



# **B40 WHEEL BALANCER OPERATOR'S MANUAL**

English Edition  
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# 1. Safety Notes

## Warning

Failure to follow the instructions and hazard warnings in this manual may result in serious injury to the operator or others. **Before switching on the machine, read and fully understand** all safety information, warnings, and operating instructions in this manual.

### General Requirements

This machine must be used **only by trained and authorized personnel** who:

- Have read and understood this manual in full.
- Have received appropriate training and are familiar with safe operation and adjustment procedures.
- Understand the machine's performance, specifications, and limitations.
- Can supervise safe operation when required.

Operating the machine under the influence of alcohol or drugs—prescription or otherwise—that impair physical or mental ability is **strictly prohibited**. Where prescribed medication has **no contraindicated side effects** (as confirmed by a physician), the operator may use the machine.

### Operational Precautions

- Keep untrained or unauthorized persons away from the operating area.
- Install and operate the machine in compliance with all applicable **local laws, regulations, and standards**.
- Ensure all operators receive **formal training** and are competent to operate the machine safely.
- **Disconnect and lock out power** before touching power cables, the internal motor, or any electrical components.
- Keep this manual **readily accessible** near the machine for reference at any time.
- Do **not** remove, obscure, or damage any safety labels. Replace any missing or illegible labels immediately.

### Maintenance, Modification, and Personal Safety

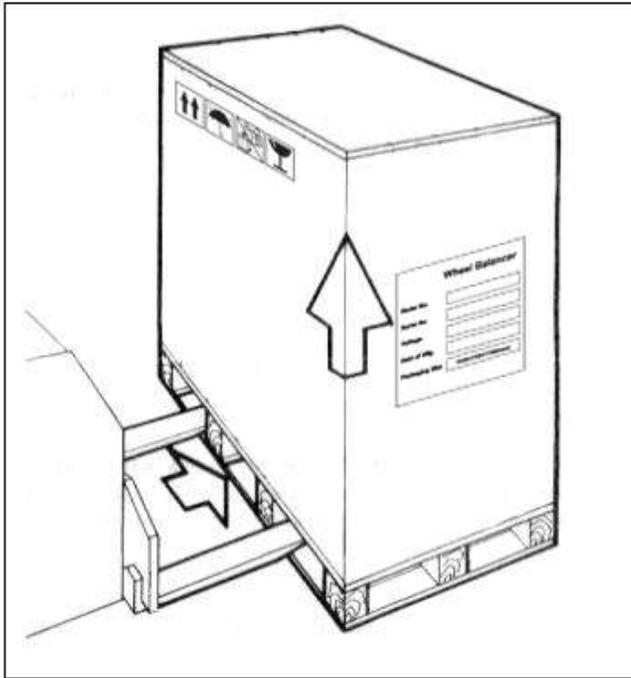
- Follow recognized industrial accident-prevention regulations for **high-voltage equipment** and **rotating machinery** during use and maintenance.

- Do **not** make unauthorized modifications. The manufacturer assumes no responsibility for injury, damage, or accidents resulting from noncompliance or tampering with safety devices.
- Secure long hair: do **not** wear loose clothing, ties, jewelry, necklaces, or watches that could become entangled in moving parts.

## 2. Transport, Storage, and Handling

### 2.1 Transport

The balancer is shipped in a **wooden crate** with **pallet supports**. Before installation, transport the balancer **in its original packaging**. Insert the **forks of a lift truck** into the pallet channels, keeping the machine **upright** as indicated on the outer packaging (*Fig. 1*).



**FIGURE 1**

**Attention** – Do **not** place any items on top of the packed unit; excessive weight can cause damage.

After installation, the machine can be moved by:

- **Crane:** using suitable lifting equipment attached to the **designated lifting points** (*Fig. 1a*).
- **Lift truck:** by placing the machine on its original pallet, securing it with the original fasteners, then lifting the pallet.

**Attention** – Always **unplug the power supply** before moving the machine.

**Warning** – Never apply force to the **spin shaft** when moving or positioning the machine.

## 2.2 Installation

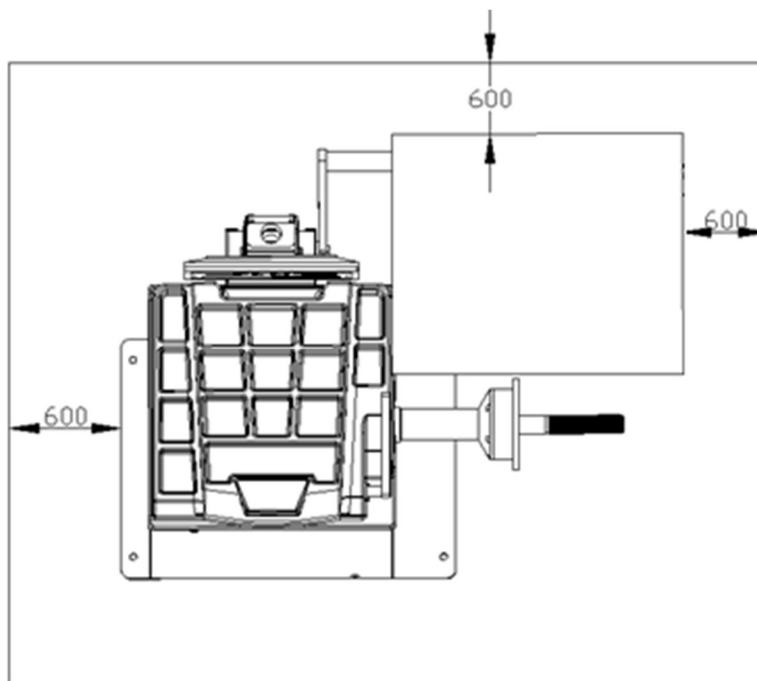
**Warning** – Use extreme care when **unpacking, assembling, and setting up** the machine. Failure to follow instructions may cause injury or equipment damage.

Remove the packing only **after** placing the unit as indicated on the packaging. Retain all packaging for possible future transport. Select an installation site that **complies with local workplace safety regulations**.

**Attention** – If installed outdoors, protect the machine with a **roofed canopy**.

**Warning** – Do **not** operate the machine in **explosive or flammable atmospheres**.

Position the machine, ensuring adequate **minimum clearances** around the unit.



**FIGURE 2**

### **Operating Environment:**

- Relative humidity: **30%–95%**
- Temperature: **0 °C to +55 °C**

The machine is supplied with separate parts requiring assembly. Follow the procedures below.

## 2.3 Guard Assembly

1. Remove the nuts and bolts securing the **guard support**.
2. Fit the **guard tube** onto the **support pin**, aligning the holes.
3. Reinsert the bolts and tighten the nuts to secure the guard.

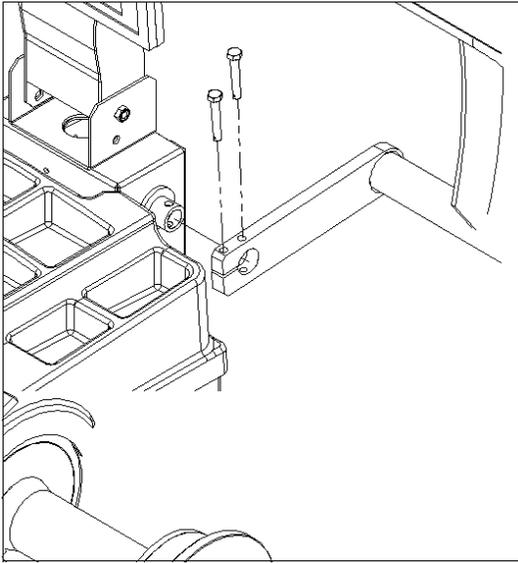


FIGURE 3

## 2.4 Display Bracket Assembly

1. Loosen the nut on the **display bracket** and remove the bolts.
2. Mount the **display** on the bracket, aligning the holes (*Fig. 4*).

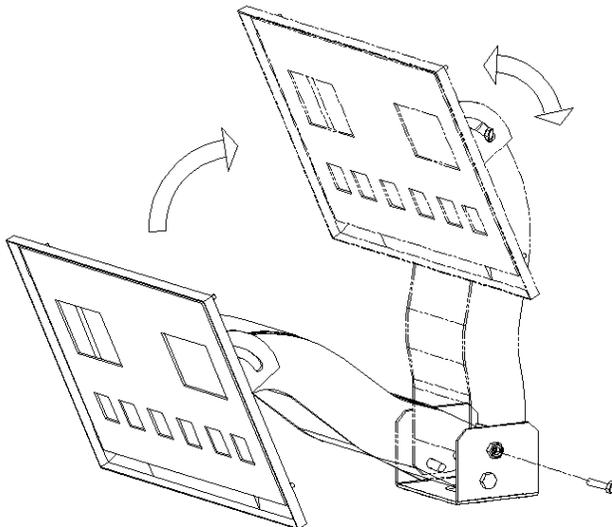


FIGURE 4

3. Insert the bolts and tighten the nuts securely.

## 2.5 Auto-Arm 3 Assembly (If Equipped)

1. Attach **Auto-Arm 3** to the arm base on the **wheel balancer hood bracket** using **three screws**.

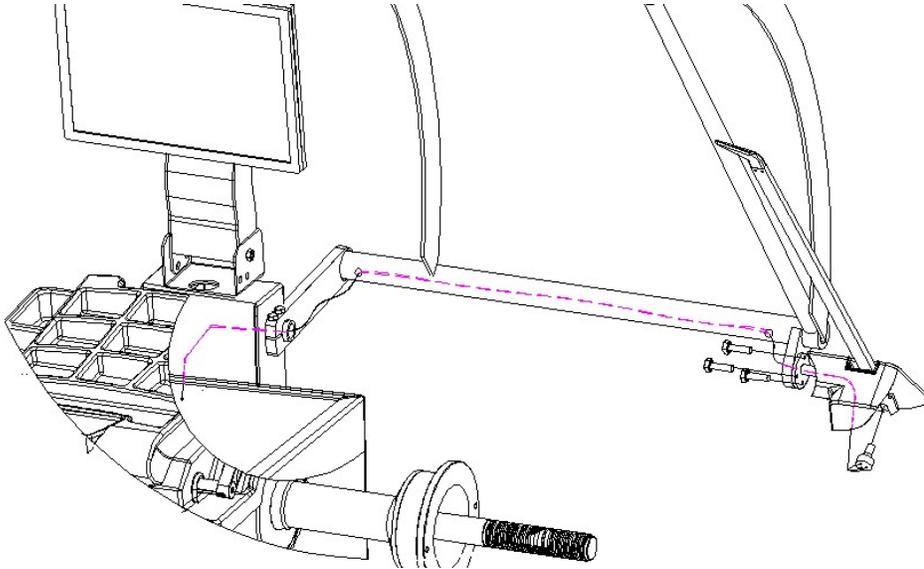


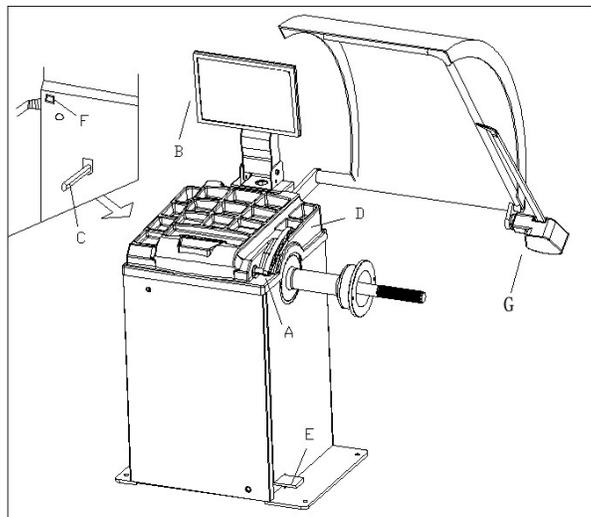
FIGURE 5

2. Route the **Auto-Arm cable** through the bracket tube and connect it to the **main control board** of the balancer.

## 2.6 Main Operating Components

FIGURE 6

A	Auto-Arm 1 and 2
B	Display and keyboard
C	Flange holder
D	Weight tray
E	Brake
F	Master switch
G	Auto-Arm 3



## 2.7 Keyboard & Display Functions

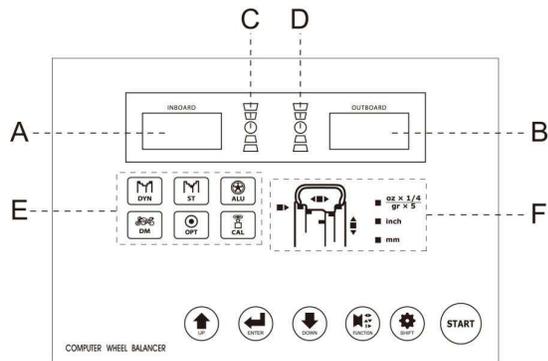


FIGURE 7

A	Inside plane display (left)
B	Outside plane display (right)
C	Inside plane position indicator
D	Outside plane position indicator
E	Keys and LEDs for selecting and viewing available programs
F	Key and LED for wheel data input
G	Wheel data <b>confirm</b> key

## 2.8 Electrical Hook-Up

**Warning** – All electrical connections must be performed **only by qualified personnel**.

- Size all wiring according to the balancer's **rated input power** (see data plate).
- Fit the power cable with a **plug** compliant with local electrical codes.
- Provide a **dedicated circuit** with a **30 mA residual-current (differential) device**.
- Size protection fuses per the **general electrical layout** in this manual.
- For extended periods of non-use, **unplug** the unit to prevent unauthorized operation.
- If hardwired (no plug), install a **key-operated** or **lockable disconnect** to restrict use to authorized personnel.

**Warning** – A reliable **protective earth (ground)** is essential. Never connect the ground to a **gas pipe, water pipe, telephone line**, or any unsuitable object.

### Safety Regulations (Electrical)

**Warning** – Do not power on the machine until you have read and understood all warnings and safety notes in this manual.

Operate the machine only if you:

- Can read and understand this manual.
- Are familiar with the machine's characteristics and capabilities.
- Keep unauthorized persons clear of the work area.
- Have verified compliance with applicable **laws and standards**.
- Are properly trained and supervised.
- Have **disconnected and locked out** power before accessing electrical parts.
- Keep this manual accessible for reference.

**Warning** – Do **not** remove or deface safety labels. Replace any missing or illegible labels immediately.

During operation and maintenance:

- Follow applicable industrial safety regulations for **high-voltage** equipment and **rotating machinery**.
- Unauthorized modifications or tampering with safety devices **voids manufacturer liability** and violates safety regulations.
- Secure long hair; avoid loose clothing and jewelry that may be caught in moving parts.

### 3. General Characteristics

- Single-spin, fixed-position **flange** balancing machine
- Microprocessor-controlled data processing unit
- Unbalance display in **grams** or **ounces**
- Unbalance detection precision: **1 g (1/10 oz)**
- Slow balancing speed: **150 rpm**
- Full-function built-in keyboard
- **Foot brake** system
- Side **flange-holder** cabinet
- Protective cover with **weight trays** for all weight types
- Lighted digital display shows:
  - Unbalance weight and position

- Selected program

**Balancing Modes Available**

- **Standard Dynamic:** two-plane dynamic
- **Static:** single-plane
- **ALU:** five routines for aluminum rims
- **Motorcycle Dynamic:** two-plane motorcycle wheels
- **OPT:** optimization program to reduce road noise by optimizing rim/tire match

**Utility Programs**

- Calibration
- Self-diagnostic (service)

**Technical Specifications**

- Supply voltage ..... **110/220 V ±10%**, single-phase
- Power draw ..... **250 W**
- Balancing speed ..... **150 rpm**
- Average spin time (5×14" wheel) ..... **≈ 7 s**
- Shaft diameter ..... **38 mm**
- Operating temperature (tire shop) ..... **0–50 °C**

**Dimensions (Fig. 4b)**

- Width with guard ..... **1250 mm**
- Depth with guard closed ..... **1030 mm**
- Depth with guard open ..... **1150 mm**
- Height with guard closed ..... **1280 mm**
- Height with guard open ..... **1680 mm**

**Programming Parameters**

- Rim width ..... **1.5" to 20"**
- Rim diameter ..... **1" to 23"**
- Max. wheel/machine distance ..... **170 mm**

- Max. wheel width (with guard) ..... **400 mm**
- Max. wheel diameter (with guard) ..... **870 mm**
- Max. wheel weight ..... **65 kg**
- Shipping weight (without accessories) ..... **≈ 114 kg**
- Noise level during operation ..... **< 70 dB(A)**

### General Conditions of Use

This machine is intended **solely** to measure the magnitude and position of wheel unbalance on motor-vehicle wheels within the limits specified in this **Technical Specifications** section. For versions equipped with a powered guard, the guard must be **lowered during the spin**.

**Attention** – Any use other than the intended purpose is **improper**.

**Warning** – Do not start the machine without a **wheel-blocking (clamping) device** properly installed.

**Attention** – Do not operate without the **guard**; do not tamper with safety devices.

**Attention** – Learn the machine’s controls and their locations. Verify that all controls operate correctly. Proper installation, correct operation, and regular servicing are essential for safe use and best performance.

## 4. Switching On the Balancer

1. Turn on the machine using the **master switch** on the rear of the cabinet.
2. After the beep and lamp test, the display shows “**888 888**” and then “**000 000**”. The machine is now **ready for wheel data input**.

## 5. Wheel Data Input



### 5.1 Using Auto-Arm 1 & 2

Press **UP + FUNCTION**, then press **UP** twice, **ENTER** once, and **DOWN** once to enter the management program. The display shows “**51 Ent**”. Press **UP** until “**60 Ent**” appears, then press **ENTER** to confirm. The display shows “**60 0**”.

Enter **Auto-Arm 1 & 2** setting: press **UP** to toggle between **0 (Off)** and **1 (On)**. After setting, press **FUNCTION** once to return to “**60 Ent**”. Press **UP** to display “**61 Ent**”. Press **ENTER** to confirm setup, or press **SHIFT** twice to return to the initial status.

## 5.2 Using Auto-Arm 3

Press **UP + FUNCTION**, then press **UP** twice, **ENTER** once, and **DOWN** once to enter the management program. The display shows “**51 Ent**”. Press **UP** until “**61 Ent**” is displayed, then press **ENTER** to confirm. The display shows “**61 0**”.

Enter **Auto-Arm 3** setting: press **UP** to toggle between **0 (Off)** and **1 (On)**. Press **SHIFT** to exit.

## 5.3 Auto-Arm Resolution Setup

Press **UP + FUNCTION**, then press **UP** twice, **ENTER** once, and **DOWN** once to enter the management program. The display shows “**51 Ent**”. Press **UP** until “**55 Ent**” appears, then press **ENTER** to confirm.

- **Diameter Setup:** Display “**551 0.5**”. Press **UP** to toggle **0.5** ↔ **1.0** (0.5 = half-inch; 1.0 = one inch). Press **ENTER** to confirm.
- **Distance Setup:** Press **SHIFT**. Display “**552 0.04**”. Press **UP** to toggle **0.04** ↔ **1.0** (0.04 = 0.04 inch; 1.0 = 1 mm). Press **ENTER** to confirm.
- **Width Setup:** Press **SHIFT** Display “**553 0.5**”. Press **UP** to toggle **0.5** ↔ **1.0**. Press **ENTER** to confirm.

Press **SHIFT** to return to dynamic measurement status (“**000 000**”).

## 5.4 Manual Input

In the management program, set **60** and **61** to **0**, and configure **551**, **552**, and **553**.

After power-on, press **SHIFT** to input **wheel width**. Left window shows “**Lr**”; right shows “**5.5**”. Use **UP** or **DOWN** to adjust. Press **SHIFT** to input **wheel diameter**. Left shows “**d1**”; right shows “**14**”. Adjust with **UP** or **DOWN**. Press **SHIFT** a third time to enter **distance from wheel to cabinet**. Left shows “**d**”; right shows “**110**”. Adjust with **UP** or **DOWN**.

## 5.5 Auto-Arm Mode 2D (Dynamic)

In the management program, set **60 = 1**, **61 = 0**, and configure **551/552/553**.

After power-on, move **Auto-Arm 1 & 2** to measure the **internal position** on the wheel. The left display shows **distance**, the right shows **diameter**. When Auto-Arm 1 & 2 return, the left shows **“Lr”**, the right **“5.5”**. Use the gauge to measure rim width; adjust with **UP or DOWN**

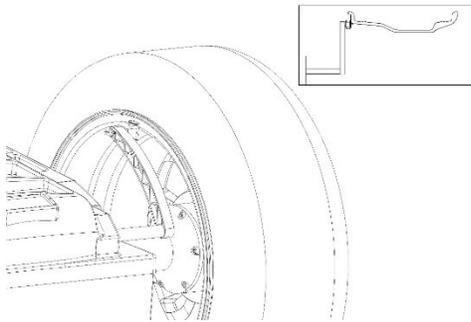


FIGURE 8

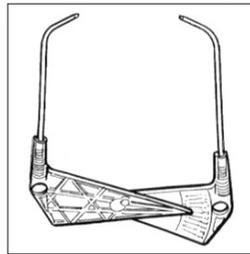


FIGURE 9

## 5.6 Auto-Arm Mode 2D (ALU 1)

Set **60 = 1**, **61 = 0**, and configure **551/552/553**.

After power-on, use **Auto-Arm 1 & 2** to measure the **first and second internal positions**. The left window shows the **two distances** in sequence; the right shows the **two diameters** in sequence .

**Note** – If the distance between the first and second positions is **< 38 mm**, the display shows **“ALU Err”**.

When Auto-Arm 1 & 2 return, the machine enters **ALU 1** mode: left shows **“ALU”**, right shows **“1”**.

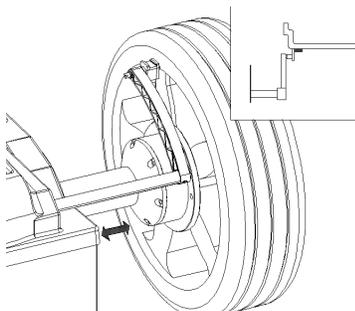


FIGURE 10

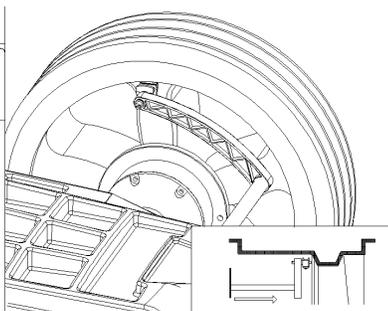


FIGURE 11

## 5.7 Auto-Arm Mode 3D (ALU 3)

Set **60 = 1**, **61 = 1**, and configure **551/552/553**.

After power-on, use **Auto-Arm 1 & 2** to measure the **first internal position** (left shows distance; right shows diameter). When Auto-Arm 1 & 2 return, the left shows **“Lr”**, the right **“5.5”**. Then use **Auto-Arm 3** to measure the **external second position**. The left shows **diameter**, the right shows **rim width**.

When Auto-Arm 3 returns, the machine enters **ALU 3** mode: left shows **“ALU”**, right shows **“3”**.

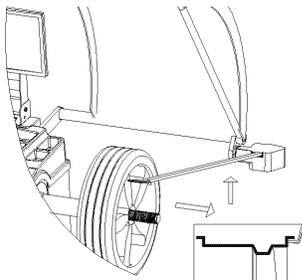


FIGURE 12

## 6. Unbalance Display (Grams / Ounces)

### 6.1 Rounding

1. Enter program management: Press **UP + FUNCTION**, then press **UP** twice, **ENTER** once, and **DOWN** once until **“51 Ent”** appears; press **ENTER** to confirm. Display shows **“51 oF”** (5-g rounding). Press **ENTER** to toggle to **“51 oN”** (1-g resolution). Press **SHIFT** to return to balancer mode (**“000 000”**).
2. Alternatively, press **UP + DOWN**. Display **“51 Ent”**. Press **UP** to **“55 Ent”**; confirm with **ENTER**. Display **“551 0.5”**. Press **SHIFT** to reach **gram accuracy**: display **“554 1oF”** (5-g rounding) or **“554 1oN”** (1-g). Confirm with **ENTER** and press **SHIFT** return to **“000 000”**.

### 6.2 Gram / Ounce Selection

Press **UP + FUNCTION**, then press **UP** twice, **ENTER** once, and **DOWN** once to **“55 Ent”**; confirm with **ENTER**. Display **“551 0.5”**. Press **SHIFT** to **Gram/Ounce** selection. Display **“555 G”**. Press **ENTER** to select **G (grams)** or **oN (ounces)**. Press **SHIFT** to return to **“000 000”**.

**Note** – Do **not** raise the wheel guard before the wheel has fully stopped (for versions equipped with a wheel guard). In case of a fault causing continuous spinning, switch off using the **master switch** or unplug the machine; wait until the wheel stops or apply the **foot brake**.

## 7. Balancing Programs

Before starting any balancing cycle:

- Mount the wheel on the shaft using the appropriate flange.
- Remove any existing weights, stones, dirt, or foreign matter from the wheel.
- Input wheel data correctly.

### 7.1 Dynamic Balancing (Standard)

1. Input wheel data.
2. Ensure **Dynamic** mode is selected (default).
3. Press **START** to start.
4. After stopping, the left window shows **internal** unbalance; the right shows **external** unbalance.
5. Choose a side to balance first. Rotate the wheel until the **position indicator** is illuminated; place the counterweight at **12 o'clock**. Repeat for the other side.
6. Press **START** for a verification spin.

### 7.2 Static Balancing

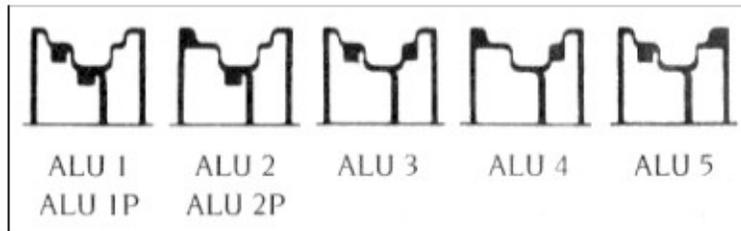
1. Press **UP** to select **SE** (indicator on). Press **ENTER** to confirm. Left: **“SE”**; right: **“000”**.
2. Set **Auto-Arm 1 & 2** to the measurement position. Left shows **distance**; right shows **diameter**.
3. Press **START** to start.
4. After stopping, left shows **“SE”**; right shows **unbalance at measured position**.
5. Rotate the wheel to the indicated position; place the counterweight at **12 o'clock**.
6. Press **START** for a verification spin.

## 7.3 Balancing Aluminum Wheels

### 7.3.1 Standard ALU 1 Program

1. Input wheel data.
2. Select **ALU 1**.
3. Press **START** to start.
4. After stopping, rotate the wheel until the **internal** unbalance indicator is on. Left shows **internal unbalance weight**; right shows **distance of the first position**.
5. Move **Auto-Arm 1 & 2** to the first position; the right value decreases as the arm moves inward and shows **“0”** at the position. Apply the **adhesive weight** using the measurement head.
6. Rotate to illuminate the **external** unbalance indicator (position lights may show both upper and lower—toggle with the designated key if required). Left shows **second position distance**; right shows **external unbalance weight**.
7. Move **Auto-Arm 1 & 2** to the second position until **“0”** is shown; apply the adhesive weight.
8. Press **START** for a verification spin.

Five **ALU** modes are available (see *Figure below*). After selecting the ALU mode and entering wheel data, follow the steps above.



**FIGURE 13**

### 7.3.2 Hidden Program for Aluminum Rims

At the step where the **external** unbalance indicator and position lights are on:

1. Press **ENTER** to confirm.
2. Left shows **“SPE”**; right shows **“05”** (default number of spokes).
3. Use **UP** or **DOWN** to set the spoke count, position a spoke adjacent to the unbalance point at **12 o’clock**, then press **ENTER** to confirm.

4. Rotate until the external indicator and one side light are on. Left shows **distance to second position**; right shows **split external weight**. Apply the weight **behind the spoke**, at the given distance.
5. Rotate until the other side light is on; repeat for the other split weight **behind the spoke**.
6. Press **START** for a verification spin.

### 7.3.3 Standard ALU 3 Program

1. Input wheel data.
2. Select **ALU 3**.
3. Press **START** to start.
4. After stopping, left shows **internal** unbalance; right shows **external** unbalance.
5. Balance each side by aligning to the indicated position and applying the counterweight at **12 o'clock**.
6. Press **START** for a verification spin.

## 7.4 Motorcycle Program (requires motorcycle adapter)

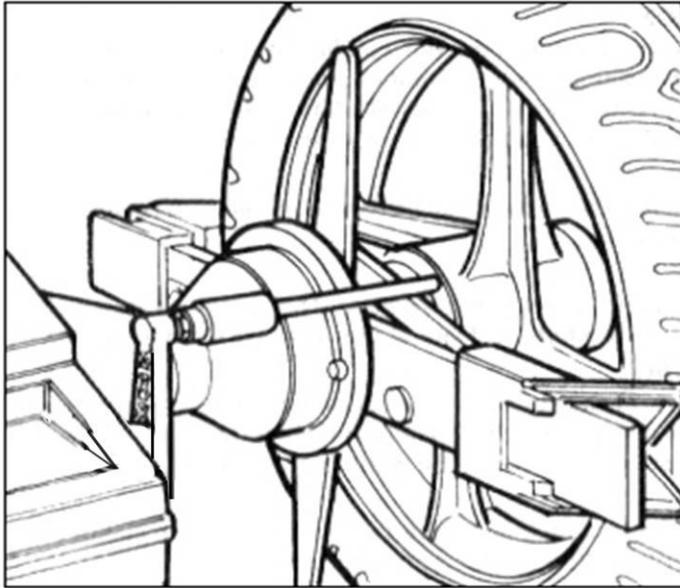
Motorcycle wheels can be **statically** balanced using the **Static** procedure. If tire width (> 3 in) produces unbalance that cannot be eliminated statically, perform **dynamic** balancing (both sides).

- Use the **motorcycle adapter** to mount the wheel on the shaft.
- **Arm extension** on the measurement arm is required (see *Fig. 10*).

Steps:

1. Press **UP** to select **dd** (indicator on), press **ENTER** to confirm. Left: **“dd”**; right: **“000”**.
2. Set **Auto-Arm 1 & 2** at the measurement position (with **arm extension**). Left shows **distance**; right shows **diameter**.
3. Press **START** to start.
4. After stopping, left shows **“dd”**; right shows **unbalance weight**.
5. Rotate to the indicated position and apply the weight at **12 o'clock**.
6. Press **START** for a verification spin.

**Note** – The wheel must be **securely clamped**. Slippage during acceleration/braking will affect results.



**FIGURE 14**

## 7.5 OPT Optimization Program

(After **wheel data input**)

1. Press **UP** to select **OPT** (indicator on); press **ENTER** to confirm.
2. Based on test results, the display shows **“YES OPT”** or **“NO OPT”**. Press **UP** to exit if **NO OPT**; if **YES OPT**, the status displays for 3 s, then left shows **“OPT”**, right shows **“1”**. Press **UP** to exit at any time.
3. **Spin 1 (Rim Only)**: Load the **rim**; set valve at **12 o’clock**; start test.
4. **Spin 2 (Wheel)**: Mount tire; load the **wheel**; valve at **12 o’clock**; start test. Display then shows **“OPT 3”**.
5. Mark the **12 o’clock** position on the **outer** wheel where indicated. Dismount tire; rotate **180°** (or mount opposite the valve); remount; valve at **12 o’clock**; start test (display **“OPT 4”**).
6. Mark the next indicated **12 o’clock** position. If instructed, repeat rotation/mounting as above (swap internal/external as required). Start test.
7. Left and right windows display **internal/external** unbalance weights.
8. If **“OPT Err”** appears, restart the OPT routine.

9. Press **SHIFT** to skip the first rim-only spin and continue with the remaining steps.
10. After the second or third spin, if “**OUT 1**” or “**OUT 2**” appears, press **UP** to exit OPT; unbalance values are displayed.
11. After the third spin, pressing **SHIFT** allows you to end the sequence without further conversions.

## 8. Calibration Program

### 8.1 Self-Calibration (Two-Point)

Select a wheel of average size (**14"**) and weight (with limited unbalance) and mount it on the shaft.

1. Power on and input wheel data. Press **UP** to select “**CAL**” (indicator on); press **ENTER** to confirm, then **UP** twice, **ENTER** once, **DOWN** once. Left shows “**CA1**”; right cycles **0–255**.
2. Rotate the wheel until the **right** shows “**0**”, the right indicator lights, then the right shows “**100**”.
3. At the **external 12 o’clock** position, attach a **100 g** weight exactly.
4. Start a test spin. After stopping, left shows “**CA1**”; right cycles **0–255**.
5. Rotate until the indicator lights; right shows “**127**”, then “**100**”.
6. At the **external 12 o’clock** position, attach a **100 g** weight exactly.
7. Start a test spin. After stopping, left shows “**CA1**”; right shows “**OK**”; **three beeps** confirm successful calibration. The program returns to dynamic mode.

### 8.2 Self-Calibration (Three-Point)

1. Press **UP + FUNCTION** then **UP** twice, **ENTER** once, **DOWN** once. Display “**51 Ent**”. Press **UP** to select “**54 Ent**”; confirm with **ENTER**
2. Enter the **Three-Point Calibration** program. Display shows “**CA5 GO**”.
3. Mount an average **14"** wheel with limited unbalance.
4. Press **START** to start. After stopping, the right cycles **0–255**. Rotate until the indicator lights; right shows “**00**”; left shows “**100**”. Attach **100 g** on the **internal 12 o’clock** position.
5. Press **START** to start again. After stopping, the left cycles **0–255**. Rotate until the indicator lights; left shows “**00**”; right shows “**100**”. Attach **100 g** on the **external 12 o’clock** position.
6. Press **START** to start again. After stopping, **three beeps** confirm successful calibration.

## 9. Display Messages

The machine detects incorrect operations or faults and signals them with messages.

### 9.1 Error Messages

Left	Right	Description
Err	1	Piezo sensor calibration error
Err	2	Missing 100 g weight during calibration
Err	3	Wheel unbalance too large during calibration
Err	4	Unbalance > 999 g
Err	5	Auto-Arm 1 calibration error (diameter)
Err	6	Auto-Arm 2 calibration error (distance)
Err	7	Auto-Arm 3 calibration error (width)
Err	8	Auto-Arm 1 not in default position
Err	9	Auto-Arm 2 not in default position
Err	10	Auto-Arm 3 not in default position
Err	11	ALU 1 (2D) – distance between two positions too small
Err	12	ALU 3 (3D) – Auto-Arm 3 distance too small
Err	13	Wheel fails to stop within 50 s
Err	14	Spin speed fails to reach measurement threshold within 50 s
Err	15	Piezo sensor A/D value too small
Err	16	Wheel fails to start (counter does not receive ZERO position signal)
Err	17	Counter error or no counting signal
Err	18	Wheel guard opened during spin
Err	19	START pressed while guard open (S4)
Err	20	OPT error – restart OPT

### 9.2 Other Messages

- **CCC CCC** – Unbalance is greater than **999 g**.

## 10. Using the Pedal Brake to Hold the Shaft

Use the **pedal brake** only when the machine has stopped and you wish to hold the shaft while installing balancing weights.

In an **emergency** during a spin, first **stop the motor** using the stop control, then apply the **foot pedal**.

## 11. Balancing Accessory Availability Check

This check verifies that wear has not altered the mechanical characteristics of **flanges, cones,** and related accessories beyond specified limits.

With a perfectly balanced wheel (threshold off, first-gram display active), mount, remove, and remount the wheel in a different position. The displayed unbalance should be  $\leq 10$  g.

If higher, carefully inspect all accessories and **replace** any with dents, abnormal wear, or bent flanges.

**Note** – Centering with a cone depends on a **perfect rim center hole**. Off-center or out-of-round holes degrade results. Centering via **lug holes** often improves accuracy. Mounting differences between vehicle and machine can introduce residual unbalance; **on-vehicle balancing** may be required to complement bench balancing.

## 12. Troubleshooting

The following faults can be remedied by the user if the cause matches an item below. For any other defect or malfunction, **contact a qualified technician** (your nearest KJC service center).

### Machine fails to switch on; no light at main switch

- No power at the socket → Test mains voltage; check the workshop electrical circuit.
- Defective mains plug → Check plug integrity; **replace** if necessary.
- Selector set to **Battery** but battery disconnected/flat → Connect the battery with the supplied cable; check charge level.

### Machine fails to switch on; main switch light is on

- Fuse **F1/F2/F3** on circuit board blown → **Replace** the blown fuse.
- Selector set to **Battery** but battery disconnected → Switch to **Mains** or connect and charge the battery.

### Wheel does not spin when START lever is pulled

- Wheel guard raised → **Lower** the guard.

### Discontinuous unbalance readings

- Machine jolted/destabilized during spin → Repeat spin; avoid disturbing the machine during data acquisition.
- Machine not stable on floor → Adjust feet; use shims if needed.
- Wheel not properly clamped → Tighten spinner; ensure firm restraint.

### **Several spins needed to balance**

- Machine jolted during spin → Repeat spin; avoid disturbance.
- Machine not stable on floor → Adjust feet; use shims.
- Wheel not properly clamped → Tighten spinner.
- Incorrect wheel dimensions entered → Verify and reprogram.
- Machine not calibrated → Run **Calibration**.

**Warning** – Possessing the **Spare Parts** book does **not** authorize servicing beyond procedures in this **Operator’s Manual**. Provide service technicians with accurate fault information to minimize callout time.

## Glossary

**Balancer flange** – Disk mating with the wheel's disk; keeps the wheel perpendicular to the rotation axis.

**Balancing cycle** – Sequence from start of spin to braking at stop after signals are acquired and calculated.

**Centering** – Positioning the wheel on the shaft so the wheel's rotational axis aligns with the shaft center.

**Centering flange (accessory)** – Supports and centers the wheel; maintains perpendicularity. Mounts via the center hole.

**Cone** – Conical centering component for wheels with center holes within a given diameter range; used on the spin shaft.

**Dynamic balancing** – Correction of unbalance with **two weights**, one on each side of the wheel.

**Self-calibration** – Procedure calculating correction coefficients from known conditions to improve measurement precision and compensate for drift.

**Spin** – Process from initiating wheel rotation to free rotation and stop.

**Spinner** – Device for clamping the wheel to the balancer; engages the **threaded hub** and uses lateral pins for tightening.

**Static balancing** – Correction of only the static component using a **single weight**, typically at the rim center. Accuracy increases as wheel width decreases.

**Threaded hub** – Threaded portion of the shaft engaged by the spinner to clamp the wheel (supplied disassembled).

**Unbalance** – Non-uniform mass distribution generating centrifugal force during rotation.

# 13. Diagrams

## General electrical layout

### Components:

- **A1** – Power Board
- **A2** – Main Board
- **A3** – Encoder Board
- **B1** – Internal pick-up
- **B2** – External pick-up
- **T1** – Transformer
- **K** – Main switch
- **F4** – Fuse
- **L1** – Motor
- **L2** – Brake
- **S8** – Safety guard micro-switch
- **RP1** – Distance sensor
- **RP2** – Diameter sensor
- **RP3** – Width sensor
- **M** – Motor
- **Z1** – Filter

