VIDEOGRAPHIC WHEEL BALANCER

WB-VL-65 DSP LX Premium / Premium+

OPERATING MANUAL

(Ver.1.6)

Dear Customer,

Congratulations, for selecting **Videographic Wheel balancer** as your Wheel balancing equipment. It is an user friendly system which can be used effectively for balancing Car / LCV wheels.

We take special care to ensure that every **Videographic Wheel balancer** leaving our Factory is in the best operating condition. This **OPERATING MANUAL** has been prepared to help you in getting the best performance out of the equipment. Still, if you have any doubt, please do not hesitate to contact us.

	**Read the Operating manual carefully before starting to use the equipment**

Every attempt is made in this manual to guide the User on the effective use of the Equipment. Any suggestion may please be sent to us for improvement.

INDEX

1. WARRANTY – STATUTORY CLAUSE

The equipment is provided with Warranty for one year from the date of installation or thirteen months from the date of despatch whichever is earlier, against any manufacturing defect. The Warranty is subjected to the following conditions:

1. Ensure that proper power supply with protective Earthing is provided for the equipment. Any high voltage may damage the components, leading to system failure or electrical hazards.
   Power supply
   For 230V 50/60Hz operation: Single Phase, 230VAC ±10%, 50/60Hz +N +PE
   For 110V 60/50Hz operation: Single Phase, 110VAC ±10%, 60/50Hz +N +PE
   Warranty ceases if this condition is not satisfied

2. Power supply to the equipment should be connected only through a CVT of 1KVA capacity to avoid any failure of electronic parts due to instantaneous high voltage. PLEASE AVOID CONNECTING WHEEL BALANCER DIRECTLY TO MAINS.

3. Ensure that any heavy electrical equipments like Compressor / Welding machines / Medical equipments etc., are not connected to same power line.

4. All regulations in force concerning the safety at work must be complied when choosing the installation location. In particular, the equipment must be installed and operated in protected environments where there is no risk of dripping (or) direct sunlight.

5. Ensure that any equipment which produces Ultra Violet rays is not available in the same premises.

6. The operating location must be free from heavy magnetic field.

7. Do not attempt to open or service the equipment under any circumstances.
   Warranty ceases if the equipment is opened or serviced by un-authorized personnel

8. While handling the PCBs, make sure to wear ESD wrist band.

9. Ensure the PCBs are packed in ESD safe cover during transportation for service or any other purpose.

10. ***Warranty ceases if this equipment is used for any purpose other than the intended use.***

11. The equipment must be installed Indoor away from Sunlight, rain / moist areas
    Warranty ceases if the equipment is exposed to direct Sunlight, Rain / Water

12. Make the warranty registration by duly signing the counterfoil of the warranty card sent along with the equipment.

13. If transportation, lifting, unpacking, assembly, installation, start up, testing, repair and maintenance have been performed by un-authorized personnel, the manufacturer shall not be responsible for injury to personnel or damage to objects.

14. DO NOT remove or modify any parts of the equipment as this could compromise the equipment's intended use. For any modifications / repairs consult the Manufacturer.

2. SAFETY

Thoroughly read all Safety labels and Manual instructions before installing, operating and maintaining the Wheel balancer. They are provided to prevent personal injury and property damage. Replace any label unreadable or missing on the Wheel balancer. Refer Part No. given for each labels for ordering. Always keep the Manual in a prominent place for quick reference.

Injury to personnel and damage to property incurred due to non-compliance with these safety instructions are not covered by the product liability regulations.

SYMBOLS

	**Failure to comply with instructions could result in personal injury**
	**Failure to comply with instructions could result in property damage**
	**Important information**

2.1. INTENDED USE

- Always observe the rated load capacity of the Wheel balancer.
- Use the Balancer as described in this Operating manual only.
- Wheel guard must be kept closed during spinning of wheel in the Balancer.

⚠ ATTENTION

MAXIMUM WHEEL WEIGHT : 65 kg
MAXIMUM WHEEL DIAMETER : 39" (990 mm)
MAXIMUM WHEEL WIDTH : 21" (533 mm)

- Use only the accessories recommended by the manufacturer.
- Always use appropriate accessories for mounting various types of wheels.

2.2. SAFETY INSTRUCTIONS FOR COMMISSIONING

1. Only authorized service personnel are allowed to install and commission the Wheel balancer.
2. **DO NOT HOLD** the shaft or its base for lifting / moving the Balancer. Even the slightest bend of the shaft will affect the accuracy of the equipment. Use Lifting handles for lifting the Balancer.
3. The Balancer should not be installed outdoors or in moist rooms.
4. To reduce the risk of fire, the equipment should not be installed at hazardous locations or in the vicinity of explosives or flammable liquids.
5. The floor should be properly leveled beneath the Balancer and should be free of heavy equipment vibration.
6. The Balancer must be anchored to the floor, since large unbalance in wheels can cause heavy vibration which leads to repeated runs for balancing.
7. The electrical main supply to the Balancer must be connected through a CE certified MCB with ratings as given below:
   For 230V 50/60Hz operation: Two pole, Type C, 6A MCB
   For 110V 60/50Hz operation: Two pole, Type C, 10A MCB
8. Proper Earthing must be provided.
9. If an Extension power cord is required, a cord with correct rating equal to or more than that of the equipment should be used.
10. Care should be taken to route the Power mains cord properly so that it is not tipped over or pulled.

2.3. SAFETY INSTRUCTIONS FOR OPERATION

1. Read the Operating manual thoroughly.
2. Only permit qualified personnel to operate, maintain or service the Balancer.
3. Always keep the Balancer and the surrounding work area clean and free of Tools, Parts, Debris, Grease etc.
4. Do not operate, if the equipment has been dropped or damaged until it has been examined by qualified service personnel.
5. Do not operate the equipment with damaged Power cord.
6. Always unplug the equipment from electrical outlet when not in use. Do not pull on the cable, always pull the plug directly out of the socket.
7. Avoid dropping of wheels heavily on the shaft while mounting and removing, which may affect the accuracy of the equipment and also damage the shaft threaded area.
8. The wheels must be mounted properly on the shaft, as the quality of balancing is directly depended on the mounting of the wheels. The Quick Change Lock Nut (QCLN) must be firmly tightened before spinning the wheel.
9. Do not hammer or hit any part of the equipment with Weight plier, Tools etc.
10. Do not lift the Wheel guard until the wheel rotation is completely stopped.
11. Never overload the Balancer.
12. Do not keep heavy objects over the system, except limited quantity of Wheel balancing weights.
13. Keep hair, loose clothing, fingers, and all parts of body away from rotating / moving parts.
14. Always wear Safety glasses and Gloves while operating the equipment.
15. DO NOT apply the Mechanical brake while the Motor is running. It should be used only for adding weights or mounting/removing wheels.
16. Always comply with the applicable accident prevention regulations.

2.4. SAFETY INSTRUCTIONS FOR SERVICING

1. Inspect the Wheel balancer on daily basis.
2. Only authorized personnel are allowed to service the Balancer.
3. Turn OFF the switch and unplug the Balancer before doing any maintenance or repair work.
4. Only certified electricians are allowed to service the electrical & electronic parts of the equipment.
5. Do not remove / disable / override any safety device / interlocks.
6. The use of cleaning agents which attack coating or sealing materials could result in equipment damage.
7. Ensure the disposal of ecologically harmful substances in accordance with the appropriate regulations.
8. Use recommended spare parts only to guarantee the reliable function and to ensure safety of the equipment.

2.5. SAFETY FEATURES

2.5.1. WHEEL GUARD AND ITS SAFETY INTERLOCK SWITCH

The Wheel guard prevents flying out of the weights added on the Wheel rim or stone / foreign particles sticking to the tyre in any direction except towards the floor. A safety Interlock switch is provided to ensure that the Wheel guard is closed during spinning of wheel. If the Wheel guard is not closed during spinning, an error message "*Wheel Guard Not closed*" will be displayed. By closing the guard, error message will disappear and the wheel starts spinning. This feature is to ensure the safety to the operator.

2.5.2. HOME POSITION INDICATOR FOR DISTANCE MEASURING ROD

To avoid the wheel from hitting the Distance measuring rod while running ie., if the Distance measuring rod is not in home position, the wheel run will not be carried out and an Error code "*Distance rod is not in Home position*" will be displayed. Move the Distance measuring rod to home position to continue.

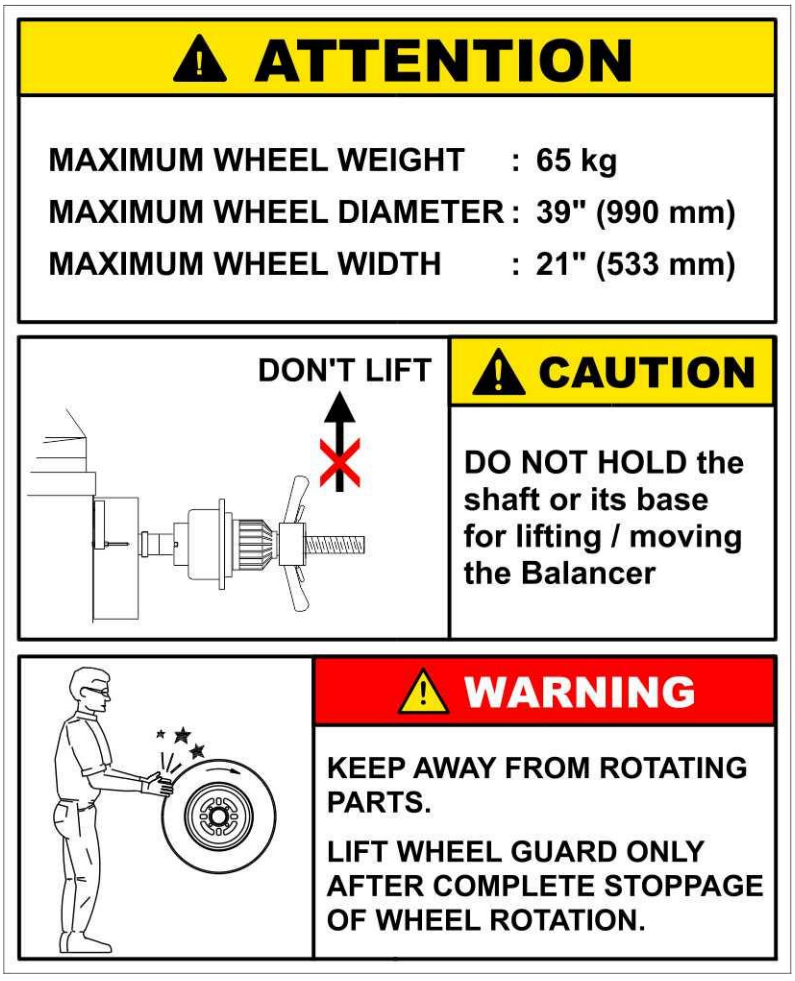
2.5.3. DOUBLE CLICK OF KEYS FOR SPINNING OF WHEEL

During Balancing run, for spinning the wheel the key must be pressed twice within a second. This is to avoid accidental spinning of wheel.

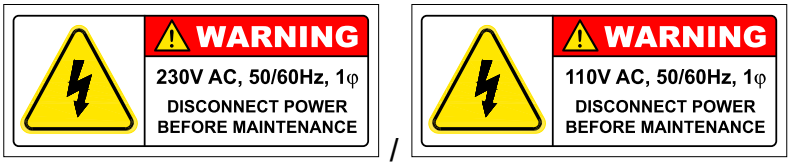
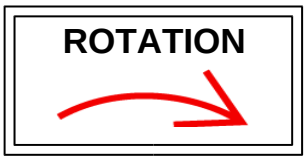
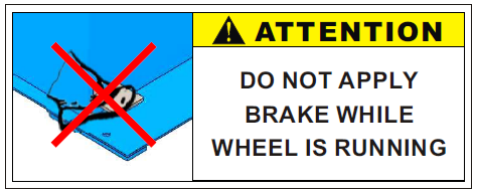
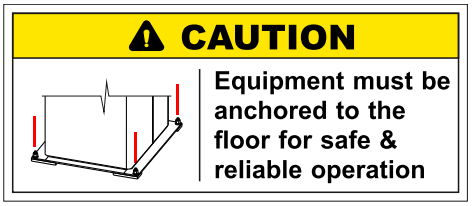
2.5.4. CONTROL FUSE

Control fuses are incorporated to protect the electronic assemblies against short circuit & high current. AC (Inlet) socket with Fuse holders is mounted on the rear side of Main cabinet which can be easily accessed from outside for replacing the blown fuse. Always replace the Control fuse with same type and rating of CE marked Fuse.

2.6. SAFETY LABEL INFORMATION



Sticker, Operation, Safety & Rating (LCV)
(Part No. H3711)

	←	Sticker, Electrical safety (Part No. B2945/B2946)
	←	Safety instruction for operation-II (Part No. H3635)
	←	Indicator for direction of rotation of wheel (Part No. H3636)
	←	Mechanical brake attention (Part No. H3632)
	←	Foundation Warning (Part No. B2941)

3. FEATURES & SPECIFICATIONS

Sl. No.	Description		
		Premium	Premium+
I	**Features**		
1	Suitable for balancing of Cars & LCV wheels	✓	✓
2	Optical Encoder for acquiring wheel parameters input by wheel rotation	✓	✓
3	RLS sensor for automatic measurement of Wheel Dia & Width	✓	✓
4	Automatic Rim Type detection for the hassle of selection the exact Rim type	✓	✓
5	High precision Piezo Sensor for unbalance measurement	✓	✓
6	Low RPM & Centrifugal Switchless Motor for high reliability & vibration less balancing	✓	✓
7	DSP (Digital Signal Processor) technology for processing wheel data	✓	✓
8	Linux Operating System compatible computing hardware & balancing program	✓	✓
9	Built-in Mini UPS for safe shutting down of the Operating system	✓	✓
10	Automatic Electrical braking system	✓	✓
11	Additional Mechanical braking system (Foot pedal operated) to facilitate weight addition	✓	✓
12	High resolution LED Monitor	✓	✓
13	Icon based User friendly balancing program	✓	✓
14	Graphical User I/F for live balancing	✓	✓
15	Optimized balancing sequence	✓	✓
16	Compact & simplified Membrane keypad	✓	✓
17	Safety Warning messages	✓	✓
18	On-screen help notes/messages	✓	✓
19	Fully automatic start, measurement and braking	✓	✓
20	Static (Single plane) & Dynamic (Two plane) Balancing	✓	✓
21	Two modes of measurement - Normal and Fine	✓	✓
22	Seven modes of Alloy wheel functions	✓	✓
23	Automatic Distance input mechanism	✓	✓
24	Automatic measurement of Rim diameter	✓	✓
25	Automatic measurement of Rim width	✓	✓
26	Split weights function (Spokes / Hidden weight Program)	✓	✓
27	Optimization function	✓	✓
28	Laser line indication for Unbalance position for Sticker weights	NA	✓
29	Torch light for illumination of Inner plane	NA	✓
30	Sticker weight holder for easy addition of Sticker weight	✓	✓
31	Input parameter entry confirmation through Beep sound	✓	✓
32	Auto unbalance recalculation without wheel Run on input parameters change	✓	✓
33	Adjustable Unbalance threshold (Weight cutoff)	✓	✓
34	Simultaneous display of Inner and Outer plane results	✓	✓
35	Dimension setting in "Inch" or "mm"	✓	✓
36	Unit conversion in "grams" / "ounces"	✓	✓
37	Self diagnostic, On-line error display	✓	✓
38	Self Calibration	✓	✓
39	Mid Centering Device for positioning of wheels accurately	✓	✓
40	Quick Change Lock Nut to ensure fast mounting & removal of wheels	✓	✓

Sl. No.	Description	Premium	Premium+
41	*Automatic start with wheel guard closure*	✓	✓
42	*Universal AC power input socket*	✓	✓
II	***Technical specifications***		
1	*MCD shaft diameter*	40 mm	
2	*Maximum wheel weight*	65 kg	
3	*Maximum Wheel diameter*	39" (990 mm)	
4	*Maximum Wheel width*	21" (533 mm)	
5	*Rim distance* *By Distance measuring rod* *By Keypad entry*	 4 to 300 mm 0 to 550 mm	
6	*Rim diameter* *****	10" to 24" (254 to 610 mm)	
7	*Rim width* *****	1.5" to 20" (38 to 508 mm)	
8	*Maximum unbalance measurement*	300 gm	
9	*Diameter measurement resolution*	0.1" / 1mm	
10	*Unbalance Resolution* *For Car / LCV*	*Fine* *Normal* 1 gm 5 gm	
11	*Unbalance Accuracy - For Cars / LCV*	1 gm	
12	*Position accuracy*	± 1°	
13	*Balancing speed - For Cars / LCV*	175rpm	
14	*Spin time - For Cars / LCV*	10 sec. (min.)	
III	***Electrical specifications***		
1	*Motor* *230V 50/60Hz operation* *110V 60/50Hz operation*	 0.35HP, 1φ, 50/60Hz 0.35HP, 1φ, 60/50Hz	
2	*Motor speed* *230V 50/60Hz operation* *110V 60/50Hz operation*	 960rpm 1200rpm	
3	*Power supply* *230V 50/60Hz operation* *110V 60/50Hz operation*	 230VAC ±10%,1φ, 50/60Hz +N+PE 110VAC ±10%,1φ, 60/50Hz +N+PE	
4	*Current rating* *230V 50/60Hz operation* *110V 60/50Hz operation*	 2 Amps 6 Amps	
5	*Power* *230V 50/60Hz operation* *110V 60/50Hz operation*	 700W 700W	
IV	***General specifications***		
1	*Machine dimensions - Unpacked (LxBxH) (approx.)* *Without Wheel guard* *With Wheel guard (in Open condition)* *With Wheel guard (in Closed condition)*	 *1100x1130x1350mm* *1350x1140x1720mm* *1350x1140x1350mm*	
2	*Machine dimensions - Packed (LxBxH) (approx.)* *Cabinet with Accessories*	 1120x710x1170mm	
3	*Machine weight - Unpacked (approx.) - (without Wheel guard)*	120kg	
4	*Wheel guard weight - Unpacked (approx.)*	15kg	
5	*Machine weight - Packed (approx.)*	165kg	
6	*Operating temperature*	0°C – 50°C	
7	*Storage temperature*	-20°C to 70°C	
8	*Humidity*	RH below 90% Non condensing	
9	*Ingress Protection rating*	IP-20	

NOTE :

***** - *Rim diameter & Rim width is the dimension entered with reference to the place of addition of balancing weight on the Rim*

4. INSTALLATION

Wheel balancer installation should be done only by qualified Service personnel.

4.1. REQUIREMENTS

4.1.1. LOCATION

The Wheel balancer should not be installed outdoors, in moist rooms, at hazardous locations, or in the vicinity of explosives or flammable liquids.

☞	**Choice of a suitable location is the owner's responsibility**

4.1.2. SPACE REQUIREMENTS

- The floor should be properly leveled beneath the Balancer and should be free of heavy equipment vibrations.
- The clearances from side walls and roof should be adequate so that the Wheel guard can be opened completely and the mounting / removal of wheels can be done easily as shown in Fig.1.

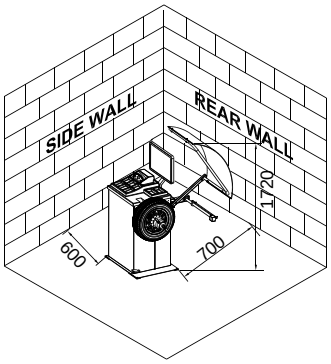


Fig. 1

4.1.3. POWER REQUIREMENTS

For 230V 50/60Hz operation: Single Phase, 230VAC ±10%, 50/60Hz +N +PE
For 110V 60/50Hz operation: Single Phase, 110VAC ±10%, 60/50Hz +N +PE
Supply to the equipment must be connected through a CE certified MCB with ratings as given below:

For 230V 50/60Hz operation: Two pole, Type C, 6A MCB
For 110V 60/50Hz operation: Two pole, Type C, 10A MCB
Proper Earthing must be provided. Also ensure that live phase is on right side point of socket. It is strongly recommended to use a CVT of 1KVA capacity.
Neutral to Line Voltage should be 230VAC ±10% (for 230V operation)
Neutral to Line Voltage should be 110VAC ±10% (for 110V operation)
Neutral to Earth should be less than 3V AC

4.1.4. TOOLS REQUIREMENTS

☞	**Provision of handling means such as Forklifts etc. is the owner's responsibility**

Following accessories and tools are required for the proper installation:

- Screw drivers, Spanner set and Allen key set
- Measurement Tape, 5mtr
- Chalk liner/Marker pen – For marking
- Strip cutter – to Open Carton banding
- Knife – For opening Cartons
- Plastic cable ties – for proper routing of cables
- Multimeter – For verifying supply voltage
- Nylon Hammer
- Hammer Drill and 12mm Drill bit
- 'U' type Shims (required quantities) – 0.5mmT & 1.0mmT

4.2. UNPACKING

1. Unpack the Main cabinet corrugated box
2. Un-wrap the VCI sheet from Main cabinet.
3. Remove all the four bolts from Main cabinet base to take it out from pallet.
4. Ensure the contents as per the packing list:

Package No.	Package description	Package contents	Qty
1	Main cabinet corrugated box	1. Main cabinet assembly	1 No.
		2. Monitor	1 No.
		3. Monitor column	1 No.
		4. Wheel guard with pipe & DMR	1 No.
		5. Width caliper	1 No.
		6. Width measuring rod	1 No.
		7. Accessories box (Cabinet right side) containing:	
		a) MCD & QCLN parts	1 Set
		b) Cone holding stem	3 Nos.
		c) Wheel seating cones	5 Nos.
		d) Wheel guard bracket	1 No.
		e) DMR spacer, ALU-2P/3P	1 No.
		f) Rubber hub cover	1 No.
		g) Wheel balancing weight	1 Set
		h) Foundation fasteners	1 Set
		i) Glass fuses	1 Set

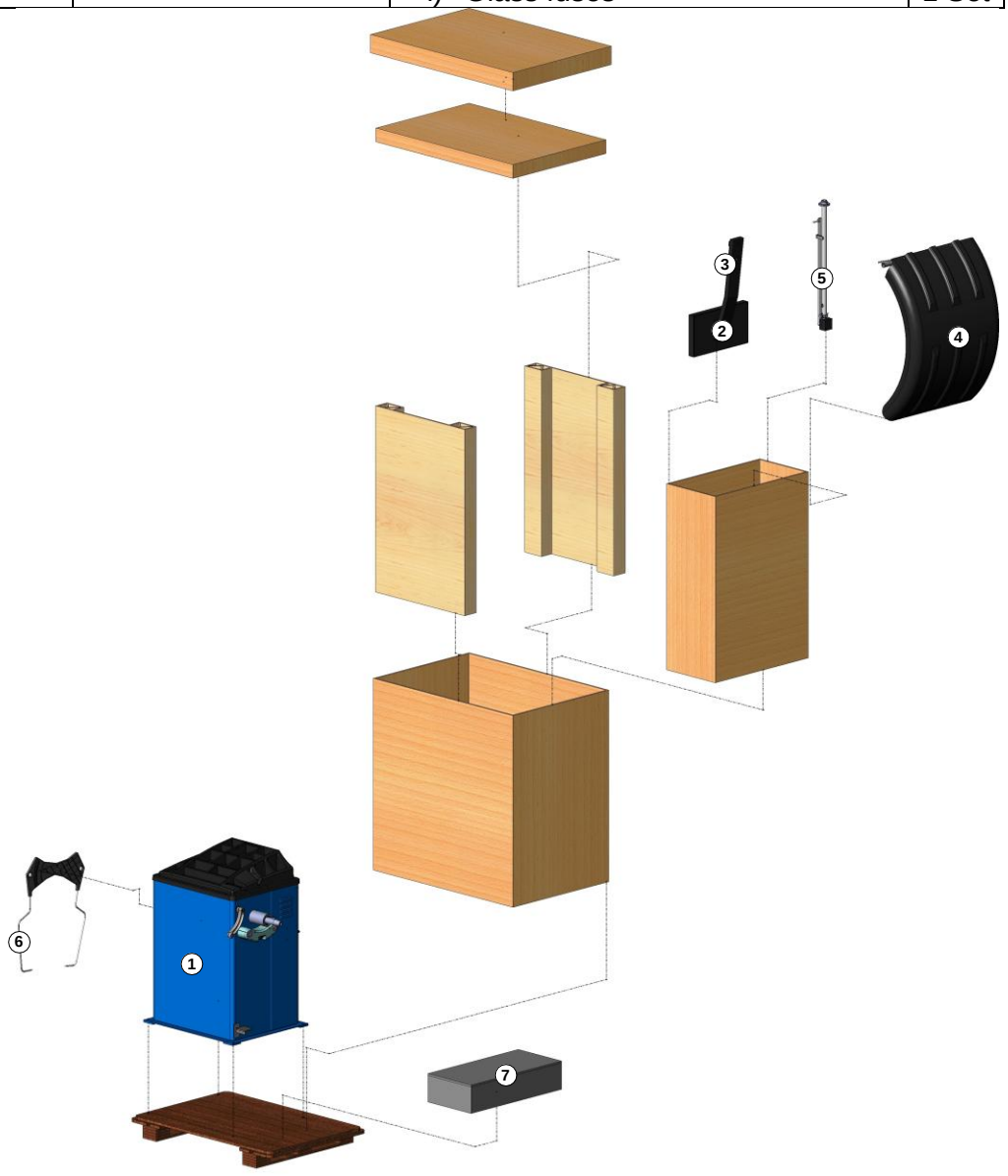


Fig. 2

4.3. FOUNDATION

☞	**Proof of safe floor load capacity is the owner's responsibility**
☞	**It is strongly recommended to install Wheel balancer using Foundation bolts. Failing to comply may lead to toppling of cabinet & damage to equipment. Manufacturer will not be responsible for non-compliance**

1. Place the Cabinet at designated location & mark its foundation fixing holes.
2. Move the Cabinet. Bore the marked holes using a Hammer drilling machine equipped with a 12mm concrete drill bit to required depth in the floor considering the foundation bolt length with sufficient length above the floor level for fixing cabinet. Clean the dust in the foundation area and holes.
3. Insert the M12x125mm Lg. Anchor bolt into the holes. Insert the foundation pin into the Anchor bolt and hammer to lock it.
4. Place the cabinet over the Foundation bolts by providing M16 Spring washer (Flat type) between the Cabinet and Floor.
5. Fix the Cabinet with foundation bolts using Nut & Washer that comes along with Anchor bolt.
6. Check of any tilt. Use required quantities & thickness of 'U' type shims (0.5mmT & 1.0mmT**)** in between the Spring washer & Floor for compensation, if required.

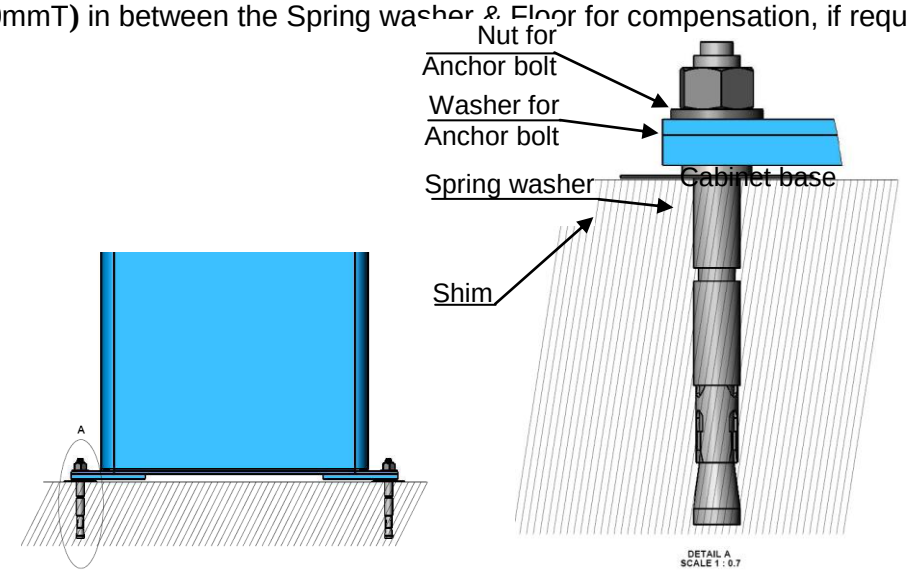


Fig. 3

4.4. INTEGRATION

4.4.1. MONITOR

1. Fix the Monitor column with Main cabinet at the rear side (Centre) using respective Allen screw & Spring washer (2 Nos.) each. Ensure the column is perpendicular to the Cabinet.
2. Fix the Monitor with Monitor plate using WH-PH screw (4 Nos.) firmly and ensure the straightness.
3. Connect one end of the Monitor power cord with Monitor and other end to the socket provided at rear (Right) side of cabinet.
4. Connect the HDMI end of Monitor cable from the SBC (Raspberry Pi) board with Monitor.

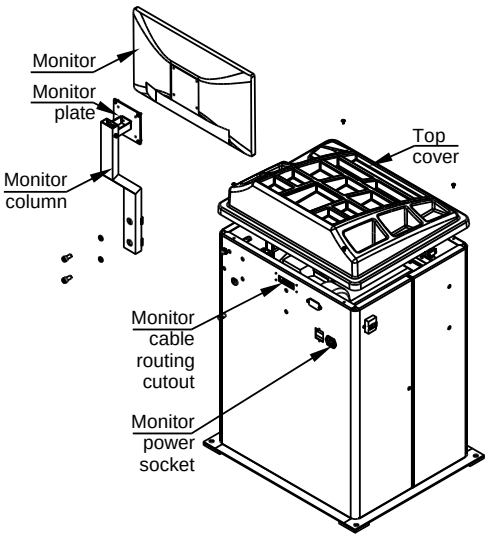


Fig. 4

5. Verify all the connectors are proper and without any loose contact. Close the Top cover.

4.4.2. WHEEL GUARD

1. Fix the Wheel guard bracket at the rear side of cabinet using Bolt & Spring washer.
2. Fix the Square pipe with the bracket using Allen screw & Spring washer.
3. Fix the Wheel guard with pipe using Allen head screw, Nut, Spring & Plain washer.
4. Fix the Wheel guard & pipe assy with Square pipe using Nut, Spring & Plain washer. Ensure Wheel guard is without any tilt.
5. Verify & ensure the limit switch functions of Wheel guard by opening & closing the guard.

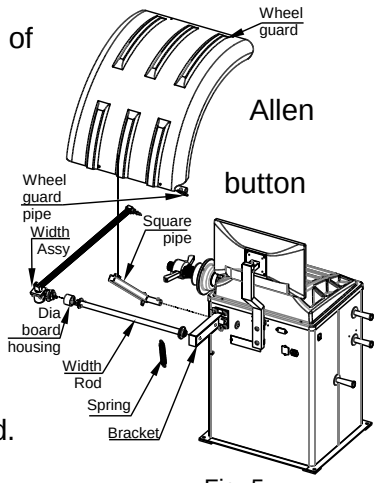


Fig. 5

6. Hook one end of the Wheel guard spring with Square pipe and the other end with the Cabinet. Ensure the Wheel guard assembly is perpendicular to cabinet.

4.4.3. WIDTH MEASURING ROD

1. Remove the Bracket back sheet from Bracket.
2. Insert the Safety cover into Wheel guard bracket & then fix Width rod with bracket using Allen screw & Spring washer by matching the Arrow stickers. Ensure the Width rod is perpendicular to cabinet.
3. Route the Outer dia wire through the Dia board housing and then fix it to the Outer dia board. Connect the housing assembly with the Width rod.
4. Remove Width board back cover. Connect Width wire to width board.
5. Bring the Width assembly cable through the bracket and connect Male end of Wire from Width measuring rod to female end provided below the Bracket at the rear side of cabinet.
6. Fix the Safety cover with the Bracket using WH-PH screw. Ensure Width cable is covered by Safety cover without touching any moving parts.
7. Fix the Bracket back sheet with Bracket using WH-PH screw.
8. Insert the Width rod at the sliding block in the Wheel guard properly.

4.4.4. MCD

1. Insert the Threaded shaft into Tyre seating cone and fix the assembly with Rotor Main shaft firmly using Allen screw & Spring washer (1 No.) each by matching the Arrow stickers pasted in both the Tyre seating cone & Main shaft.
2. Ensure the Rotor shaft is free from Runout. Else correct it.

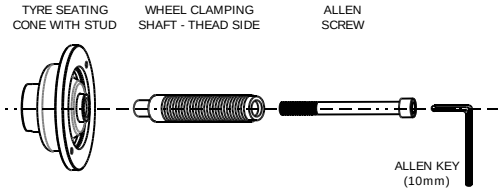


Fig. 6

Fix the Cone holding stems with left side of cabinet and locate the Wheel seating cones with the respective Stem as shown below:

Finally verify & ensure the cabinet is free from tilt again.

4.5. INITIAL OPERATION

1. Provide power supply and switch ON the equipment.
2. Press key twice to run the Empty shaft and ensure the '0' value is displayed in both windows.
3. Mount a wheel (Refer Chapter 7.3) & balance the same (refer Chapter 7.4). Add a known weight on **both sides (Inn**er and Outer). Check for its value and position are displayed correctly. If not, perform calibration (refer Chapter 9.1) and again conduct balancing operation.

5. OPERATING PRINCIPLE

5.1. UNBALANCE OF WHEEL

In normal condition unevenly worn out tyre causes uneven mass (weight) distribution with respect to wheel centre. Even Brand new tyres may have small amount of uneven mass distribution i.e., Unbalance.

When the wheel is in motion, the unbalanced mass causes a centrifugal force. This force when meeting the road squeezes the tyre momentarily.

This force is directly proportional to speed square ($F\alpha N^2$) ie., as the speed increases, the force increases in square proportion causing patch wear of the tyre. An unbalance in Front wheels, will give a vibration that can be felt through the steering wheel. At high speeds, the effect can be felt more. Unbalance in the rear wheels will result in a vibration that can be felt through the vehicle body. This unbalance can have a detrimental effect on the various joints and suspension of the vehicle.

To eliminate the unbalance, balancing of the wheel has to be carried out. Balancing is the process of finding out the 'Mass' which causes unbalance and the location (phase) of the mass, and adding equal weight in the directly opposite location (180º away).

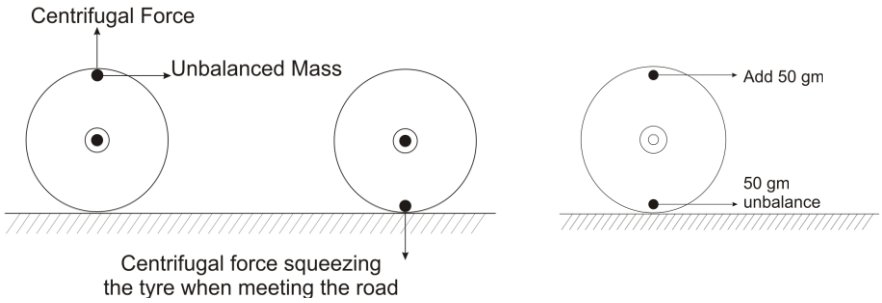


Fig. 7

5.2. STATIC BALANCING (Single plane balancing)

Static balancing is the process of adding equal amount of balancing weight at 180º position opposite to the position of the Unbalance. Static balancing is applicable only for thin wheels of less than 3" width (Motorcycle Wheels). Normally the unbalanced weight will be added on the rim of the wheels though the unbalance may be anywhere in the width as shown in Fig.8. To get perfect balancing the weight must be added in the same plane at 180º opposite position (Inner position).

In Static balancing Method, though the weight is not added in the same plane, the Dynamic forces caused will be very minimal when the wheel width is small. But in the case of wider wheels, the distance between the plane of unbalance and the plane of the weight addition will be more and for this reason a Force couple will be formed and it will create a rocking effect on the bearings of the wheels. This kind of situation requires a Dynamic balancing technique.

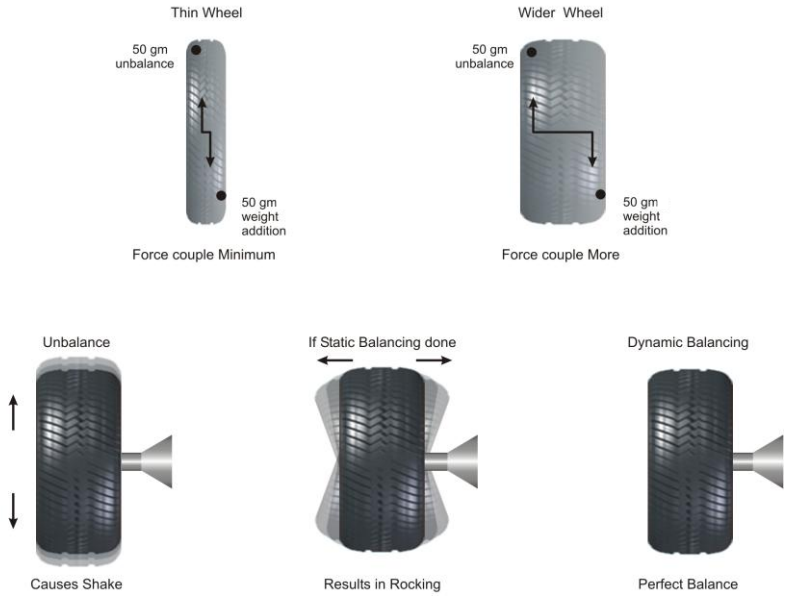


Fig. 8

5.3. DYNAMIC BALANCING (Two plane balancing)

In Dynamic balancing, the weight will be added in two planes as indicated in Fig.9. This kind of adding weights in two planes will eliminate the possibility of Force couple. With the result, there will not be any undesirable dynamic forces left out in the wheels. Since the weights are added in two planes, this is also called as Two Plane Balancing. Normally for Four Wheelers, Two plane balancing is recommended and today's computerized Wheel balancing equipment are following this technique only.

Fig. 9

5.4. PRINCIPLE OF OPERATION

Wheel balancer is a DSP based Wheel balancing equipment. The Balancer calculates the unbalanced mass and the position of unbalance over the width of the wheel.

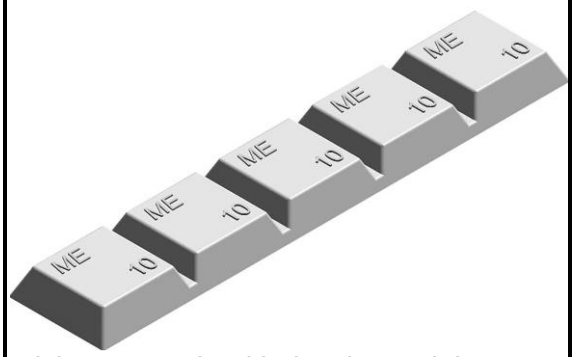
The two planes of the wheel are the Inner and Outer faces of the wheel (in the case of normal rims) where the balancing weights can be fixed. In Alloy rims the location of weights will be different based on the configuration of Alloy rim (refer Chapter 7.4.1).

The Diameter, Width of the Rim and the Rim distance are the inputs to the equipment for calculating the unbalance. When the distance from the equipment and the inner face of rim is entered the system takes it as the Inner plane location of the Balancer. When the Rim width is entered the system adds the width with the inner plane distance and takes it as the outer plane location. When the Diameter is entered the system takes it as radial distance from the centre of wheel to where the weights to be added.

When the wheel is rotated the system detects any unbalance on the shaft. The Inner / Outer unbalance window displays the unbalanced mass in the respective planes. The measurement will be taken if only the set RPM is reached.

5.5. WHEEL BALANCING WEIGHTS

☞	**The weights must be fixed firmly on to the rim for proper balancing and to avoid repeated runs**

TYPES OF WHEEL BALANCING WEIGHTS	
Clip-on type weight	**Sticker (adhesive) type weight**
	
Clip-on type Wheel balancing weights can be used for Steel rims with less thickness	Sticker type Wheel balancing weights can be used for Alloy rims with more thickness

6. DESCRIPTION OF MAIN PARTS

The System consists of Main Cabinet, Rotor, Electronic assemblies, Display unit, Control panel, Mechanical brake, Distance/Dia measuring rod, Width measuring rod, Wheel guard, Standard accessories and Optional accessories.

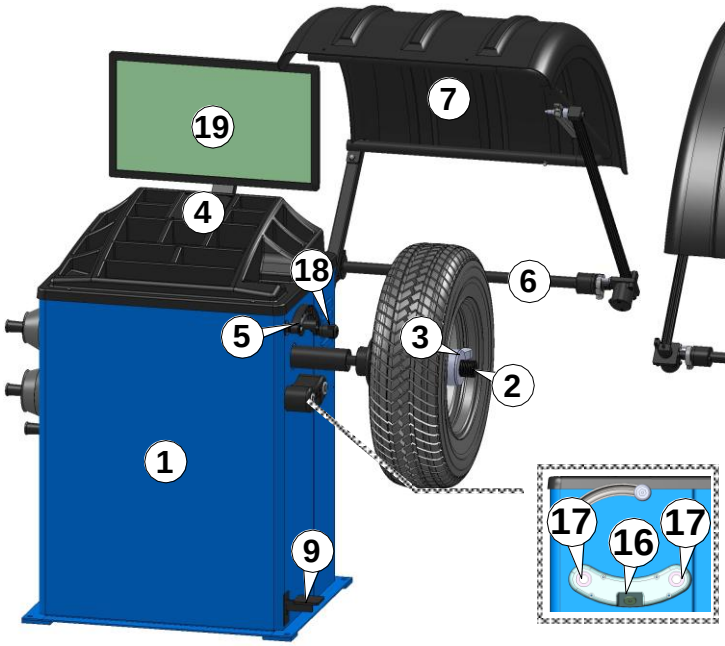


Fig. 10

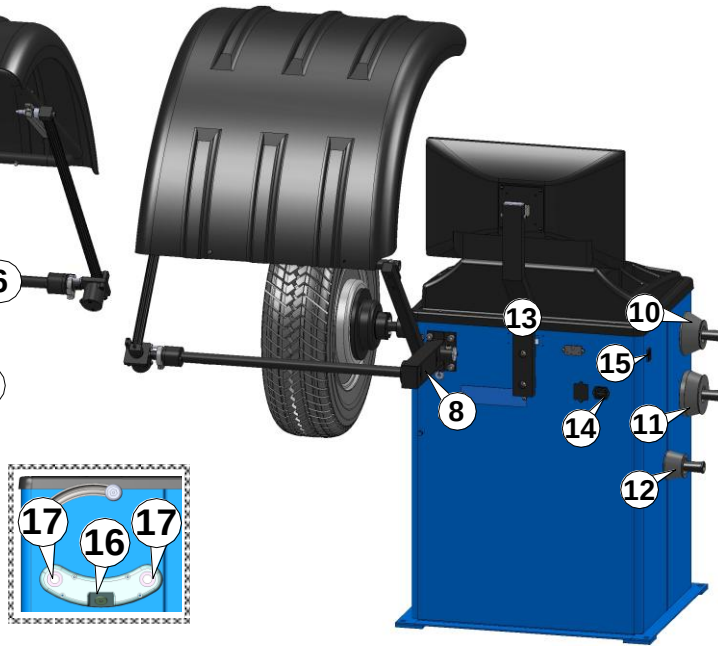


Fig. 11

Sl. No.	*Description*
1	Main cabinet
2	Wheel clamping threaded shaft
3	Quick Change Lock Nut
4	Control panel
5	Distance & Dia measuring rod
6	Width measuring rod
7	Wheel guard
8	Wheel guard bracket
9	Mechanical brake

Sl. No.	*Description*
10	Wheel seating cone-Ø94-Ø111.5mm
11	Wheel seating cone-Ø80-Ø97.5mm
12	Wheel seating cone-Ø66-Ø83.5mm
13	Monitor column
14	AC Input socket
15	On/Off Rocker Switch
16	Laser (NA for Premium model)
17	Torch (NA for Premium model)
18	Sticker weight holder
19	Display unit

6.1. MAIN CABINET

Main cabinet is the housing for Electronic unit, Rotor, Motor and Control panel.

Mains power cable is situated at the rear side of Cabinet & ON/OFF switch is provided at side of cabinet. Control fuses are incorporated to protect electronic assemblies against short circuit & high current. AC (Inlet) socket with Fuse holders is mounted on the rear side of Main cabinet which can be easily accessed from outside for replacing the blown fuse. Always replace the Control fuse with same type and rating of CE marked Fuse.

Control fuse - 1 No. is provided in Line & 1 No. is provided in Neutral

For – 230V *Specifications – 3A, Dia 5mm x 20mm, Slow blow type Glass fuse*
The Fuse will blow in 5 seconds (max.) for maximum current of 3A

For – 110V *Specifications – 10A, Dia 5mm x 20mm, Slow blow type Glass fuse*
The Fuse will blow in 5 seconds (max.) for maximum current of 10A

⚠	**Turn OFF the switch and unplug the balancer before doing any maintenance or repair work**

6.2. ROTOR

The Rotor assembly consists of the Driven pulley mounted on the shaft located in the Bearing housing, Mid Centering Device and the RPM encoder assembly.

6.3. DISPLAY UNIT

The Display unit is a High resolution Color LCD Monitor with DVI interface to display the balancing process and functions in High definition video quality (HDMI). It contains a Power indicator LED, Power ON/OFF switch and various adjustments. Refer the Monitor manual / Soft media provided along with the equipment for adjustments.

	Ensure that none of the Monitor air vents are blocked. Blocking them would cause serious thermal problems
	Clean the Monitor with a soft & clean cloth using water. Remove moisture from the display quickly and keep the display dry. Long term exposure to moisture may damage the display
	The location of Monitor power indicator and controls may change depending upon the make of the Monitor supplied. Refer the Monitor manual / Soft media

6.4. CONTROL PANEL

Control panel is a soft touch Membrane keypad for operating the equipment provided on the Top cover. The various functions of the keys are as follows:

Fig. 12

Keys	*Functions*
TAB	To toggle the keypad control between Task bar & Screen options
	To select the **SETTINGS** button in **WELCOME** screen
	To proceed with next step/screen in balancing operations To clear error messages
	Pressing the key twice (within a second) will start balancing operation
ESC	To stop the Motor when balancing run is in progress To go back to previous screen
	To increase the Wheel dimensions while setting parameters To navigate through the options listed
	To decrease the Wheel dimensions while setting parameters To navigate through the options listed
	To navigate through the options listed
	To navigate through the options listed

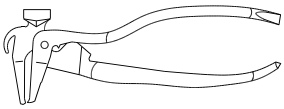
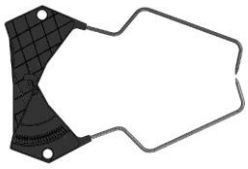
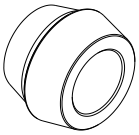
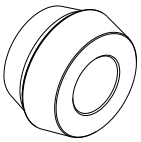
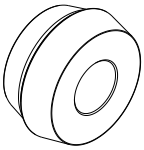
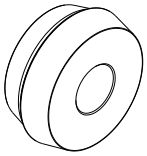
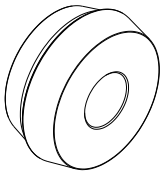
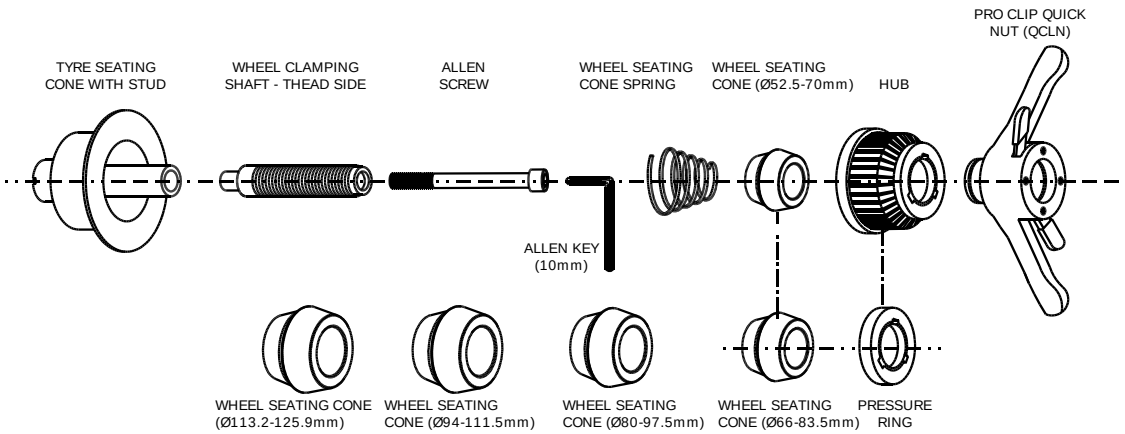
6.5. WHEEL GUARD

Wheel guard is provided to prevent the balancing weights flying out from its rim or stone / foreign particles sticking to the tyre in any direction except towards the floor. A safety Interlock switch is provided to ensure that the Wheel guard is closed during spinning of wheel. If the Wheel guard is not closed during spinning, "*Wheel Guard Not closed*" message will be displayed. Press key to clear the error message and close the guard to spin the wheel. This feature is to ensure the safety to the operator.

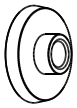
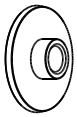
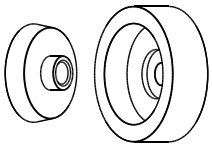
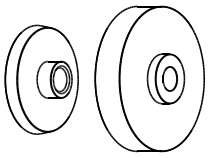
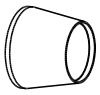
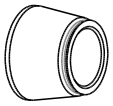
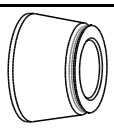
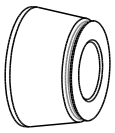
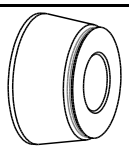
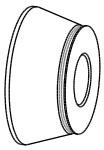
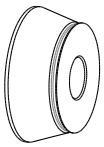
	Always keep the Wheel guard closed during spinning of wheel
	Do not lift the Wheel guard until the wheel is completely stopped
	Do not apply the Manual brake until wheel is completely stopped

6.6. STANDARD ACCESSORIES

⚠	**Uses only the Accessories recommended by the manufacturer and handle it carefully. Failure to comply may cause injury to Operator**
⚠	**Handle the Weight removing plier properly and avoid placing fingers between the teeth**
❗	**Frequently inspect the accessories and clean and lubricate**

Weight plier (Code : B0539)	
Caliper (Code : B2850)	
Rubber hub cover (Code : B2851)	
Wheel seating dual cone, Medium taper (Min.Ø52.5 - Max.Ø70mm) (Code : P9363)	
Wheel seating dual cone, Medium taper (Min.Ø66 - Max.Ø83.5mm) (Code : P9364)	
Wheel seating dual cone, Medium taper (Min.Ø80 - Max.Ø97.5mm) (Code : P9365)	
Wheel seating dual cone, Medium taper (Min.Ø94 - Max.Ø111.5mm) (Code : P9366)	
Wheel seating dual cone, Medium taper (Min.Ø113.2 - Max.Ø125.9mm) (Code : P9367)	
Mid Centering Device (LCV)	

6.7. OPTIONAL ACCESSORIES

Wheel seating cone, Toyota - For Wheel bore Ø133mm (Code : A2824)	
Wheel seating cone, Swaraj Mazda - For Wheel bore Ø147mm (Code : A2825)	
Wheel seating cone with spacer, Canter - For Wheel bore Ø157mm (Code : A2826)	
Wheel seating cone with spacer, Tata 407 - For Wheel bore Ø162mm (Code : A2827)	
Wheel seating cone, Taper Ø2.23" (Code : P9226)	
Wheel seating cone, Taper Ø2.58" (Code : P9227)	
Wheel seating cone, Taper Ø2.94" (Code : P9228)	
Wheel seating cone, Taper Ø3.28" (Code : P9229)	
Wheel seating cone, Taper Ø3.63" (Code : P9230)	
Wheel seating cone, Taper Ø4.36" (Code : P9231)	
Wheel seating cone, Taper Ø5.18" (Code : P9232)	
Universal flange kit (Code : A2816)	 UNIVERSAL FLANGE  PCD MEASURING TOOL

7. OPERATION

	**Only permit qualified personnel to operate, maintain or repair the Balancer**
	**Do not lift the Wheel guard until the wheel is completely stopped**
	**Always ensure that the wheels are mounted properly. The QCLN must be tightened firmly before spinning the wheel**
	**Pay attention while lifting heavy wheels. Heavy loads should not be lifted without assistance**
	**Always comply with the applicable accident prevention regulations**
	**Never overload the Wheel balancer**
	**Do not hammer or hit any part of the equipment with Weight plier, Tools etc.**
	**Avoid dropping of wheels heavily on the shaft while mounting & removing, which may affect the accuracy of the equipment**
	**DO NOT apply the Mechanical brake while the Motor is running. It should be used only for adding weights or mounting/removing wheels**
	**If any error message is displayed, resolve the error as guided in the Trouble shooting (Chapter 13) and then press any key to return after clearing the indicated error**

7.1. DEFECTS / MALFUNCTIONS

	**In case of defects or malfunctions such as abnormal noise / improper display / Keypad not responding etc., turn OFF the mains and contact qualified Service personnel**

7.2. PREPARATION OF WHEEL FOR BALANCING

	**Manufacturer is not liable for in-accurate balancing of re-treaded tyre or wheel with more runout**

1. Check for the correct tyre size and weight are mounted on the Balancer.
2. Check for proper air pressure of the tyre, if required inflate the tyre to the recommended pressure.
3. Remove if any foreign materials are present in the tyre treads.
4. Clean the rim and tyre free of excessive dirt and stones. The central bore and face of the rim must be thoroughly cleaned to ensure proper fitment with the Wheel mounting accessories.
5. Dismount all the existing wheel balancing weights from the rim.

7.3. MOUNTING OF WHEEL ON MCD

	**Pay attention while lifting heavy wheels. Heavy loads should not be lifted without assistance**
	**Avoid dropping of wheels heavily on the shaft while mounting & removing, which may affect the accuracy of the equipment**
	**Accurate balancing depends on the proper mounting of wheel on to the shaft**

Almost all standard wheels and many types of Alloy wheels have accurately machined centre hole. The inner side of the wheel usually has the most uniform surface which is used for mounting the wheel on to the vehicle. Always use the centre hole and the inner surface as datum for mounting the wheel on the MCD.

In all types of mounting make sure that the inner surface of the wheel is forced firmly against the MCD face and then the QCLN is firmly tightened.

For proper centering of wheel, rotate the wheel and the shaft while tightening QCLN.

To ensure proper fitment of wheel, rotate the wheel manually and check for the wheel rotation free of wobble or runout.

7.3.1. BACK CONE MOUNTING

Most of the steel wheels can be mounted properly by using this method. The wheel is centered on the Wheel seating cone from inner side of the wheel hub.

- Choose the appropriate Wheel seating cone according to the rim centre hole diameter.
- Insert the Conical spring into the MCD shaft with bigger dia end butting against the MCD.
- Slide the Wheel seating cone on to the MCD shaft with its larger diameter butting against the MCD face as shown in Fig.13.
- Lift the wheel on to the shaft and center it on the cone.
- Tighten the QCLN with Hub securely on to the shaft against the wheel.
- After balancing is completed loosen the QCLN at least by 90° in Anti-clockwise direction, then hold the wheel and press the Release lever to remove the wheel and QCLN.

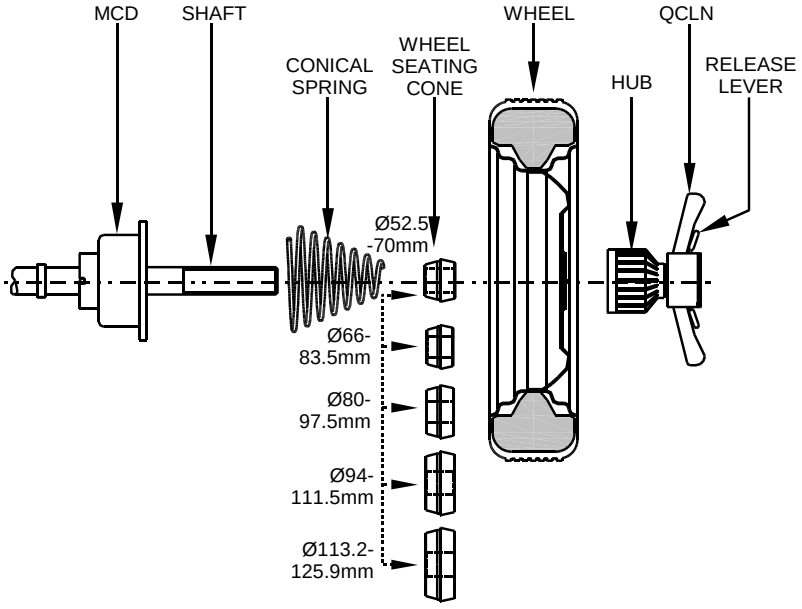


Fig. 13

7.3.2. FRONT CONE MOUNTING

In some types of wheels, the inner surface will not provide an accurate surface to centre. In such cases, the wheel should be centered from the outer side of the Wheel hub.

- Choose the appropriate Wheel seating cone according to the rim centre hole diameter.
- Lift the wheel on to the shaft and slide it to butt against the MCD face as shown in Fig.14.
- Slide the Wheel seating cone on to the shaft into the centre hole of the wheel. Lift the wheel and seat the cone in the centre hole.
- Insert the QCLN with the Pressure ring after removing the Hub on to the shaft and tighten it securely against the cone.

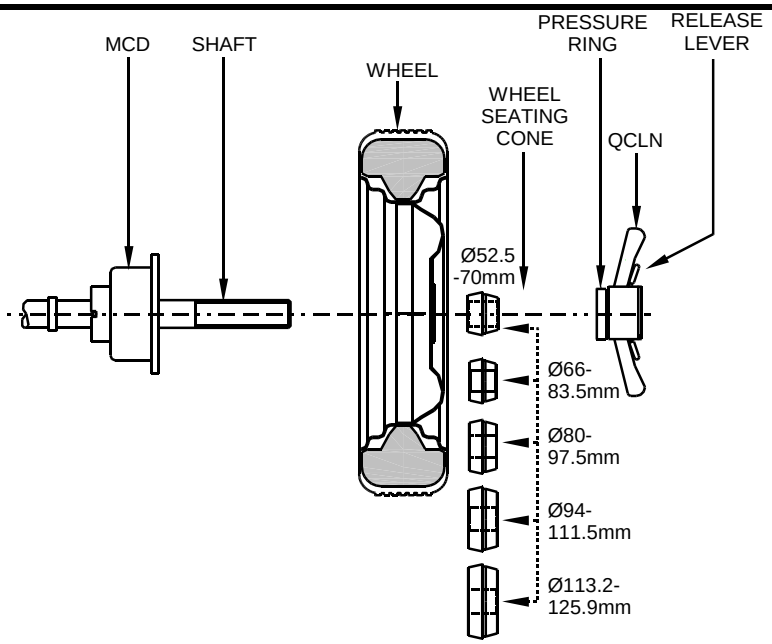


Fig. 14

7.3.3. LCV WHEEL MOUNTING

LCV wheel mounting is same as Front cone mounting type except that the rim has offset centres extended around the backing plate.

- Mount the Plastic spacer onto the shaft butting its solid face against the MCD face as shown in Fig.15.
- Select the appropriate Wheel seating cone depending upon the centre hole diameter of rim.
- Lift the wheel on to the shaft and slide it to butt against the Spacer.
- Position the cone onto the centre hole diameter of the rim and insert it to the shaft along with the wheel.
- Insert the QCLN with the Pressure ring after removing the Hub on to the shaft and tighten it securely against the cone.

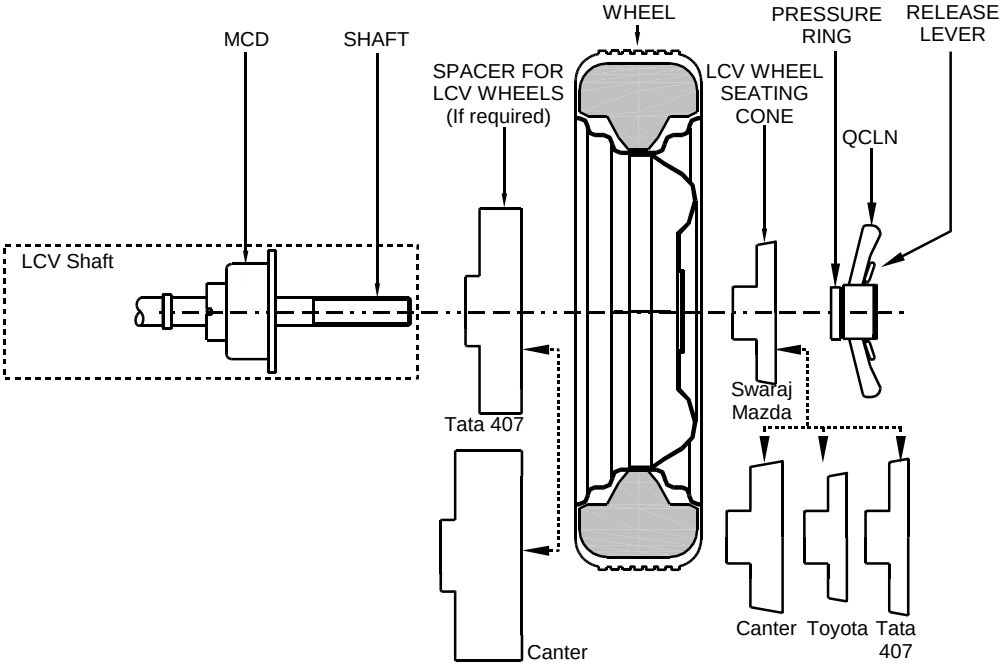


Fig. 15

7.3.4. LCV UNIVERSAL FLANGE MOUNTING

Universal flange is used for balancing LCV wheels with Blind rims (ie., without rim centre hole). The Flange kit will support wide range of wheels with 3, 4 & 5 mounting holes and Pitch Circle Diameter of 81 to 203mm.

- For mounting Universal flange, remove threaded Wheel clamping shaft and Allen screw from Main shaft and keep the Clamping shaft safely.
- Fix the Tyre seating cone with Main shaft using Allen screw (M12x70) & Spring washer.
- Count the No. of mounting holes available in the Wheel and fix the required Stud plate with fixing bolts in the Universal flange with respect to the numbers punched in the Flange.

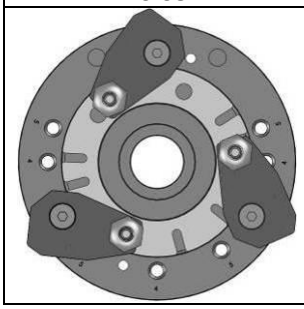
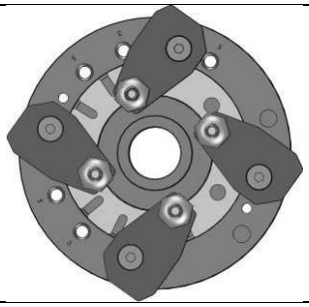
Wheels with 3 mounting holes	Wheels with 4 mounting holes	Wheels with 5 mounting holes
		

Fig. 16

- Measure the pitch distance of the mounting hole in the wheel using PCD measuring tool provided and tighten the measuring tool in the same position without disturbing the pitch distance.
- Now insert the PCD measuring tool into the Rim fixing bolts in Universal flange and adjust its position according to the pitch dimensions and tighten the respective Stud plate fixing bolts. Do the same for remaining Stud plates.
- Fix the Universal flange assembly with Tyre seating cone using Allen screw & Spring washer.
- Run the balancing program with empty shaft and ensure the zero value is displayed in both Inner & Outer planes.
- Mount the Wheel with the Rim fixing bolts in the Universal flange by matching the wheel mounting holes and then lock the wheel with the Flange using Rim fixing nut.

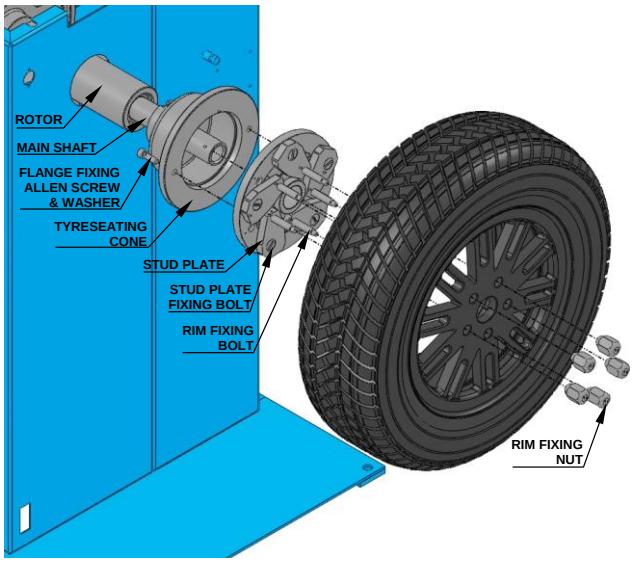


Fig. 17

7.4. BALANCING

☞	**Daily, when the Balancer is switched ON for the first time, allow 15 minutes of warm-up time for the stabilisation of the equipment**
☞	**In case of power failure in the midst of Balancing program/functions, the program should be executed again from the start**
☞	**Select key & then press key to shut down the system. Once pressed, wait till "No Signal" message is displayed and then turn off the ON/OFF Switch**

There are two types of balancing as explained below:

DYNAMIC BALANCING (Two plane balancing)

This refers to the balancing carried out on the Inner and Outer planes of wheel. In this type, unbalance readings measured by the system on both planes will be displayed. Dynamic balancing can be carried out for normal LCV including Alloy rims.

STATIC BALANCING (Single plane balancing)

Static balancing is generally done for wheels having smaller Rim width (≤3") & Alloy wheels. Balancing weights is applied on the Inner plane only.

☞	**Split weight functions cannot be done in Static balancing mode**

Switch ON the equipment and wait for a minute (approx.). Program will load & following **WELCOME** screen will be displayed. DO NOT interrupt the system while booting:

Premium	Premium+
	

Fig. 18

☞	**Use Navigation keys to select button and then press key to go to WHEEL RUN screen**
☞	**Press key to choose the preferred languages available in the screen and then press key to save the settings**
☞	**Press key to know the functions of keys applicable in the respective screens**
☞	**Press key to update the balancing program in field. This feature should be used only by authorised Service personnel**
☞	**Press key to go to previous screen and also to stop the wheel spin**
☞	**Press key to clear any error message & proceed further**
☞	**If "*Error in communication. Check cables and power*" message is displayed, press key to clear the message. If the error is repeated again, check the serial communication cable connection by authorised service personnel**

Use Navigation keys to select / / / / buttons in the **WELCOME** screen & press **key.**

Following screen will be displayed, once the system enters into **WHEEL RUN** screen:

Fig. 19

Select **RIM PARAMETERS** option and press key.

☞	**If Auto Distance feature is enabled, user can also move the Distance / Diameter measuring rod to enter into RIM PARAMETERS screen automatically from POSITION TRACKING screen**
☞	**The current System settings available/set will be displayed in the Status bar**
☞	**The *Job number* window shows the count of current of job number & it gets automatically incremented whenever a wheel is balanced. If the Job count reaches maximum count of '99999', a message will be prompted & the system will reset the count to '00001' automatically**

7.4.1. RIM PARAMETERS

☞	**While setting Rim parameters using Navigation keys, ensure the Distance/Diameter & Width measuring rods are at Home position**
☞	**In case of *Static balancing* mode enabled in SETTINGS screen, only *Diameter* window will be accessible for setting the dimensions**
☞	**Rim parameters can also be set by rotating the wheel itself instead of using keys, if Auto Distance/Width/Diameter feature is not enabled**
☞	**If Rim distance is ≥4.8" in Alu-2 & Alu-3, "*Distance input is not in valid limits*" will be displayed in POSITION TRACKING screen. Measure & enter Rim distance correctly**

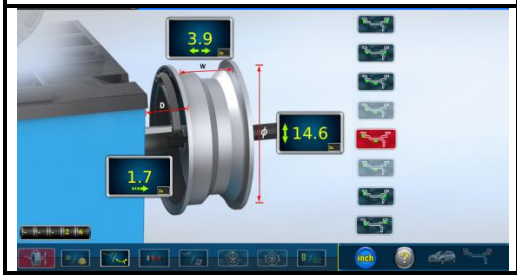
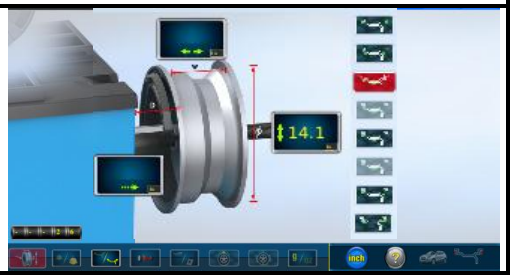
DYNAMIC BALANCING MODE	STATIC BALANCING MODE
	

Fig. 20

Rim distance measurement (Applicable only for Dynamic balancing)

After mounting wheel with appropriate accessories as explained in Chapter 7.3, enter Rim distance, by following any one of the methods given below:

- Move the Distance measuring rod outwards till it touches the Inner rim (Refer Fig.21). Keep the Distance measuring rod in the same position for atleast 3 seconds. The Rim distance will be updated on the window followed by an Audio indication.
- Use the Navigation keys to set the Rim distance value manually.
- Rotate the wheel to set the Rim distance value manually and hold the wheel when the desired distance value is displayed.

Fig. 21

*if **Auto Dia** measurement is enabled, both the Distance & Diameter windows will be highlighted. Now move Distance/Dia measuring rod outwards till it touches the Inner rim & keep it in the same position for alteast 3 seconds. Rim Distance & Diameter will be updated on the window followed by an Audio indication. Then move Distance measuring rod to its Home position.*

*If **Auto Dia / Auto Width** measurement is enabled, the system will detect the Rim type automatically. After the Inner distance measurement, if the Distance rod is further moved to measure the Inner most distance, then the Rim type (either ALU2 or ALU3) will be detected based on the location of measurement.*

If the Distance rod is moved back to Home position and then Width rod moved to measure the Rim Width, then the Rim type (ALU4, ALU-5 & Steel) will be detected automatically depending on location of measurement.

☞	**Automatic Rim type detection is applicable only in Dynamic mode**

☞	**The Distance / Dia measuring rod and the Width rod to be touched at the approximate middle area for the Sticker weight adding location during measurement. Whereas, it has to be touched at curved edge of rim for the Clip on weight adding locations. If the location is wrongly measured, it will lead to wrong selection of Rim type by the Automatic system**

☞	**For Steel & ALU1 type, the Rim type will be indicated as "STEEL" only as the condition is same. If the User wants to change the Rim type to ALU1, it can be changed manually using the Navigation keys**

Once a Rim parameter is acquired, the system will go to next parameter window automatically after few seconds. User can also press ◀ / ▶ key to go to previous / next window respectively.

☞	**Ensure the Distance/Dia measuring rod contact pin touches the Inner rim profile at the exact place where the weight to be added to acquire the correct Rim distance & Diameter and also the correct Rim type**

☞	**If the parameter is acquired, the value will be indicated in YELLOW color and background will be highlighted**

Rim diameter measurement

Diameter window will be highlighted. Then enter the Rim dia by following any one of the methods given below:

- Measure the Diameter of the Rim and set the value using Navigation keys.
- Rotate the wheel to set the Rim dia value manually and hold the wheel when the desired distance value is displayed

*if **Auto Dia** measurement is enabled, the Rim diameter will be updated automatically during Rim distance measuring itself*

Rim width measurement (Applicable only for Dynamic balancing)

Width window will be highlighted. Then enter the Rim width by following any one of the methods given below:

- Use Width caliper provided with equipment to measure the Width of Rim & set the width value using Navigation keys.
- Rotate the wheel manually and hold the wheel when the desired distance value is displayed.

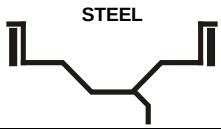
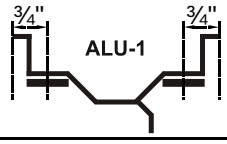
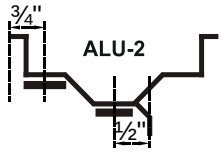
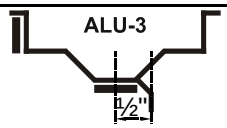
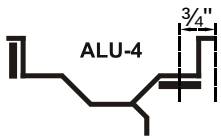
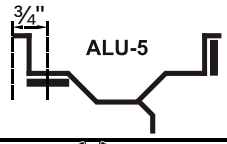
Fig. 22

*If **Auto width** measurement is enabled, move the Width measuring rod & touch the outer surface of Rim as shown* (Refer Fig.22) *and keep it in the same position for atleast 3 seconds. Rim width will be updated in the window, followed by an Audio indication.*

Rim selection

☞	**The selected Rim type will be displayed in the Status bar of RIM PARAMETERS screen**

Wheel Rim types:

	Steel rims – Clip-on weights for both Inner and Outer planes
	Sticker weights on both Inner and Outer planes for rims with central rib in between the planes
	Sticker weights (both) on Inner plane
	Clip-on weight on Inner plane and one Sticker weight on Inner plane (towards outer side)
	Clip-on weight on Inner plane and Sticker weight on Outer plane
	Sticker weight on Inner plane and clip-on weight on Outer plane

Press ◀/▶ keys to move between the Rim parameter and Rim selection keys. Use Up/Down keys to select the required Rim type and then press ↵ key. User can also rotate the wheel to select the required Rim type and hold in its position for few seconds the system will go back to previous screen.

7.4.2. WHEEL RUN

Fig. 23

☞	**In case of Alloy wheels, Split weights program can be used to split the balancing weight on Outer plane alone to hide the weights behind the Spokes (Refer Chapter 7.5.1)**
☞	**In Balancing mode & Split weight function for Alloy wheel rims, in which sticker weight to be used (Inner and Inner most), the weight adding position will be indicated in 12 o' clock position when the Sticker weight Holder mode selected and 6 o' clock position when Laser mode is selected. For Sticker weight Holder mode, the weight should be added only by the holder at the meeting point in the rim surface. DO NOT ADD AT THE CENTRE OF RIM (TDC). For Laser mode, Laser line will be indicated (for Premium+ model only). Add the sticker weight in this position**
☞	**For all wheels, Inner plane weight adding position (±20°) the Torch light will be ON, just for illumination (for Premium+model only). At the weight adding position, Torch light will toggle On/Off to enhance the visibility of the Laser line**
☞	**If "*Weight Calibration data is not available. Redo weight calibration (or) Restore Factory calibration*" message is displayed, press ↵ key to clear message. Calibration to be done before proceeding further**

Check and ensure that the Distance measuring rod and Width measuring rod are at Home position.

☞	**The respective settings can be set in POSITION TRACKING screen for the current wheel balancing sequence alone using ◀/▶ keys and pressing ↵ key. For permanent settings, use SETTINGS screen. The settings made in the POSITION TRACKING screen will be reflected in the status bar**

Start balancing run by pressing the ▶ key twice or by lowering the Wheel guard if ***Auto run*** mode is enabled in **SETTINGS** screen (Refer Chapter 8).

DYNAMIC BALANCING MODE	STATIC BALANCING MODE
	

Fig. 24

Now the wheel will start spinning for few seconds, when measurement is completed the Wheel mounting shaft will be stopped via E-Brake. The Inner and Outer unbalance weights will be displayed on the respective windows.

The Unbalance position is indicated graphically by small red circles on the wheel images for both Inner and Outer planes. Rotate the wheel manually to bring the red circle to the Top most position for Inner plane.

When the top most position is reached, symbol will popup above the wheel image. Now add the indicated weight at the indicated position on to the rim by clipping/ pasting the weight & hammer it using Weight plier.

Weight adding location @ 12 0' clock (Top)	Weight adding location @ 6 0' clock (Bottom)	Sticker weight addition using Holder
		

Fig. 25

⚠	**Do not lift the Wheel guard until the wheel is completely stopped**
☞	**The weights must be fixed firmly on to the rim for proper balancing and to avoid repeated runs**
☞	**In case of *Static balancing*, only Inner plane will be displayed & balanced**
☞	**By default, Sticker weight holder mode will be available. Use button to toggle between Sticker weight holder mode & Laser mode**
☞	**In Sticker weight mode & if either *Auto Dia* or *Auto Width* is disabled, the Unbalance position will be shown at the bottom position only**
☞	**The Torch can be switched On/Off as desired by using button**
☞	**In Laser mode, unbalance position will be indicated for Inner & Inner most position**

Repeat the above steps for Outer plane also. Spin the wheel again to check whether the wheel is now balanced. Normally in one run, the wheel should get balanced. However if the unbalance is more, it may require more than one balancing run.

Once the wheel is balanced, system indicates OK in the respective window.

The Job number window automatically gets incremented when the wheel is completely balanced in both Inner & Outer planes.

☞	**In case of any abnormality during spinning of wheel, press key to stop the Motor**
☞	**If Distance rod is not in home position, "*Distance rod is not in home position*" will be displayed. Balancing will not be performed unless Distance rod is restored to its home position**
☞	**Wheel guard should be kept closed, otherwise the system will prompt "*Wheel Guard Not closed*" message**
☞	**If the unbalance is more or weight is not added exactly in the correct position, it may require more than one balancing run**

7.5. SPECIAL FUNCTIONS

7.5.1. SPLIT WEIGHTS (SPOKES / HIDDEN WEIGHT) FUNCTION

☞	**Split weights function supports ALU2 & ALU3 only**
☞	**Split weights function is advisable only for Alloy wheels with Outer unbalance weight > 20 gm**
☞	**In case of Alloy wheels, Split weights function can be used to split the balancing weight on Outer plane (Inner most plane) only to hide the weights behind the Spokes**

Ensure that the Balancing mode is in ***Dynamic*** mode.

Enter the Rim parameters, select Rim type & balance the wheel as explained in Chapter 7.4.2. Once the unbalance weight is displayed, select  button (Split weight function) and press ↵ key. Following screen will be displayed:

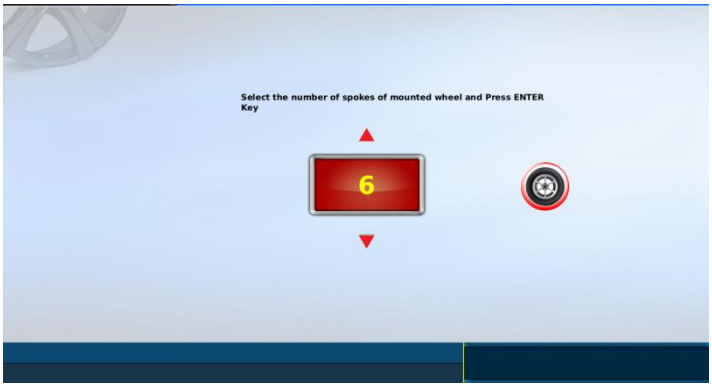


Fig. 26

☞	**No. of spokes that can be accommodated is min. of 3 spokes & max. of 12 spokes**

Select the appropriate Nos. of Spokes with respect to the number of spokes available in the Wheel being mounted using Navigation keys and then press ↵ key. Following screen will be displayed:

Fig. 27

System will prompt to bring the nearest spoke of the unbalance position and then press ↵ key.

☞	**In case of Sticker weight holder, bring the nearest spoke to 12 o' clock (Top) position and press ↵ key.** **In case of Laser mode, bring the nearest spoke to 6 o' clock (Bottom) position and press ↵ key.**
☞	**Use ESC key to go back to previous screen**
☞	**If the weight adding position is shown in that spoke itself, Split weights function cannot be performed**
☞	**If the Spoke is not brought near the unbalance position correctly, "*Spokes are too far*" message will be displayed**

The system will go to **SPLIT WEIGHTS** screen as shown below:

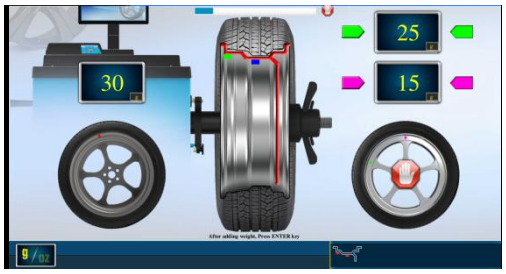


Fig. 28

The Spoke-1 & Spoke-2 positions will be indicated in Green & Pink color balls respectively on the outer plane. Inner weight will be same. Rotate the wheel slowly & bring any one of the balls (Green/Pink) on outer plane nearer to the top until the symbol is displayed. Now stop the wheel. Corresponding weights will be indicated on the window as shown above. Now paste the indicated weight (Sticker type) at the indicated position on to the rim, behind the spoke.

Now bring the other ball nearer to the bottom until the symbol is displayed. Now stop the wheel. Corresponding weights will be indicated on the window. Now paste the indicated weight (Sticker type) at the indicated position on to the rim, behind the spoke. Also add the weights for Inner plane similarly.

Press key to go to **WHEEL RUN** screen (Fig.23) to balance the wheel as explained in Chapter 7.4.2 or press key to exit from Split weights program & to go to **WHEEL RUN** screen.

7.5.2. OPTIMIZATION FUNCTION

Optimization is normally done to reduce the Static unbalance of wheel. By compensating (when possible) the static unbalance of Tyre with that of Rim ie., by bringing the static unbalance of Tyre & Rim to 180° opposite. But in the program, bringing unbalance positions of Tyre & Rim to 180° opposite is done by the software automatically when the marks on Tyre and Rim is matched.

	The system will enter into Optimization function only if the unbalance is >75 gm

Balancing weights are to be removed if any, from the wheel and mount the wheel by matching the wheel mouth with the Arrow mark on the Shaft (User can also mark the location in shaft where the Wheel mouth matches in case if Arrow sticker is not found in shaft)

Enter the Rim parameters, select the Rim type & balance the wheel as explained in Chapter 7.4.2.

Optimization function can be applied for large weight on both planes of the wheel. Once the unbalance weight is displayed, select button (Optimization function) and press key.

Follow the on-screen instructions as shown below:

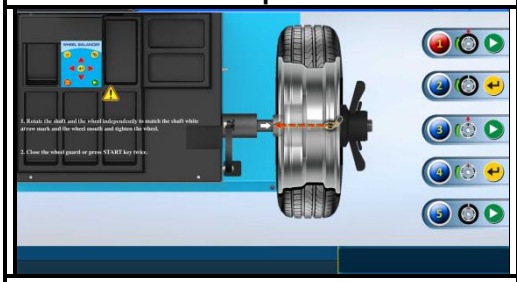
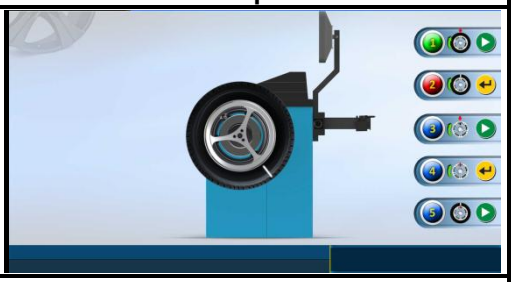
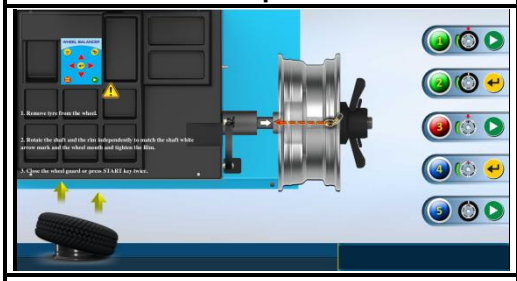
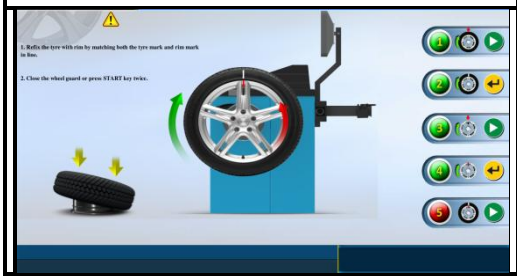
Step-1	Step-2
	
Step-3	**Step-4**
	
Step-5	
	

Fig. 29

Once Optimization program is completed, close the Wheel guard or press key twice. “Optimization completed” message will be displayed the system will go to **POSITION TRACKING** screen and run the wheel automatically.

To exit from Optimization program, press key to go to **POSITION TRACKING** screen (Fig.24).

	After Optimization function, inflate air in the mounted wheel as per the Tyre Manufacturer’s recommendation

8. SETTINGS

Program related settings can be accessed by using the Navigation keys to select button in the **WELCOME** screen followed by pressing key. Following **SETTINGS** screen will be displayed:

Fig. 30

Now press key to toggle the keypad control from Task bar to the following options available in **SETTINGS** screen:

g oz	Display of Unbalance weight in “Gram” or “Ounce” unit
mm Inch	Display of Rim parameters in “Inch” or “mm” unit
	Balancing in “Static” or “Dynamic” mode
	Display of Unbalance weight in “Fine” or “Normal” mode
	Enabling or Disabling Buzzer indication throughout balancing program & Settings
AUTO RUN	Enabling or Disabling Auto run function in Wheel balancing operation
AUTO DIST	Enabling or Disabling Automatic Distance measurement
AUTO DIA	Enabling or Disabling Automatic Diameter measurement
AUTO WIDTH	Enabling or Disabling Automatic Width measurement
	Enabling or Disabling Laser function
	Enabling or Disabling Torch function
	Enabling or Disabling battery status indication of Mini UPS

Use navigation keys to select the required settings & press key to enable / disable the same.

Press key to go back to previous screen.

	If Automatic Distance measurement is disabled, Automatic Diameter & Width settings will be disabled also. To enable Automatic Diameter & Width, Automatic Distance settings should be enabled first

9. OPTIONS

Program related options can be accessed by using the Navigation keys to select button in the **WELCOME** screen followed by pressing key. System will prompt to enter the Password. Use ▲▲▲▲▲↵▲↵▲▲↵ keys as password. Following **OPTIONS** screen will be displayed:

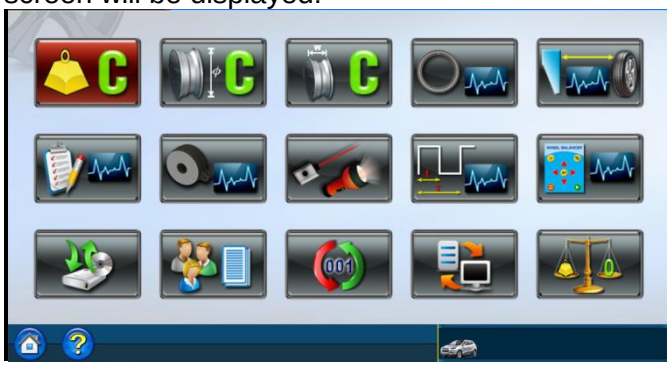


Fig. 31

Now press key to toggle the keypad control from Task bar to the options available in **OPTIONS** screen.

Use navigation keys to select the required options & press key to perform the program related options.

Press key to go back to previous screen or select button and press key to exit from **OPTIONS** screen.

9.1. WEIGHT CALIBRATION

Wh	**This feature should be used only by authorised Service personnel**

Wh	**Balancing operation should be carried out only after performing 2 Point calibration**

When calibration has to be done?

- If balancing requires more than one balancing run or repeated weights for smaller wheels.
- If the Balancer is shifted from one place to other.
- If foundation is affected.
- If MCD shaft is disturbed.
- If abnormal weights are displayed.
- If Inner & Outer unbalance weights for empty shaft Wheel run are not zero.

Pre-calibration check

1. Ensure the foundation is proper.
2. Ensure the Cabinet is free from shake.
3. Check the Belt tension and RPM. The RPM should be 175 (+20/-5).

Pre calibration (Applicable for Factory & Authorized Engineer)

Following sub options will be provided in **WEIGHT CALIBRATION** screen as shown below:

Once selected, following sub options will be provided in **WEIGHT CALIBRATION** screen as shown below:

Fig. 32

	Low Point & High point calibration is password protected **Password:** ▼▼▼▼▼↵▼↵▼▼↵

9.1.1. SPINDLE ZERO

By default, **LOW POINT** will be highlighted. Press key to proceed with ***Low point*** calibration.

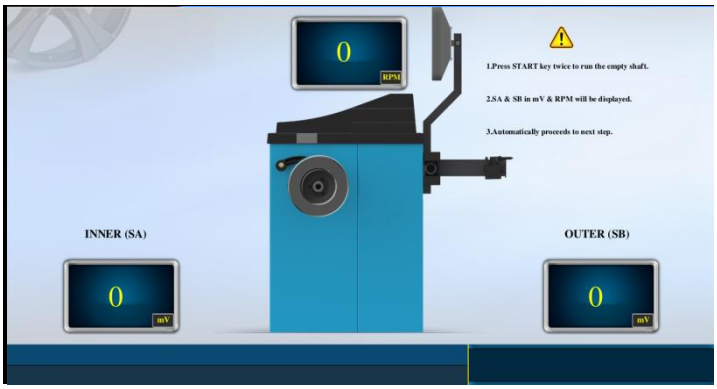


Fig. 33

Remove Wheel, Wheel seating cone & QCLN from shaft if already mounted. Press key twice to run the Empty shaft. SA & SB Sensor values will be displayed (in millivolts) in the respective window (limit: 30mV) including RPM and the system will go to **RIM PARAMETERS** screen.

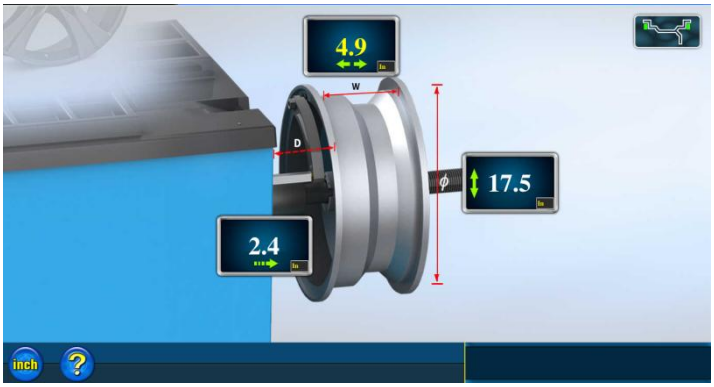


Fig. 34

Mount the wheel.

☞	**For Low point – use a fairly balanced wheel with Rim dia of 12”-16”. Unbalance should be 30gm min.** **For High point – use a fairly balanced wheel with Rim dia >16”. Unbalance should be 50gm min.** **For Single point – use a fairly balanced wheel with Rim dia 12”-24”. Unbalance should be 30gm min.**

Use / keys to move to next parameters.

☞	**Two point calibration (Low Point & High point) is recommended for better accuracy of Unbalance weight for all range of wheels. In case of non-availability of two sizes of wheels, proceed with Single point calibration**
☞	**If Auto Dia / Width are enabled & calibrated already, ensure the acquired values are displayed correctly. Else, set Dia & Width values manually as explained above**
☞	**If empty shaft unbalance is more, “*Spindle unbalance is beyond limits for calibration*” error message will be displayed. Stop Calibration and call Authorised Service personnel**
☞	**DO NOT use Wheel with Re-treaded tyre or Wheel with more runout for calibration**

9.1.2. TYRE ZERO

Enter the Wheel parameters as explained in Chapter 7.4.1 and then press key to go the **TYRE ZERO** screen.

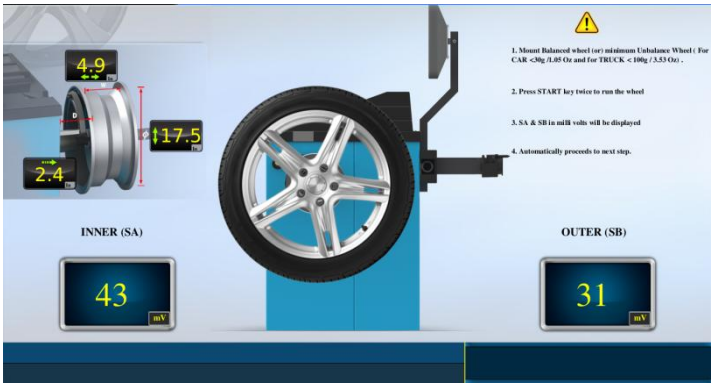


Fig. 35

Press key twice to run the wheel. SA & SB Sensor values will be displayed (in millivolts) in respective window and goes to **OUTER CALIBRATION** screen.

☞	**To know the millivolts of Tyre unbalance if error is displayed, press ▼ key to go to RAW CALBRATION, run the wheel to view millivolts of SA & SB displayed**
☞	**If "*Tyre unbalance is beyond limits for calibration*" error message is displayed, press key to clear the message and ensure wheel mounted is with minimum unbalance**
☞	**To know the millivolts of Raw calibration after completing Tyre zero, press ▼ key to go to RAW CALIBRATION, run the wheel to view millivolts of SA & SB displayed for the Calibration weight added**

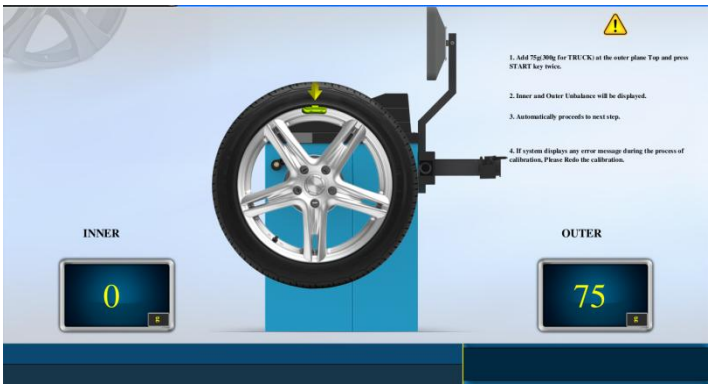


Fig. 36

Add Calibration weight (75gm) in the indicated position (12 'o' clock) & rotate the wheel manually to bring the added weight to TDC (Top Dead Centre).

☞	**Ensure that the Calibration weight is exactly at 12 'o' clock position. Otherwise wheel balancing will be severely affected**
☞	**DO NOT disturb the Wheel position until Outer calibration is performed**

Press key twice to perform Outer calibration. The added weight will be displayed in the Outer plane window and the Inner plane window will be zero. The system will proceed to perform Inner calibration.

Remove the Calibration weight from the Outer plane & fix it on the Inner plane of the wheel directly opposite as shown below:

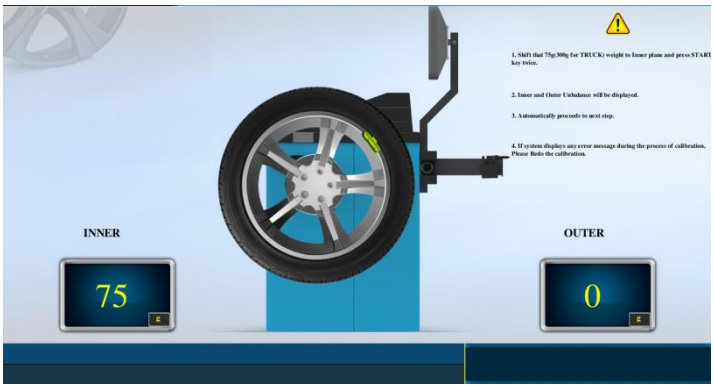


Fig. 37

Press key twice to perform Inner calibration. The added weight will be displayed in the Inner plane window and the Outer plan window will be zero.

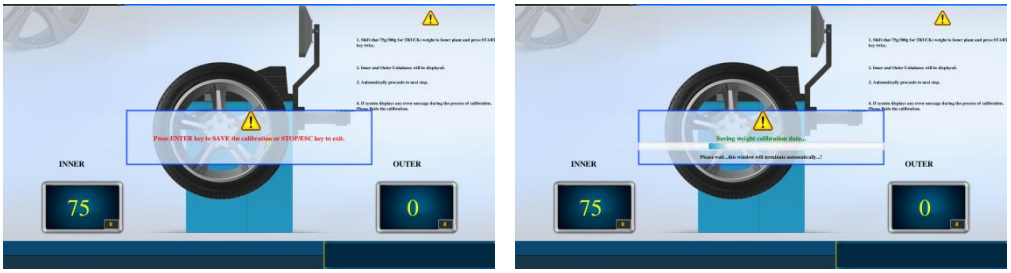


Fig. 38

Once Inner calibration is performed, press key to save the Weight calibration values. Saving process will happen with message prompts for few seconds and system will go back to **WEIGHT CALIBRATION** screen.

☞	**During Outer or Inner calibration, if "Calibration weight signal is too high. Press Key to proceed, or any other key to exit" error message appears, check whether the correct calibration weight is added on the appropriate plane or weight is not added in the Outer plane or not shifted to Inner plane. If the weight is correct, and still you got this error, press ENTER key and proceed with the calibration**
☞	**If any error is indicated after adding weight in any of the Plane, redo the Weight calibration**

Remove the Calibration wheel and go the **POSITION TRACKING** screen. Run the Empty shaft and zero is displayed in both the planes.

Now Balance a Wheel as explained in Chapter 7.4 and then add a known weight and ensure the weight added & its positions are displayed in the respective windows correctly.

9.2. DIAMETER CALIBRATION

☞	**Width & Diameter calibration could not be done if "*Auto width*" & "*Auto dia*" option is disabled in SETTINGS screen as explained in Chapter 8**

Use navigation keys to select **DIA CALIBRATION** & press ↵ key. Following screen will be displayed:

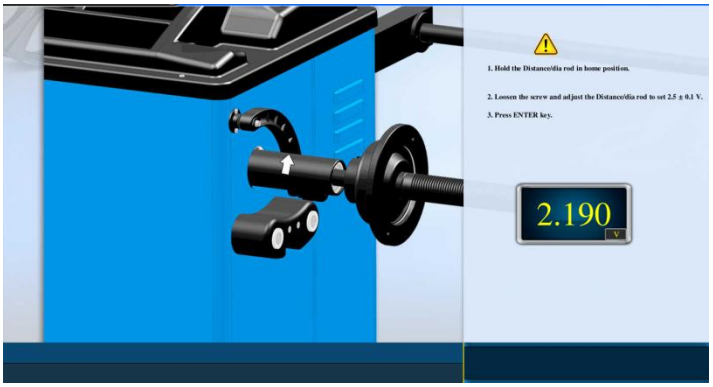


Fig. 39

Keep the Distance/Diameter measuring rod in zero position (ie. Home Position) and ensure the displayed voltage is 2.5V ±0.1V.

☞	**If the displayed voltage is not within specification, loosen the lever fixing Allen screw and Grub screw to move the DMR slightly and then rotate the Lever fixing rod till required voltage is set. Touch the Bearing housing with the Lever pin and then tighten the grub screw & Allen screw without disturbing the set Voltage as shown in Fig.39**

Press ↵ key to save the home position. Following screen will be displayed:

Fig. 40

Mount a Wheel with the shaft and enter its Rim diameter (Rim diameter to be taken with respect to Clip weight adding location) using Navigation keys as per the On-screen instructions and then press ↵ key to go to next screen.

Fig. 41

Move the Distance/Diameter measuring rod & touch the inner plane profile (Ref.Fig.21) of the Rim properly and hold it for 3 seconds until Audio indication and then move the Distance/Diameter measuring rod to its home position.

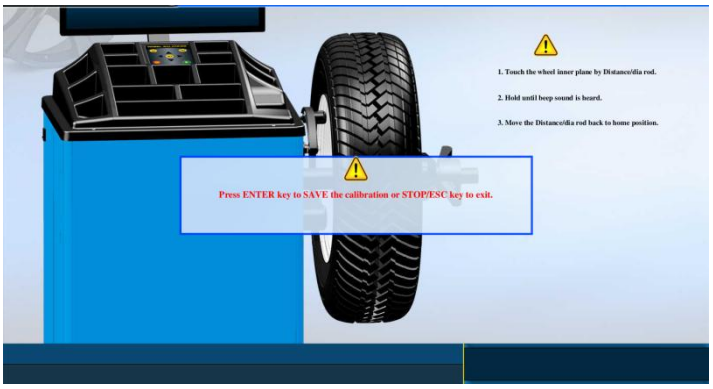


Fig. 42

Press ↵ key to save the Diameter calibration values. "***Dia calibration saved and completed***" message will be displayed briefly.

Mount a Wheel & ensure the Rim diameter measured in **RIM PARAMETERS** screen is as per the Wheel Diameter specifications within tolerance limit of ±0.3".

9.3. WIDTH CALIBRATION

☞	**For recording the Zero position accurately, Width rod should be rested on the Stopper position and also 90° in X axis at the same time**

Use navigation keys to select **WIDTH CALIBRATION** & press ↵ key. Following screen will be displayed:

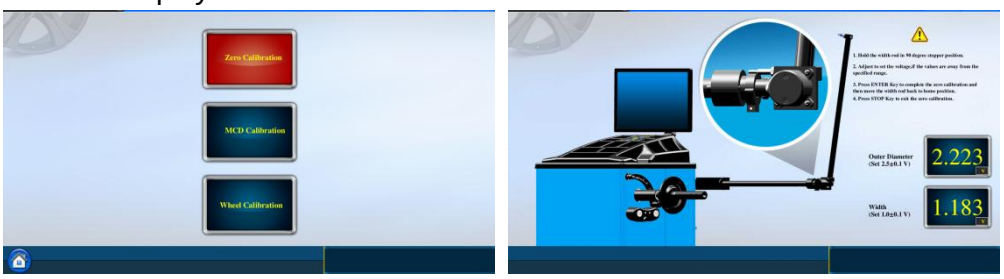


Fig. 43

Keep the Width measuring rod in zero position (ie. Stopper Position) and ensure the displayed Width voltage & Outer Dia voltage is 1.00V±0.1V & 2.50V±0.1V respectively.

☞	**If the displayed Outer dia voltage is not within specification, move the Width assembly to make it perpendicular with the cabinet and touch it with the stoppers. Now loosen the Grub screws to rotate the outer dia shaft for achieving the required voltage and tighten the screws in that position as shown in Fig.43**
☞	**If the displayed Width voltage is not within specification, move the Width assembly to make it perpendicular with the cabinet and touch it with the stoppers. Now loosen the Allen screws available at the rear side of Width board housing and take out the Width measurement pipe. Now adjust the shaft in the Width board for achieving the required voltage. Fix the Width measurement pipe by ensuring perpendicularity as shown in Fig.43**
☞	**If Width rod is either not in its zero position properly or the Width/Outer Dia voltage is not within specifications and ↵ key is pressed, "Width rod in Zero position" message will be displayed**

Press key to save the Zero position. Return the Width rod to Home position. System will go back to WIDH CALIBRATION screen. Select MCD CALIBRATION menu and press key. Following screen will be displayed:

Fig. 44

Touch the Width rod at the top edge of MCD and hold it for few seconds till Audio indication and then move the Width rod to Home position. The system will go to **WIDTH CALIBRATION** screen. Select WHEEL CALIBRATION menu and press key. Following screen will be displayed:

Fig. 45

Mount a Wheel with the shaft and enter its Rim Dia using ▲ / ▼ keys & then use ◀/ ▶ keys to move to Rim Width window and set the Rim Width using ▲ / ▼ keys. Then press key to go to next screen.

Fig. 46

Move the Distance/Diameter measuring rod & touch the inner plane profile (Ref.Fig.21) of the Rim properly and hold it for few seconds until Audio indication and then move the Distance/Diameter measuring rod to its home position. The system will go to next screen.

Fig. 47

Move the Width measuring rod and touch the outer plane (profile) (Ref. Fig.22) of the Rim properly and hold it for few seconds until Audio indication. User will be prompted to save the values as shown below:

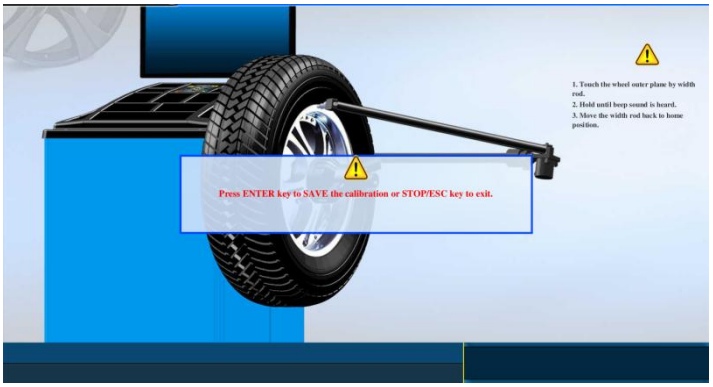


Fig. 48

Press ↵ key to save the Width calibration values. Then move the Width measuring rod to its home position. Mount a Wheel & ensure the Rim Distance & Width measured in **RIM PARAMETERS** screen are as per the Wheel Width specifications within tolerance limit of ±0.3".

9.4. WHEEL TRACKING TEST

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this Option**

9.5. DISTANCE ROD TEST

☞	**This feature is applicable only for Manufacturer. Hence User should not enter into this Option**

9.6. SELF TEST

☞	**This feature is applicable only for Manufacturer. Hence User should not enter into this Option**

9.7. SENSOR TEST

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this module**

9.8. LASER & TORCH SETTING (Applicable for Premium+ model)

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this module**

9.9. DUTY CYCLE TEST

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this module**

9.10. KEYPAD TEST

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this Option**

9.11. BACKUP FACTORY DATA

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this module**

9.12. CUSTOMER INFOROMATION

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this module**

9.13. RESET JOB NUMBER

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this module**

9.14. RESTORE FACTORY CALIBRATION

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this module**

9.15. WEIGHT CUTOFF

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this Option**

10. LANGUAGE SETTINGS

This option can be accessed by using Navigation keys to select  button in the **WELCOME** screen followed by pressing  key.

Fig. 49

The User can select the preferred language out of the available options so as to display the program screens in their regional languages followed by pressing  key. Use STOP key to come out of the settings without saving.

11. SOFTWARE UPDATE

☞	**This feature should be used only by authorised Service personnel. Hence User should not enter into this Option**

12. MAINTENANCE

☞	**Turn OFF the switch and unplug the Balancer before doing any maintenance or repair work**

Wheel balancer requires only minor maintenance to keep the equipment operating properly.
We recommend attention to the following points for getting maximum benefit out of the equipment.

1. Keep the area around the Balancer clean. Remove any tools or other items that are leaning against the Balancer.

2. Use only recommended Accessories / Spares. Accessories from other manufacturer may not fit or function properly and may damage the equipment.

3. Check the foundation bolt for tightness once in 6 months.

4. Check and adjust the belt tension once in 6 months.

12.1. CONTROL PANEL

Clean the Control panel with Non-solvent, Non-abrasive cleaner. DO NOT use cleaning agent which attacks the keypad and could result in equipment damage.

12.2. MCD

Avoid dropping of wheel heavily on the shaft while mounting and removing, which may affect the accuracy of the equipment. Apply a thin layer of machine oil on the MCD flange and shaft for rust prevention. Wipe off the excessive oil and keep them clean.

DO NOT use excessive grease on the shaft which may allow accumulation of dirt on it. Grease & dirt build-up will cause inaccurate balancing & premature wear.

12.3. WHEEL MOUNTING ACCESSORIES

Keep the Wheel seating cones, QCLN, Flanges & Adapters clean. Apply a thin layer of machine oil on the Wheel seating cone and QCLN nut. Wipe off the excessive oil and keep them clean.

DO NOT use Adaptors for purposes other than mounting the wheels. Cut in the Adaptors can cause improper mounting.

12.4. WHEEL GUARD

Apply a thin coat of bearing grease to the Wheel guard sliding shaft to prevent squeaking noise.

12.5. TOP COVER

Clean the Wheel balancing weight tray free of dirt / dust. Weights in a dirty tray may pickup grease & dirt which may keep them from securely attaching to wheel. Do not excessive weights on the weight trays.

12.6. DISTANCE MEASURING ROD

Clean the Distance/Diameter measuring rod surface with a soft & dry cloth. Apply thin coat of Molykote grease.

13. TROUBLE SHOOTING

The common troubles and error codes which can be attended by the users are listed in the table given below. For Troubles and Error codes other than that are listed in the table contact the authorised Service personnel for Trouble shooting.

☞	**The Service Engineer may ask for information to help in diagnosing the service concern. Conveying this information to the Service Engineer prior to servicing can help to expedite service to your equipment**
☞	**Press ↵ key to clear the Error codes and repeat the same function to see if the error is eliminated**

Sl. No.	*Trouble*	*Causes*	*Remedies*
1	*No display*	*Power supply faulty*	*Check for proper power supply connection*
		Control fuse blown	*Check and replace the Fuse*
		Fault in the SMPS	*Call Service personnel to replace the SMPS*
2	*No video*	*Loose connection in Monitor power cord*	*Check for loose connection in Monitor power cord socket. If so fit it properly*
		Monitor switched OFF	*Switch ON the Monitor*
		Monitor I/F cable (HDMI-DVI) loose contact problem	*Rectify the connection*
		Memory card not inserted properly	*Call Service personnel to rectify.*
		Faulty PC Mother board	*Call Service personnel to replace the Board*
3	*No sound*	*Buzzer function disabled*	*Enable the Buzzer function in the SETTINGS*
		Buzzer connectors are loose or Buzzer problem or bad IC.	*Call Service personnel*
4	*Motor not running*	*Loose contact in power line to Motor*	*Check for proper power supply connection*
5	*Spark in the Mains cord socket*	*Loose connection in the AC supply socket*	*Connect the power mains with proper plug / socket combination*
6	*Wheel is not balanced and repeatedly asking weights*	*Improper foundation*	*Check for proper foundation. Tighten the Foundation bolts*
		Incorrect parameter entry	*Enter the wheel parameters correctly*
		Retreaded tyre being used	*Change the tyre*
		Wheel having more runout	*Correct the Runout and then balance*
		Improper Earthing	*Check Earth is provided to machine and N to E voltage is less than 3V*
7	*Electric shock in the system*	*System Earth may not be proper*	*Make arrangements for proper Earth.*
	Error messages		
1	*Wheel Guard Open*	*Guard may not be closed properly*	*Close the Wheel guard properly and run*
			Check the Wheel guard connector inserted properly
			Check the limit switch for proper contact
2	*Distance rod is not in Home position*	*The distance rod may not be at home position.*	*Ensure the distance rod is in home position*
3	*Revolution Encoder pulse is missing*	*Motor not running*	*Check & rectify the supply to Motor*
		Rev. encoder connection loose contact or faulty	*Call Service personnel to replace the Rev. encoder board*
		Brake pedal limit switch loose contact / not working	*Call Authorized Service personnel*
4	*Minimum RPM is not reached*	*Required RPM to calculate the unbalance may not be reached*	*Check for the incoming power is correct. Check for the belt tension. Call Authorized Service personnel*
5	*Weight Calibration data is not available. Redo weight calibration (or) Restore Factory calibration*	*Weight calibration data is not available in the Mother board.*	*Do the Weight calibration and take back up of the calibration data.*

Sl. No.	Trouble	Causes	Remedies
6	Time out occurred during acquisition.	Required RPM to calculate the unbalance is not reached	Check for the incoming power is correct Check for the belt tension. Call Authorized Service personnel
7	Index pulse missing.	Index pulse from the Revolution encoder board may not be received	Call Authorized Service personnel
8	Index pulse detected always	Index pulse from the Revolution encoder board may not be received	Call Authorized Service personnel
9	Calibration weight signal is bad.	75 gm calibration Weight is not added while inner and outer calibration.	Ensure that the 75 gm calibration Weight added at appropriate position while inner and outer calibration sequence
10	Spindle unbalance is beyond limits for calibration	Empty shaft millivolt may not be in specified range.	Check for any shake in cabinet foundation Check the rotor assembly for proper fitness Still the problem still exist, call Service personnel
11	Reverse direction run is detected.	Shaft is rotating anti-clockwise	Motor fault. Contact Service personnel
12	Shaft movement detected during START. Stop shaft movement and try again	Shaft is rotating in clockwise direction	Stop the shaft rotation and run the Wheel
13	Tyre unbalance is beyond limits for calibration	Tyre millivolts may not be in specified range.	Use fairly balanced wheel and do the calibration
14	Width rod is not in Home position	The Width rod may not be at home position.	Ensure that the Width rod is in home position. Check for the home position voltage is in specified range
15	Unbalance weight is too low; Unbalance weight should be greater than 75g/2.65oz	Minimum unbalance Weight to do the Optimization operation is not available.	Check the weight displayed is above specified limits. And repeat the function
16	Distance input is not in valid limits	Distance value may not be set correctly.	Check the distance input is set correctly and run the balancing program
17	Change to Dynamic Mode	Wheel balancing program may be set to run in Static mode and it should be in dynamic mode for calibration	Change the mode to dynamic before entering into the calibration sequence
18	Spokes are too far(Split weight program)	Nearest spoke may not be close to the indicated position	Trace the unbalance weight position correctly and locate the nearest spoke at top position
19	Unbalance weight is too low; Unbalance weight should be greater than 20g/0.71oz(Split weight program)	Minimum unbalance Weight to do the split weight function is not available	Check the weight displayed is above specified limits and repeat the function
20	No backup data	Data was not backed up	Call authorized service personnel to take data backup
21	No TPT (Two point calibration	Two point calibration not conducted	Conduct Two point calibration and take data backup by calling authorized service personnel

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