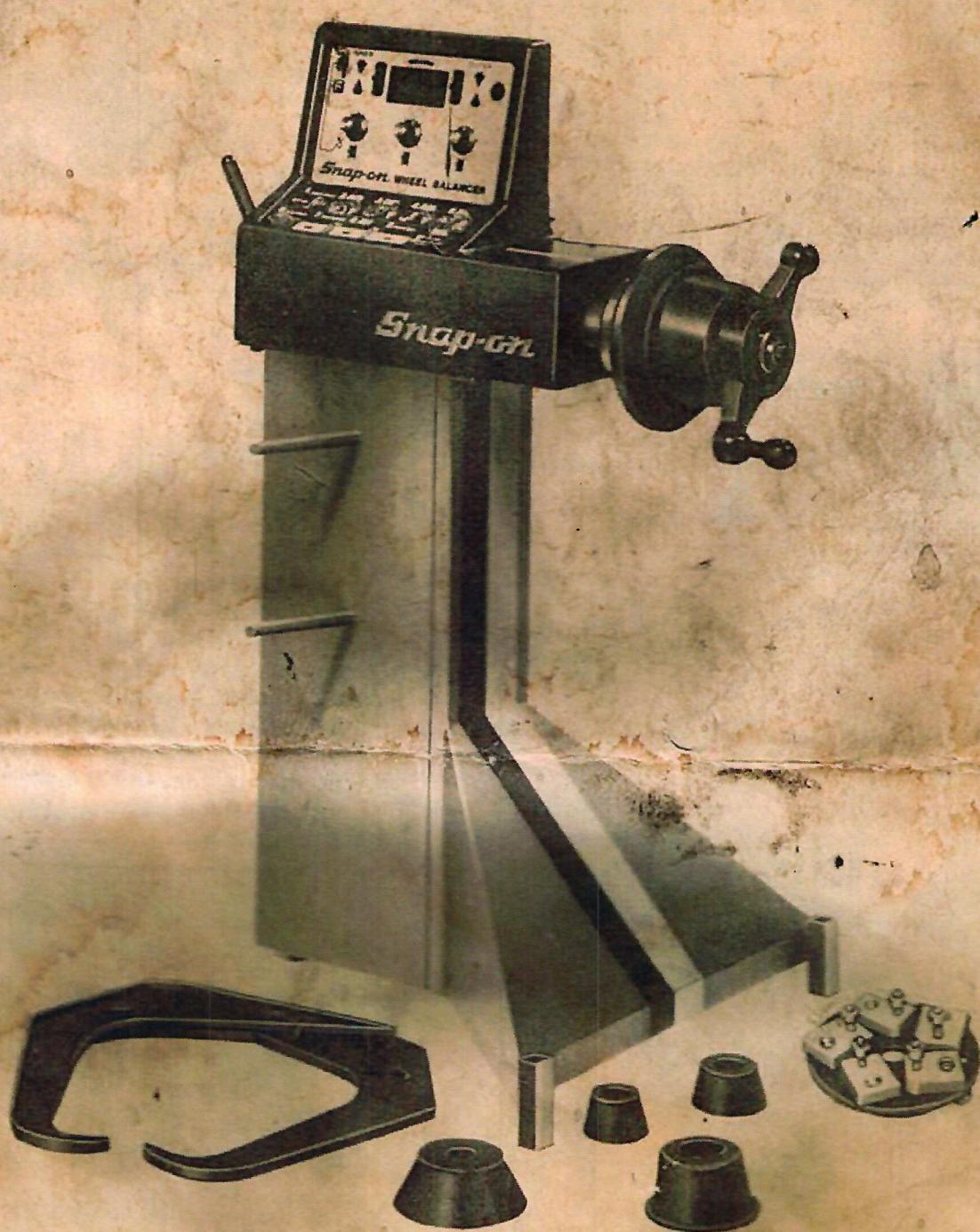


Snap-on



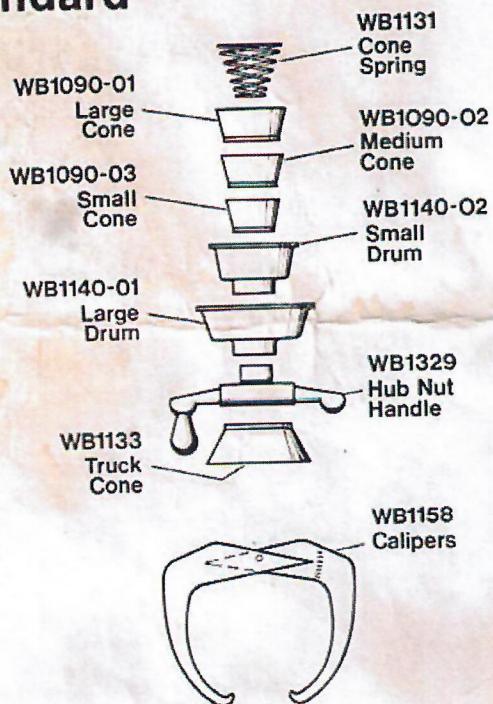
**Snap-on® WB200  
Computer Wheel Balancer**

## Operator Tips

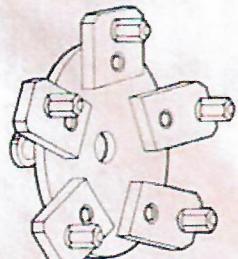
1. Read this instruction manual completely before balancing wheels with the WB200.
2. Wear approved eye protection when removing weights and using a hammer to attach them.
3. The standard voltage converter supplied with the WB200 operates off a 115 VAC, 50/60 HZ power source and converts line voltage to 8.5 VAC. A 230 VAC, 50/60 HZ converter is available (WB6605-02).
4. The WB200 will automatically return to the "normal" balancing mode, from either the "static" or "fine" balancing modes, if the power supply is interrupted, or if the balancer is idle for 30 minutes.
5. The WB200 has no power switch, but can be left plugged in at all times, as it consumes only 5 watts of power.
6. Be sure balancer is sitting squarely on all three feet.
7. Remove all stones, old weights, and other foreign material from the wheel before balancing.
8. Keep the area under the balancer free from old wheel weights, stones, etc.
9. The wheel must be centered and tightened down snugly onto the shaft of the balancer before spinning.
10. Check that all wheel weights are properly applied and secured.
11. If balancing larger truck tires, be sure to use truck size wheel weights.

## Equipment Accessories

### Standard



### WBA2 Universal Wheel Adaptor

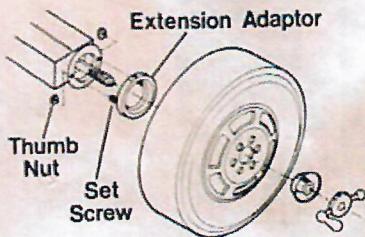


Universal wheel adaptor fits 3, 4, 5, 6, 8, 10 hole patterns. This adaptor is used on wheels with untrue center holes, and wheels with closed centers, i.e., Citroen, Renault, Peugeot. (See WBA2 instructions on pg. 9.)

### Optional

#### WBA1 Extension Adaptor

*(Available from your Snap-on representative)*



The extension adaptor is used for some duplex light truck wheels, after-market reverse offset wheels, and any application where the wheel must be moved away from the machine. Attach the extension adaptor using the thumb nuts. Use the cones and hub nut in the normal method.

### Specifications

- Dynamic and Static, Twin Plane Balance
- Single spin cycle
- Weight displayed in quarter ounce increments
- Accuracy to .1 ounce (2 grams)
- Ounce-gram conversion by activating switch
- Rim width 3½—10" (89—254 mm)
- Rim diameter 10—20" (254—504 mm)
- Maximum tire diameter 44" (1117 mm)
- Maximum tire weight 150 lbs. (68 kg)
- Shipping weight 95 lbs. (consists of two boxes, each within UPS shipping limits)
- Power requirements 115V or 230V single phase 50/60 HZ.

Voltage converter supplied with machine will convert line voltage to 8.5VAC. 115V converter is standard; 230V converter available.

# Contents and Installation

- A. Remove base and measuring head and all accessories.

Should the WB200 ever require servicing, it is recommended that the measuring head carton and packaging be saved for convenient and safe shipment.

- B. Check list of contents:

Qty.	Item
1	Measuring head, including four hex screws and washers 5/16-18 UNC x 5/8".
1	Base
1	Stub Shaft
1	Bolt 3/8-24 UNF x 5"
1	Power Converter
1	Cone Spring
1	Large Cone
1	Medium Cone
1	Small Cone
1	Small Drum
1	Large Drum
1	Hub Nut Assembly
1	Truck Cone
1	Pair of Calipers
1	Universal Wheel Adaptor
1	Manual

- C. Remove screws and washers from measuring head and align measuring head with base as shown. Note that two dowel pins on bottom of measuring head will pre-align head to base.

- D. Re-install washers and screws to firmly attach measuring head to base. Recommended torque: 100-120 in. lbs. (115-140 kpcm)

- E. Place balancer on firm floor. Note: Balancer need not be bolted down; however, to assure proper function the balancer must rest on *firm* floor. Concrete is strongly recommended.

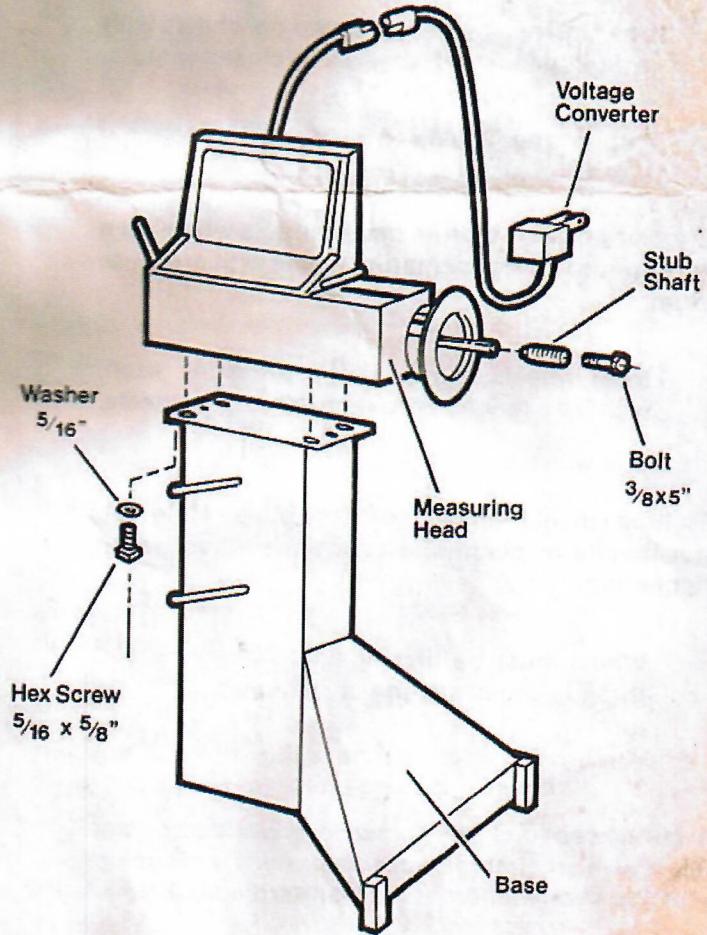
- F. Plug in voltage converter to line voltage power outlet. Note: Verify correct converter to line voltage as shown on converter housing.

- G. Connect cord from voltage converter to connector on back of measuring head. Note: This is only 8.5 VAC. Buzzing sound will be heard briefly and position lights will come on.

The balancer may be left plugged in at *all* times. It consumes only 5 watts.

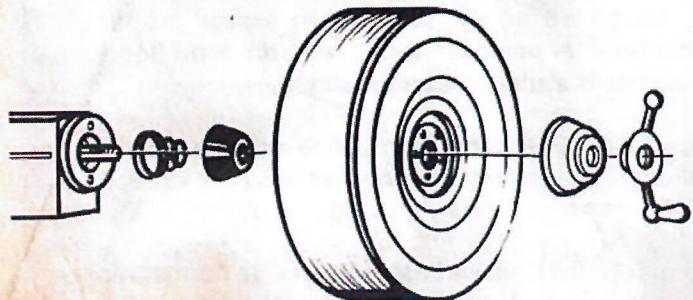
- H. Install stub shaft as shown. Brake handle may be pulled to counteract torque on bolt.

The balancer is now ready to go to work!



# Operation

## 1. Mount Wheel



- A. Choose cone that fits best when placed through wheel center hole from rear, and slide the cone on the shaft as shown. The cone must center the wheel.

Light truck wheels are mounted using truck front cone.

Use Universal Wheel Adaptor on wheels with untrue centers and wheels with closed centers.

Duplex wheels can be mounted using optional extension adaptor (WBA1).

- B. Choose a pressure drum that contacts wheel on a flat surface to avoid centering wheel with pressure drum.

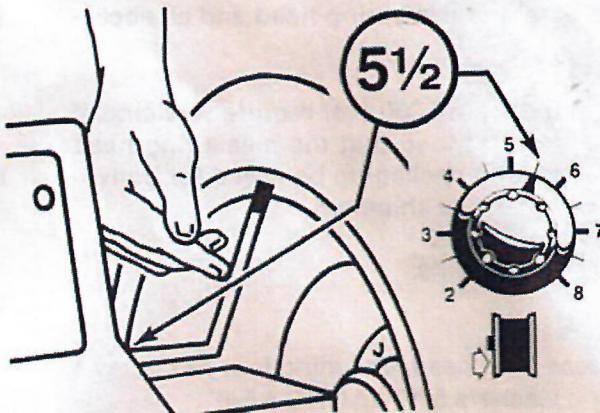
Most wheels should use a pressure drum, with the exception of extended center wheels.

- C. Tighten wheel firmly against face plate - Hold hub nut handle in place and rotate the wheel when tightening.

Wheel must be firm against face plate and threads must engage a minimum of three turns.

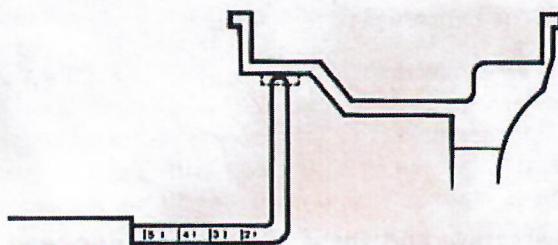
*With few exceptions, all known original equipment wheels and most after market wheels can be mounted using some combination of the standard adaptors.*

## 2. Set Rim Distance

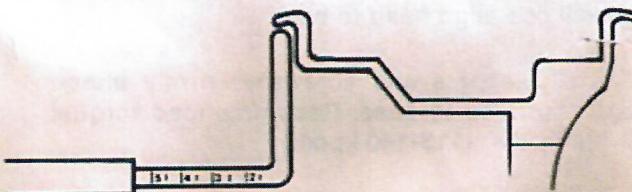


- A. Pull rim distance gauge arm out and position the tip against the rim bead surface at which inner weight is to be placed.
- B. Read the rim distance value off the gauge arm at the point where it enters into the tubular housing.
- C. Set the rim distance knob on the control panel to the rim distance value.

### For Clip-On weights:



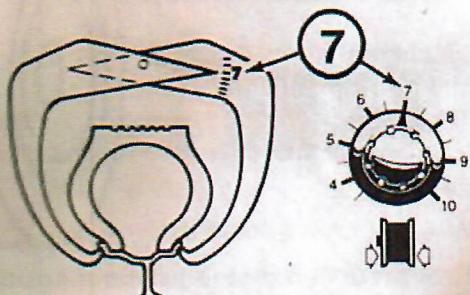
### For Stick-On weights:



Pull gauge arm out to center area where the "stick-on" weight is to be placed.

## Operation (continued)

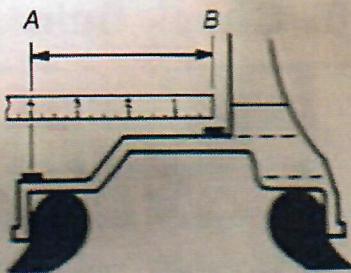
### 3. Set Rim Width



Measure wheel with caliper. Set width knob to width measured.

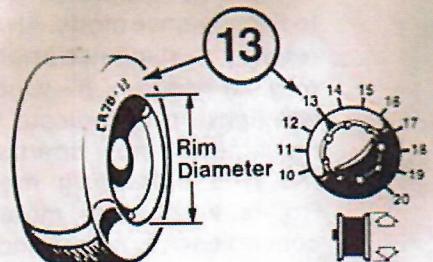
#### Dynamic Mag Wheel Mode:

For hidden weights, measure between A and B in inches and set this width. Attach weight at points A & B.



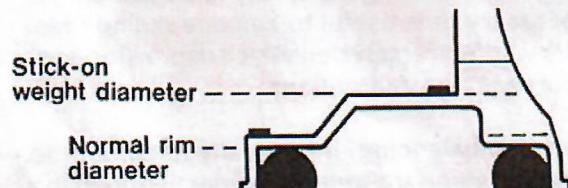
This method is used when a dynamic 2-plane balance is required, but no weight may be placed on the outer edge of the wheel.

### 4. Set Rim Diameter



Note rim diameter on tire sidewall. Set diameter knob to diameter noted.

When using stick-on weights, set knob 1-1/2 less than diameter noted on tire sidewall. The "thicker" the rim, the lower the rim diameter setting must be.



### 5. Select Balance

#### NORMAL BALANCING [dynamic]

**S** OFF  
**F**



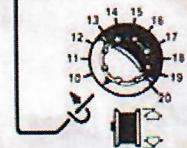
#### STATIC BALANCING

**S** ON  
**F**



#### FINE BALANCING

**S**  
**F** ON



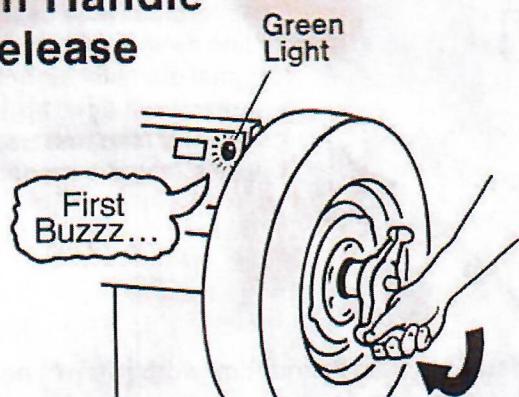
The rim diameter knob is used to select the method of balancing - "normal", "static", or "fine".

Most balancing is usually done in the "normal" dynamic setting. The balancer is set for "normal" balancing when the "S" and "F" indicators are not lighted.

To select the balance method, rotate the rim diameter knob counterclockwise past the and clockwise back to the rim size setting.

\* For static and fine balancing, see Special Modes Section.

### 6. Turn Handle ...Release

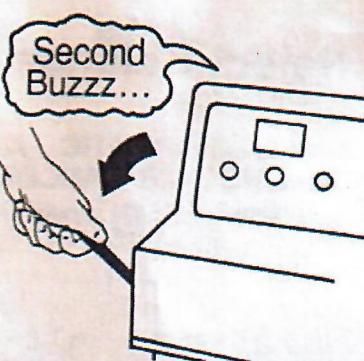


Turn crank handle on hub nut until buzzing sound is heard and green light comes on. Release handle immediately. Allow wheel to spin freely until second buzzing sound is heard and green light goes off. Balancer has now measured and stored the required balancing values.

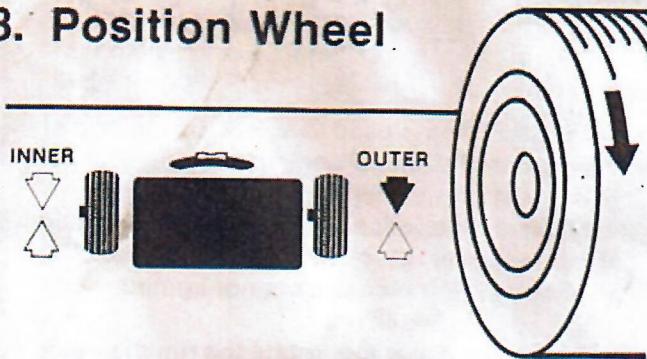
Note: Do not lean on machine during measuring

## 7. Stop Wheel

Do not touch the brake until the second buzz or wrong readings may result. When the green light goes out and the buzzer sounds for the second time, pull brake handle forward until wheel comes to a complete stop and release.

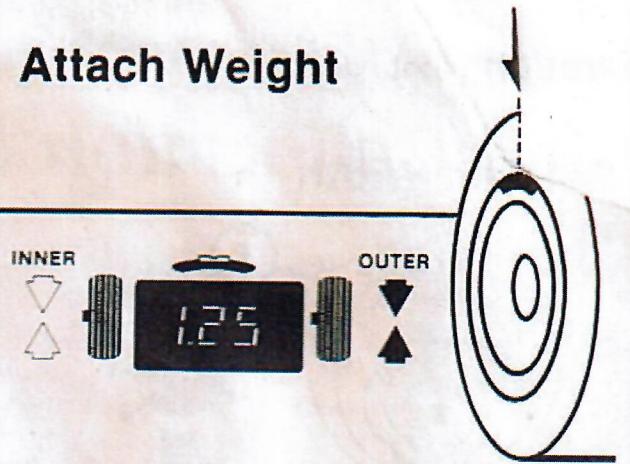


## 8. Position Wheel



Starting with either inner or outer side of wheel (outer shown), rotate wheel in direction of lit arrow until both arrows are lit.

## 9. Attach Weight



When both arrows are lit indicating correct position, the weight will be displayed. Securely apply indicated weight at top dead center (outer shown). Repeat for other side.

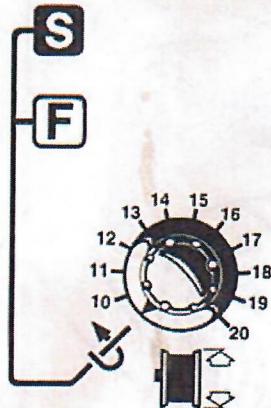
## 10. Check Spin



Repeat spin cycle. Zero weight readings should be displayed. Occasionally it will be necessary to add small additional weights.

## Special Modes

### Static Balancing Mode



For static single-plane balance, rotate rim diameter knob counterclockwise past No. 10 to line as shown and return to original diameter setting. "S—window" will light up to indicate that machine will now operate in static mode.

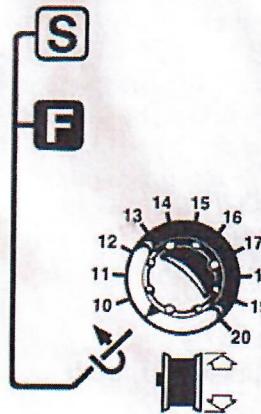
Rim distance (Step 2) and Rim width (Step 3) need not be set in static mode.

Only the inner display of position and weight will show. The static weight may be placed on the inner, outer or center of rim.

Static balancing is useful when weights can only be placed in one location, i.e. specialty mag wheels or motorcycle wheels.

**Note:** Always make sure that the stick-on weights will

### Fine Balancing Mode



Rotate rim diameter knob past 10 again to switch from Static to Fine balance mode. Always return rim diameter knob to original position. F—window will light up to indicate that machine will now operate in the *fine balancing* mode. Rotate knob once more to convert back to *normal* mode.

This mode allows balancing to an even higher degree of accuracy than is possible with the smallest commercially available weights. Accuracy is improved to 0.1 oz. or 2 grams. This degree of very fine balancing is seldom necessary. It is useful to balance racing tires, tires of cars with extremely sensitive suspension systems and for machine calibration.

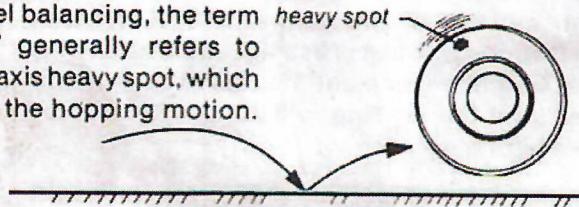
**Note:** When fine balancing, it is usually necessary to trim the smallest standard weight in order to obtain the

# Theory of Operation

The WB200 Computer Wheel Balancer is a two-plane balancer. It uses computer electronics to determine and display dynamic and static out-of-balance in a single spin.

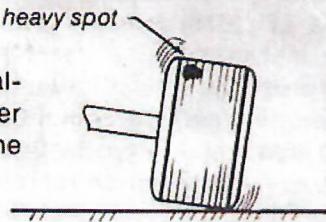
## "static"

In wheel balancing, the term *heavy spot* generally refers to the off-axis heavy spot, which causes the hopping motion.



## "dynamic"

The term "dynamic" generally refers to the off-center heavy spot, which causes the wobbling motion.



A tire and wheel may have only a static imbalance, or only a dynamic unbalance, but usually will have some combination of both.

The weights to correct the imbalance are attached to the wheel in two "planes". These two "planes" are generally the lip at the bead seat at the inner and outer sides of the wheel rim. The corrective weights can be attached at different planes; for example, when "hiding" the weights on mag wheels. It is important to note that when "hiding" weights on the back side of a wheel, that there must still be two separated "planes" to achieve a dynamic balance. For most mag wheels, these "planes" should be at least three and a half inches apart. The closer together the balance planes are, the more weight will be required. If less than 3½" width, the static (single plane) mode should be used. To correct static balance, only one plane of weight is required.

On the WB200 Wheel Balancer, setting the rim distance tells the computer the location of the inner balancing plane. Setting the rim width tells the location of the outer plane. Setting the rim diameter tells the computer the distance from the center of the wheel to where the weight will be attached. When the wheel is spun, the computer calculates and displays the amount and position of the correction weights according to the settings the operator has made for the wheel.

# Causes of Vibration

Wheel balancing is the quickest, most cost-effective method of solving vehicle vibration complaints. The greatest majority of vibration complaints will be solved by wheel balancing; however, there are other causes of vibration.

The most common are listed below:

- Tires not properly inflated to seat bead, changing balance soon after car is driven.
- Excessively heavy, stiff section in tire.
- Excessive wheel run-out.
- Heavy out-of-balance trim rings or wheel covers.
- Poorly centered after marked wheels.
- Brake drums or rotors out-of-true.
- Loose wheel bearings.
- Drive train out-of-balance.
- Loose or broken motor mounts.

# Maintenance

1. Clean mounting adaptors, mounting surface, and spindle of balancer regularly. Grease and oil accumulate dirt (causing out-of-balance) and act as a grinding compound (resulting in premature wear).
2. Remove wheel weights and trash from under balancer and remove tires, tools or parts that may be leaning against balancer. Make sure the balancer rests only on the 3 foot pads.
3. Clean control panel with window cleaner.

# Service & Repairs

Exterior replacement parts (knobs, hub nut handle, etc.) are available from your Snap-on representative. Repairs and replacements of this nature may be done on location.

Internal repairs can be performed at a Snap-on Service Center. Contact your Snap-on representative for details.

Do not send the balancer in for repairs for erroneous digital readouts without first performing the Operational Check and Calibration Procedure.

# **Operational Check and Calibration Procedure**

1. Make sure the balancer is resting on all three feet and is located on a flat concrete floor.
2. Plug the balancer in; the position indicator should light. If not, check the building circuit breaker, the power plug and cable. If defective, correct the problem.
3. Mount a 195-14 or similar size wheel and tire and balance it according to the "Operation" instructions on pages 4-6.

Using the fine balancing feature on the rim diameter knob, fine balance the wheel according to the instructions. When the wheel is fine balanced, reset from fine balance mode to normal mode.

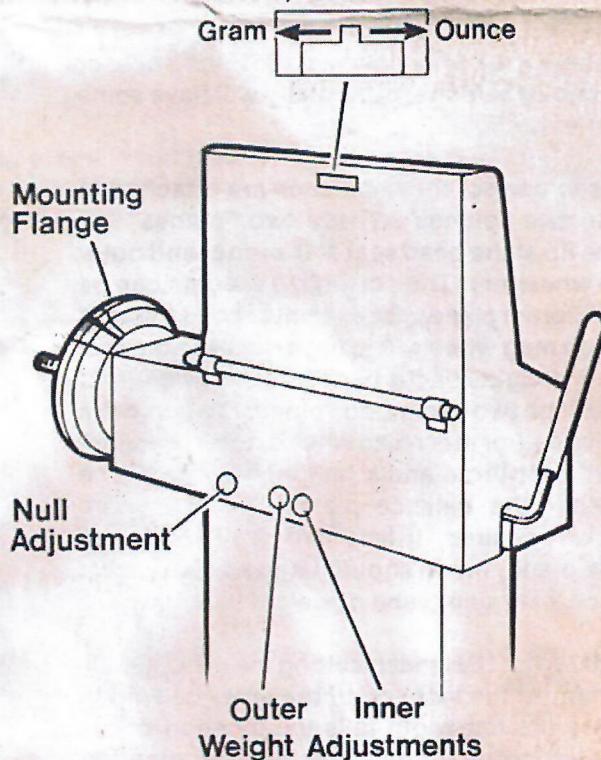
4. Turn the wheel until both outer arrows are lit and attach a 4-ounce weight (100 gram) on the outer rim at the 12 o'clock position. Re-spin. The outer reading should be 3.75 or 4.00 (090 or 100) and the inner reading should be 0.00 or 0.25 (000 to 010). Rotate the wheel so both outer position arrows are lit; the 4-ounce weight (100 gram) should be at the 6 o'clock position.

If the inner weight reading is higher than 0.25 (010), remove the 4-ounce weight and carefully fine balance the wheel again. Repeat step 4 above. If the inner weight reading is still higher than 0.25 (010), use a small screwdriver and turn the null adjustment pot on the back of the balancer (see figure) to obtain the lowest reading. The lowest reading will be somewhere in the mid range of the adjustment and will increase as the pot is adjusted either clockwise or counterclockwise from the position of the lowest reading. *Disregard the outer reading at this time.* After null is adjusted for lowest reading, re-spin and check the outer weight reading. If outer reading is incorrect, re-set the outer weight adjustment pot on the back of the balancer (see figure) with a small screwdriver to 3.75 or 4.00 (090 or 100).

**Note:** The inner and outer weight adjustments are made as follows: turn the pot screws clockwise to increase and counterclockwise to decrease.

5. Remove the outer 4-ounce weight (100 gram) and spin the wheel. Now turn the wheel until both inner arrows are lit. Attach a 4-ounce weight (100 gram) on the inner rim at the 12 o'clock position and re-spin the wheel. The inner reading should be 3.75 or 4.00 (090 or 100). Rotate the wheel so both inner position arrows are lit; the 4-ounce weight (100 gram) should be at the 6 o'clock position. *Do not adjust null pot with weight on inner side.* If the inner reading is wrong and test procedure is correct, reset the inner weight adjustment pot on the back of the balancer until the reading is 3.75 or 4.00 (090 or 100). See figure.
6. Remove the 4-ounce weights (100 gram) and spin the wheel. Rotate the zero balanced wheel 180° in relation to the mounting flange and re-spin. The total between the inner and the outer readings should be 0.50 (015) or less. If total is higher, repeat this step, making sure the wheel is centered on the adaptor properly when tightening the hub nut. Clean mounting surface, spindle, cones and wheel. If still too high, repeat steps 1—6 with a new wheel. If still high, see your Snap-on representative.

**Ounce/Gram Switch**



## **Ounce/Gram Switch**

The WB200 Computer Wheel Balancer will provide readouts in either ounces or grams. Set the recessed Ounce/Gram Switch, located on the back of the

balancer, to the measurement unit of the balance weights being used.

Move the switch to the right to measure in ounces, and to the left to measure in grams (see illustration).

# WBA2 Universal Wheel Adaptor

## IMPORTANT:

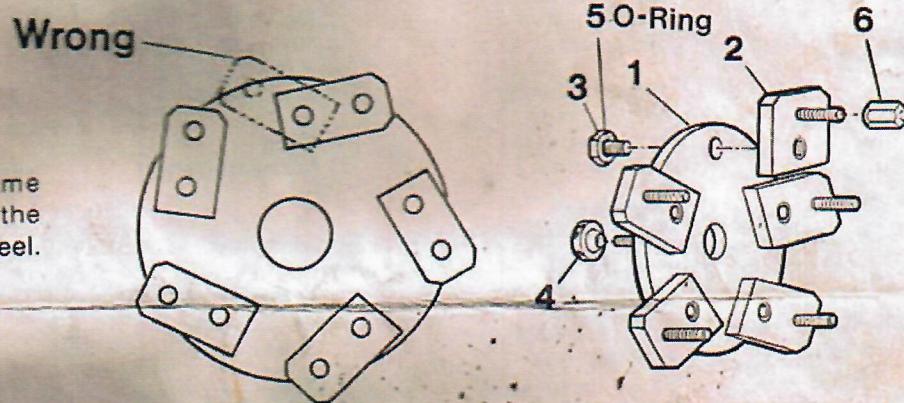
This Universal Adaptor is a high quality precision instrument and should be handled accordingly. To maintain accurate results, please

- Keep all components clean and dry
- Follow instructions
- Avoid abuse
- **DO NOT USE IMPACT TOOLS**

## INSTRUCTIONS:

RECOMMENDED TOOL 3/4" HEX LUG WRENCH OR 3/4" HEX SOCKET.

1. Select lug pattern, i.e.; three, four or five lugs. (For six lugs select three, for eight select four, etc.) Follow stamped numbers on back of adaptor plate to match selected lug pattern.
2. Install swivel plate Item 2 to adaptor plate Item 1. Insert swivel screw, Item 3, tighten snug, then back off just enough so that swivel plate Item 2 still moves freely.



3. Move all swivel plates into same direction and to approximately the diameter of the hole pattern of wheel.

4. Insert imp mounting holes of wheel from back of wheel. NOTE: This is done best with wheel laying on bench or floor, with front facing down.

5. Tilt wheel into vertical position and hold wheel and adaptor together while installing wheel nuts Item 6. For best results set all wheel nuts hand tight, then apply firm and uniform torque. Recommended torque 100 in. lbs.

Note that wheel nut (Item 6) has one tapered and one spherically shaped end. Use tapered end on all wheels except on certain Porsche and old style VW wheels.

6. Tighten swivel screws firmly in back of adaptor. DO NOT USE IMPACT TOOLS.

7. Check cleanliness of rear surface of adaptor and flange surface of balancer prior to mounting. Otherwise adaptor might not sit firmly, resulting in erroneous readings.

8. Mount wheel and adaptor assembly to balancer.

9. Install and tighten two flange nuts Item 4 firmly by hand on back of flange of balancer.

It is absolutely essential that flange nuts (Item 4) are completely tight. Otherwise fluctuating erroneous readings may occur. If in doubt double check tightness of flange nuts after first spin cycle.

10. Proceed with balancing.

NOTE: Any subsequent wheel of same size can be mounted directly to adaptor without readjusting swivel plates and without removing adaptor from balancer.

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