test.
- In this mode the display will show measurement result of the U/F conversion unit.
- The normal value of the result should be between 45.0-55.0, as shown in Figure F5.6.
- Pressing 【STOP】key to exit this menu.

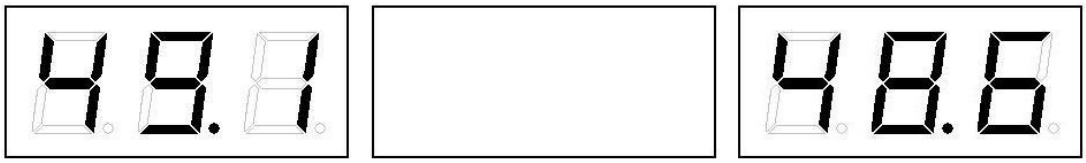


Figure 5.6 U/F conversion unit test result

Note: This item is used for sensor function test.

5.7 Display unit tests

Press the key 【F】+【FINE】, the machine enters the display unit test state. At this time, all the indicator lights and digital tubes on the screen light up for 5 seconds. This function is used to test the condition of the display unit.

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6. Fault Codes and Troubleshooting

6.1 Fault codes

Fault	Fault description	Causes and troubleshooting
Err01	Main shaft does not rotate fault	Check the mounting position of the motor and corresponding position measuring board.
Err02	Insufficient inertia failure during measurement	Check if the tires are installed correctly or the bearing failure of the balance shaft.
Err03	Out of range error when measuring	Check for deformed or improperly installed tires
Err04	Reverse fault	Check whether the connection between the phase measurement board and the main board is normal。
Err05	The protective cover is not closed	The measurement was started without the protective cover closed。
Err06	U/F conversion unit fault	Check whether the voltage output of the power board is normal
Err07	FLASH fault	Restart the machine
Err08	No grams or sensor failures during the machine calibration phase	Place the standard balance weight and re-calibrate the machine
Err09	Machine calibration fault	Re-calibrate the machine
Err10	Device not calibrated fault	Perform CAR tire mode calibration。
Err20	Device unavailable fault	The device is not configured on the machine.

Note: If there is a fault code, the fault cannot be eliminated by checking the above table, please contact technical support.

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6.2 Troubleshooting

6.2.1 The machine cannot be turned on

1. Check if the main power supply plug-in connection is loose.
2. Check if the fuse is blown.
3. Check if the power board inside the machine is working properly and the working indicator light is on. If it is not working, replace the power board

6.2.2 Unstable balance results

1. The machine vibrates during the rotation measurement, eliminate the vibration and then measure again.
2. The installation of the machine is not stable; the machine should be installed firmly on the flat ground.
3. The tire lock nuts are not tightened, check and re-tighten the nuts and re-measure.

6.2.3 Balance result is incorrect

1. The machine is not calibrated.
2. The input tire parameters are incorrect.
3. The tires are installed incorrectly, and the tire lock nuts are not tightened.

6.2.4 The parameters obtained by the automatic measuring ruler are incorrect

1. The ruler is not positioned correctly when measuring.
2. The measuring ruler is not calibrated.

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