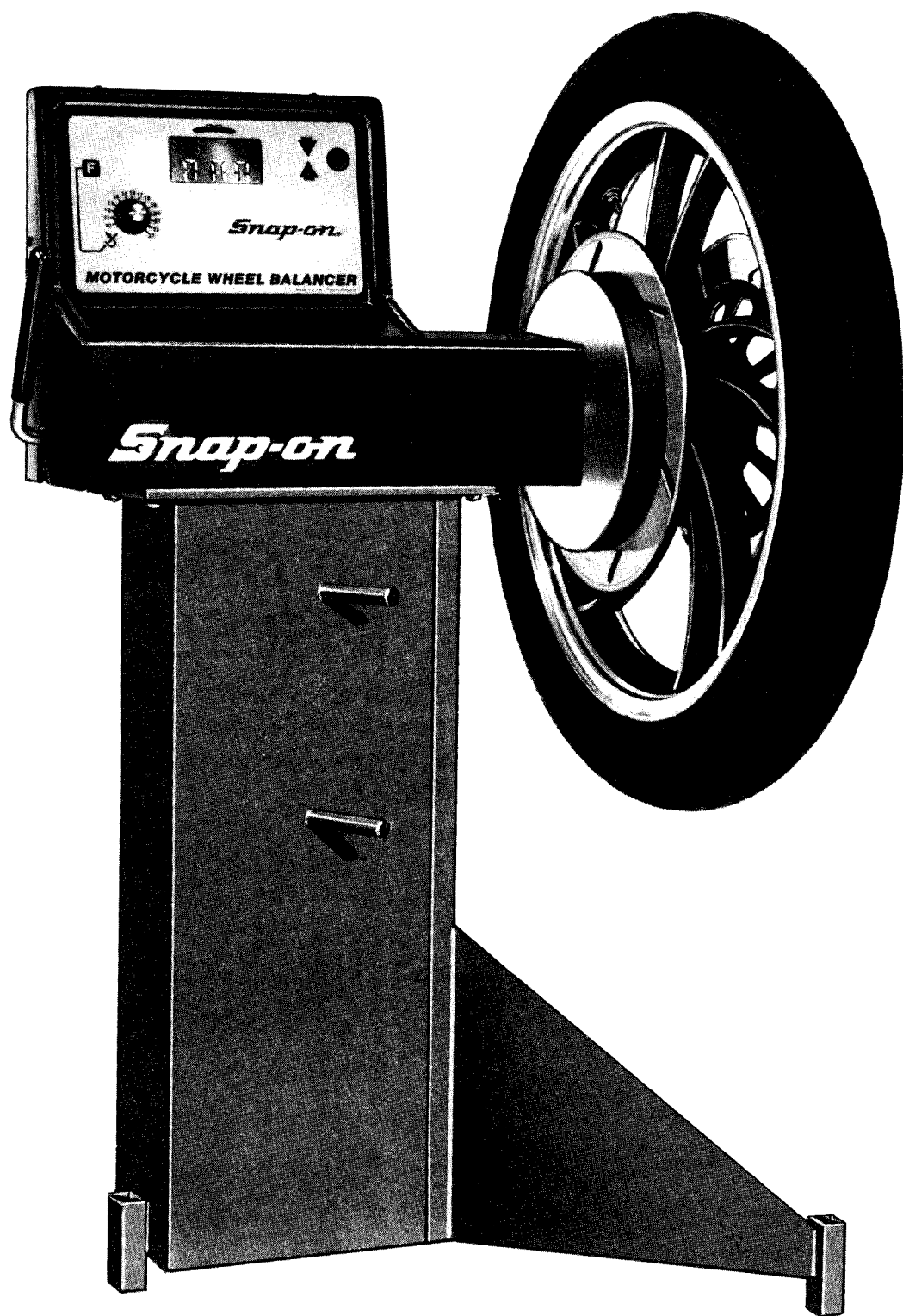


INSTRUCTIONS



Snap-on® WBM200
**Computerized
Motorcycle Wheel Balancer**

"FOR REFERENCE ONLY"

Operator Tips

1. Read this instruction manual completely before balancing wheels with the WBM200.
2. **Wear approved eye protection when removing weights and using a hammer to attach them.**
3. The standard voltage converter supplied with the WBM200 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 (WB6605-03).
4. The WBM200 will automatically return to the "normal" balancing mode from the "fine" balancing mode if the power supply is interrupted.
5. The WBM200 has no power switch, but can be left plugged in at all times, as it consumes only 10 watts of power.
6. Liquid balance fluid must be removed from wheel prior to spin balancing to assure repeatable results. When removing liquid balance from tubeless tires, break the seal along one side and wipe the residue from inside of wheel and tire. To remove liquid balance from tube-type tires, evacuate the liquid with a vacuum pump or replace the tube.
7. The balancer must be used on a firm surface to assure accurate readings. Concrete is recommended.
8. Keep the area under balancer free from old wheel weights, stones, etc. For accurate readings the balancer must sit squarely on all three feet.
9. Remove stones, old weights, and all other foreign material from wheel before balancing.
10. Check that wheel weights are properly applied and secured after balancing.

Snap-on WBM200 COMPUTERIZED MOTORCYCLE WHEEL BALANCER

The Snap-on WBM200 Computerized Motorcycle Wheel Balancer provides a fast and easy way to precision balance motorcycle wheels for increased stability, longer tread life and a smoother ride. It requires only a single spin cycle to compute the amount of imbalance and the wheel weight location.

The WBM200 is designed to be extremely accurate — to within 1/10 of an ounce — and is built to stay that way, using high quality materials and workmanship standards. With proper care and maintenance, the WBM200 should offer you years of profitable and dependable service.

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Specifications

- Single spin cycle
- Weight displayed in quarter ounce increments
- Accuracy to .1 ounce (2 grams)
- Ounce-gram conversion by activating switch
- Rim diameter 10—23 inches (254—584mm)
- Maximum tire weight 100 lbs. (45 kg)
- Shipping weight 79 lbs. (consists of 2 boxes, each within UPS shipping limits)
- Power requirement 115V or 230V single phase 50/60 HZ

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

Contents and Installation

A. Remove base, measuring head and all accessories.

B. Check list of contents:

Qty. Item

- 1 Base
- 1. Measuring head
- 1 Spindle
- 1 Flange assembly
- 1 Package of fasteners - 4 hex bolts and washers for attaching measuring head to base, and 3 binder head screws for attaching flange assembly to measuring head.
- 1 Compression spring
- 2 Cones
- 1 Ring nut
- 1 Power converter
- 1 Instruction manual

E. Install spindle as shown, Torque to 50 - 70 in. lb. (approx. 60 - 80 kpcm) - use 1" open end wrench. Brake handle may be pulled to counteract torque.

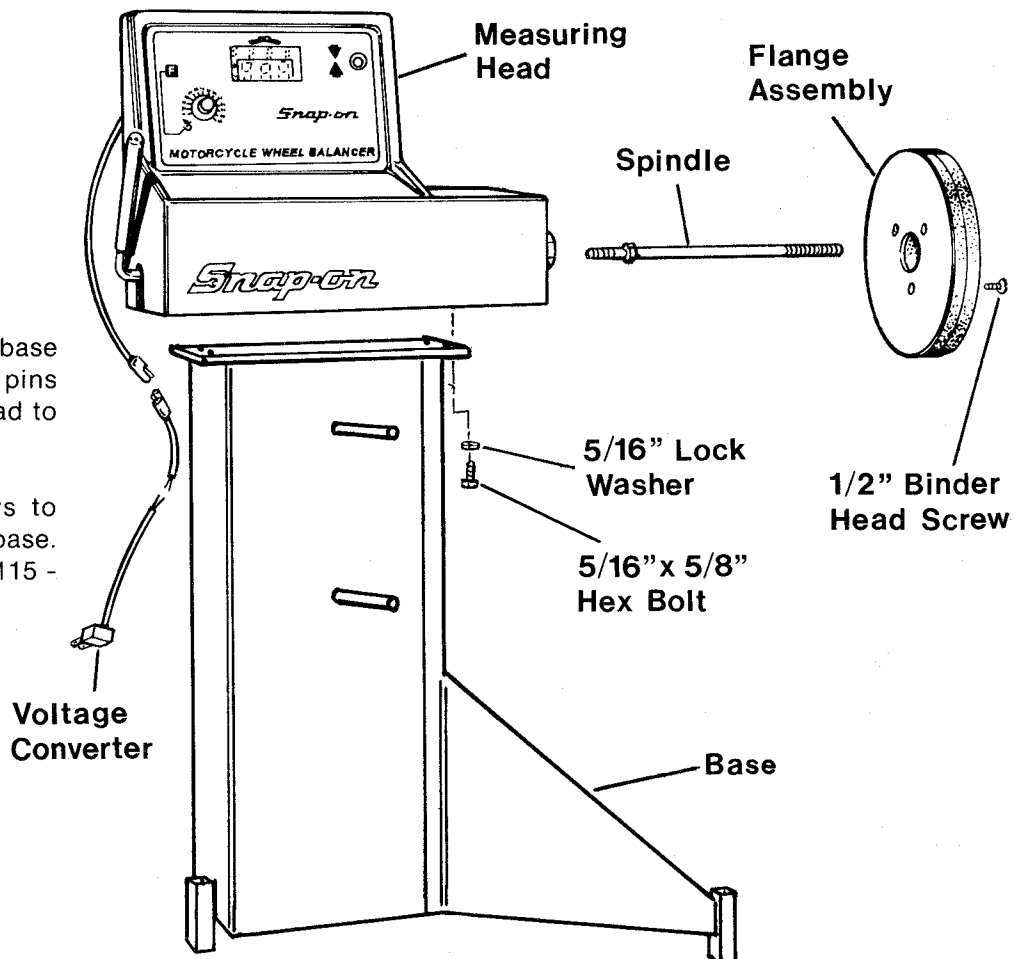
F. Attach flange assembly as shown, using the three 10-24 x 1/2" screws.

G. Plug voltage converter into line voltage power outlet. Note: Verify correct converter to line voltage as shown on converter housing.

H. Connect cord from voltage converter to measuring head connector lead. Note: Buzzing sound will be heard briefly and position indicator lights (arrows) will light.

C. Align measuring head with base as shown. Use the two dowel pins on bottom of measuring head to pre-align head with base.

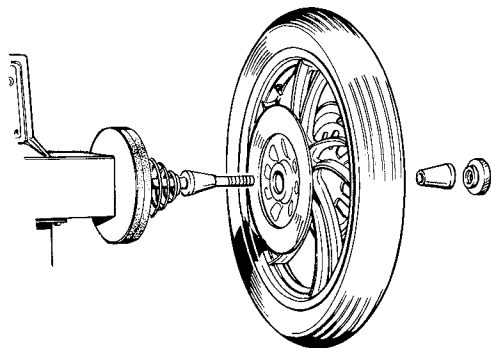
D. Install washers and screws to secure measuring head to base. Torque to 100 - 120 in. lb. (115 - 140 kpcm).



Operation

as for racing tires. Refer to *Balancing Racing Tires* (pg. 5) for *Fine Balance* and *Super Fine Balance* instructions.

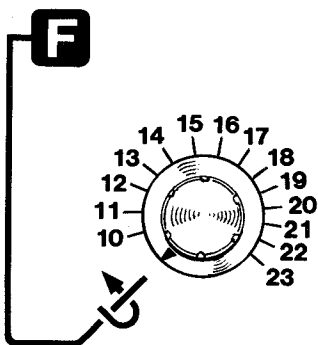
1. Mount Wheel




- Slide spring over spindle, flush to metal plate of flange assembly.
- Slide one cone over spindle.
- Mount wheel on spindle with brake drum or disk towards the balancer.
- Slide second cone onto spindle.
- Install ring nut and tighten moderately; tight enough to keep the wheel from slipping when the brake is applied. **DO NOT OVERTIGHTEN.**

Wheel must be centered on tapered ends of the cones. For best results, rotate wheel in opposite direction while tightening ring nut.

2. Select Balancing Mode

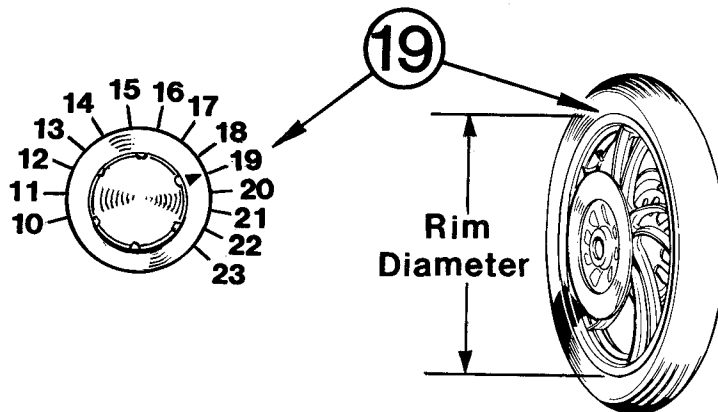


Rotate the rim diameter knob counterclockwise past the  to select the balancing mode - "normal" or "fine".

The "normal" mode is generally used for balancing wheels. The balancer is set for "normal" balancing when the "F" indicator is not lit.

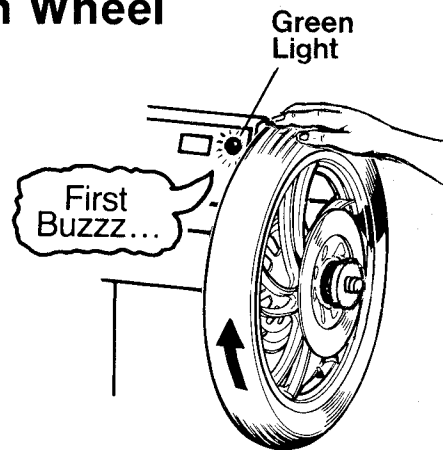
The "fine" balance mode ("F" lit) is used when performing the Operational Check Procedure (pg. 6), and when extremely accurate balancing is required; such

3. Set Rim Diameter



Set rim diameter knob to rim size of wheel being balanced. Note rim size on tire side wall.

4. Spin Wheel



Spin wheel in direction shown. When wheel is spinning fast enough the buzzer will sound and green indicator will light. Do not continue spinning after buzzer sounds and indicator lights.

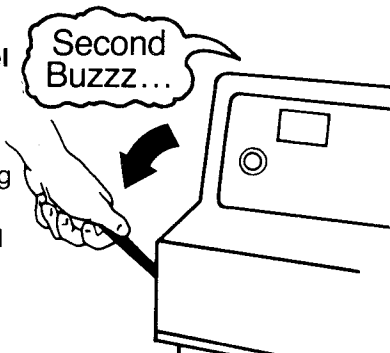
If wheel is turned in wrong direction a "0.00" weight reading will be displayed.

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 value.

Do not lean on balancer during measuring cycle, as this could cause the balancer to compute and display an inaccurate balancing value.

5. Stop Wheel

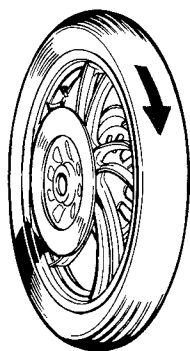
Pull brake handle forward to bring wheel to a complete stop ... release handle.



A wrong reading may occur if brake is applied before second buzz or green light goes off.

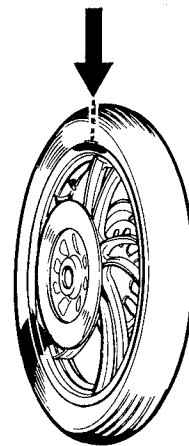
Observe wheel at flange to make sure wheel does not slip when brake is applied. If wheel turns, it can cause an error in the weight mounting position.

6. Position Wheel



Rotate wheel in direction indicated by lit arrow until both arrows are lit.

7. Attach Weight



When both arrows are lit, indicating the correct wheel position, the weight value required to balance the wheel will be displayed. Securely attach indicated weight at top dead center.

Weights may be attached to either side of the wheel.

8. Check Spin




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

Balancing Racing Tires

Fine Balance

Balancing racing tires in the "fine" mode increases wheel balancing accuracy by providing weight readings down to 2 grams or .10 oz.

Fine balance as follows:

1. Balance wheel in normal mode to read 0.00 (000).
2. Rotate rim diameter knob counter clockwise past the  to select "Fine" mode ("F" indicator lit) and return knob back to proper wheel size.
3. Respin wheel.
4. Attach required weight. It may be necessary to trim the smallest standard weight to obtain the weight needed for a zero (0.00) spin check.
5. Check spin to read 0.00 (000).

Super Fine Balance

The highest degree of accuracy (down to 1 gram or .05 oz.) is possible by the following steps:

Note: Super Fine Balance procedure is recommended in racing situations where speeds in excess of 120 mph are experienced.

1. Fine balance wheel to 0.00 (000), as previously described.
2. Set rim diameter knob to 10, making sure that "F" mode does not change back to "normal" mode.
3. Spin wheel and note reading.
Setting the rim diameter knob to 10 has increased sensitivity by a factor of approximately two (2); i.e. if the reading is 5 grams, the weight required is 2-1/2 grams. And if the reading is 2 grams, the actual weight required is 1 gram.
4. Clip weight to correct size, attach and check spin to 0.00.

With super fine balancing, more spins may be required for a zero (0.00) balance.

Operational Check Procedure

1. Make sure the balancer is resting on a firm surface (flat concrete floor recommended).
2. Plug balancer in; position indicator should light. If not, refer to trouble shooting section, "II. Digital display, position indicators and buzzer are all dead". Follow steps 1-5.
3. Mount a wheel and balance it according to "Operation" instructions in the "normal" balancing mode.
4. Set balancer to "fine" balance mode and "fine" balance the wheel. It may be necessary to trim a weight to obtain the weight needed for a zero (0.00) check spin.
5. Set balancer to "normal" balancing mode.
6. Rotate wheel until both arrows are lit and attach a 4 ounce (100 gram) weight at top dead center on the wheel.
7. Spin the wheel. The weight reading should be 3.75 or 4.00 oz. (090 or 100) and the weight should be at bottom dead center when both arrows are lit.

If the weight reading is incorrect, reset the weight adjustment pot on the back of the balancer

(see illustration on page 5) to 3.75 or 4.00 using a small screwdriver. Turn pot screw clockwise to increase or counterclockwise to decrease reading.

8. Remove the 4-ounce calibration weight.
9. Repeat Step 4.
10. Loosen the ring nut and rotate the zero balanced wheel 180° in relation to the flange assembly. Tighten the ring nut.
11. Set the balancer to "normal" mode and spin the wheel. The reading should be 0.25 (010) or less.

If the reading is higher, make sure the wheel is mounted and centered properly, and respin the wheel.

If still too high, remove the wheel and clean mounting surface, cones and wheel. Remount the wheel and spin check. Then respin with wheel rotated 180°, as was done in Step 10.

If still too high, repeat steps 1 - 11 with new wheel.

If still too high, contact your Snap-on representative.

Maintenance

1. Clean flange mounting surface, cones and spindle 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

The WBM200 is completely field serviceable. Do not return the balancer for repairs. Replacement parts and service assistance are available from your *Snap-on* representative.

To make minor external repairs, such as replacing: control knob, spindle, voltage converter, flange assembly and other repairs of this nature, refer to *WBM200 Field Service* (pg. 8) and check for available instructions.

For internal repairs, contact your *Snap-on* representative for replacement parts and repair service.

If erroneous digital readouts occur, always perform the *Operational Check Procedure*. If this does not correct the problem, refer to *Troubleshooting the WBM200* to locate and correct the problem.

Troubleshooting the WBM200

Problem	Probable Causes and Remedies
<p>I. Inconsistent readings</p> <p>If inconsistent readings are suspected, check as follows: Spin wheel 10 times. Write down weight readings. Check position at same time. Readings must be within $\pm .25$ oz. (± 10 grams).</p>	<ol style="list-style-type: none"> 1. Occasional occurrences could be related to a tire or wheel problem. Check for loose material inside tire. Change tire if necessary. 2. Make sure that wheel is properly mounted. Check spindle and cones for residue build up. Clean these parts and the wheel. 3. Make sure that the base stand is resting firmly on the floor and not on loose material. 4. Check the spindle to make sure it is not loose or bent. Tighten or replace as necessary. 5. Check flange assembly for loose mounting screws and damage. Tighten or replace as necessary. 6. Rotate flange by hand and feel for friction or rough bearings. If found, replace main housing assembly (see page 8). 7. Remove cover assembly (see page 8) and check if brake band is touching brake bushing when brake lever is fully released. If so, correct or replace as necessary (see page 9). 8. With cover assembly removed, check timing disc, located just inside of brake assembly. If dirty, carefully wipe clean with a cotton ball. If damaged, replace (see page 9). <p>Note: If none of the above corrects problem, replace the circuit board.</p>
<p>II. Digital display, position indicators and buzzer are all dead.</p>	<ol style="list-style-type: none"> 1. Check electrical connections at power outlet, voltage converter and balancer cable assembly. 2. Check for defective power lead wires. 3. Check building circuit breaker and power outlet. 4. Check for defective AC voltage converter at connection to balancer cable assembly, using an AC voltage tester. It should read approximately 10 VAC. If not, replace converter. 5. Remove balancer top cover and check connection to circuit board. 6. If all of the above checks out OK, replace circuit board.
<p>III. Some digits, location arrows or mode indicators fail to light when signaled.</p>	<ol style="list-style-type: none"> 1. Replace circuit board (see page 8).
<p>IV. Buzzer is dead.</p>	<ol style="list-style-type: none"> 1. Make sure wheel is rotated fast enough. Replace circuit board if buzzer is still dead. <p>Note: Until repair is made, balancer can still be used by referencing green light.</p>
<p>V. Mode change not working right.</p>	<ol style="list-style-type: none"> 1. Ensure that instructions on page 4 are followed. If problem still exists, replace circuit board.
<p>VI. Can not calibrate as per operational check procedures.</p>	<ol style="list-style-type: none"> 1. Make sure that all operational check procedure steps are done per instructions. Take particular care during step 4 to be sure that "zero spin check" is accurate. 2. Check for inconsistent readings (see Problem 1).
<p>VII. Brake will not stop wheel.</p>	<ol style="list-style-type: none"> 1. Replace brake assembly (see page 9).

WBM200 Field Service

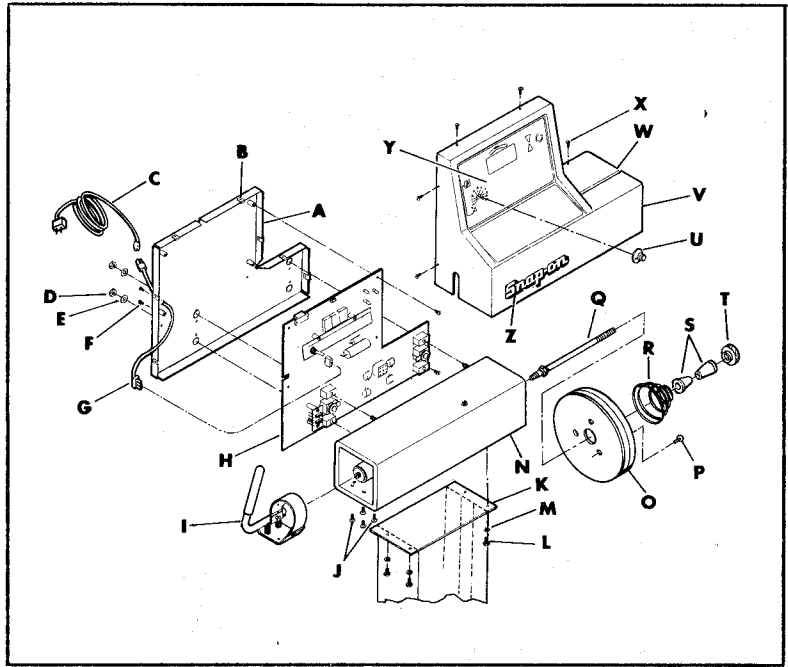
Removing Cover Assembly (WB1327-04)

Remove the Cover Assembly (V) for the following repairs:

- Replacing Printed Circuit Board (WB5011)
- Replacing Main Housing Assembly (WB1422)
- Replacing Brake Assembly (WB1308-02)
- Replacing Timing Disc (WB1277)

To remove Cover Assembly:

1. Disconnect Voltage Converter (C).
2. Remove Control Knob (U) from front panel (requires small tip screwdriver).
3. Remove Flange Assembly [(O) - 3 screws].
4. Remove Phillips Screws [(X) - 7 screws] from Cover Assembly (V).
5. Move Cover Assembly forward slightly to clear Control Knob shaft and lift upwards to remove.



Replacing Printed Circuit Board (WB5011)

1. Remove Cover Assembly (V).
2. Disconnect Cable Assembly (G) at PC Board (H) by pinching the releases and pulling outward.
3. Remove Back Panel Assembly (A) and PC Board by removing the four 1/2" hex size nuts (D) and washers (E). Then pull panel straight back.
4. Remove the four screws located next to the four large holes in the Back Panel.
5. Remove the four slotted screws from the PC Board side that attach to the Back Panel standoffs.
6. Separate PC Board from Back Panel, insert replacement PC Board, and reassemble by reversing the above disassembly procedure.

Replacing Main Housing Assembly (WB1422)

1. Follow Steps 1 thru 3 Replacing Printed Circuit Board.
2. Remove Spindle (Q) using 1" wrench. Brake handle may be pulled to counteract torque on bolt.
3. Remove Main Housing Assembly (N) from Base (K) by removing four 1/2" hex size bolts (L) and washers (M). Lift assembly from Base.
4. Remove four Brake Assembly screws (J) from bottom of Assembly (1/8" hex wrench) and slide Brake Assembly off the shaft.

WBM200 Components

Key	Part No.	Description	
A	WB1326	Back Panel Assembly	1
B	WB3700-0002	Speed Nut	7
C	WB6605-01	Voltage Converter (115V, 50/60 Hz)	1
C	or WB6605-03	Voltage Converter (230V, 50/60 Hz)	1
D	ME4A10	5/16"-18 Hex Nut	4
E	ME5A8	5/16" Flat Washer	4
F	ME3J27	8-32 x 5/16" Binder Head Screw	8
G	WB7203-08	Cable Assembly	1
H	WB5011	Printed Circuit Board Assembly	1
I	WB1308-02	Brake Assembly	1
J	ME3C5	10-32 x 5/16" Flat Head Screw	4
K	WB1279-02	Base	1
L	ME3A73	5/16"-18 x 5/8" Hex Bolt	4
M	ME5B5	5/16" Lock Washer	4
N	WB1422	Main Housing Assembly	1
O	WB1411	Flange Assembly	1
P	—	10-24 x 1/2" Binder Head Screw	3
Q	WB1400	Spindle	1
R	WB1412	Spring	1
S	WB1387	Cone	2
T	WB1388	Ring Nut	1
U	WB1190	Knob	1
V	WB1327-04	Cover Assembly	1
W	WB1354	TDC Indicator Decal	1
X	ME3L19	8-18 1/2" Self Tapping Screw	7
Y	WB1420-02	Front Panel	1
Z	KN300R	Logo	1
—	WB1277-01	Timing Disc Kit (not shown)	1

5. Replace Brake Assembly on replacement Main Housing Assembly.

Note: After tightening Brake Assembly screws firmly, pull brake handle several times and make sure that brake band does not touch shaft when brake is released.

6. Replace Main Housing Assembly on Base, using dowel pins for alignment, and torque bolts 100 - 120 in. lb.

7. Install Spindle and torque to 50 - 70 in. lb. Brake handle may be pulled to counteract torque on bolt.
8. Reverse Steps 1 thru 3 of Replacing Printed Circuit Board.

Replacing Brake Assembly (WB1308-02)

1. Remove Cover Assembly (V).
2. Remove complete Measuring Head Assembly from Base (K) by removing four 1/2" hex size bolts (L) and washers (M). Lift assembly from Base.
3. Lay Measuring Head Assembly on Back Panel, with bottom of Main Housing Assembly (N) facing you, and remove four brake Assembly Screws (J - using 1/8" hex wrench).
4. Slide Brake Assembly (I) off Shaft.
5. Reassemble by reversing Steps 1 thru 4. Use dowel pins for alignment when mounting Measuring Head Assembly on Base and torque bolts (N) to 100 - 120 in. lb.

Note: After tightening Brake Assembly screws firmly, pull brake handle several times and make sure brake band does not touch shaft when brake is released.

Replacing Timing Disc (WB1277-01)

1. Follow Steps 1 thru 4 of Replacing Brake Assembly.
2. Remove brake bushing retaining screw and washer (1/4" hex wrench). Torque screw to 100 - 120 in. lb. when reassembling.
3. Remove brake bushing.
4. Remove shaft key.
5. Gently slide Timing Disc from Shaft.
6. Install replacement disc (1264) with spring steel back plate (1370-01) on each side facing in, and reassemble by reversing Steps 1 thru 4.

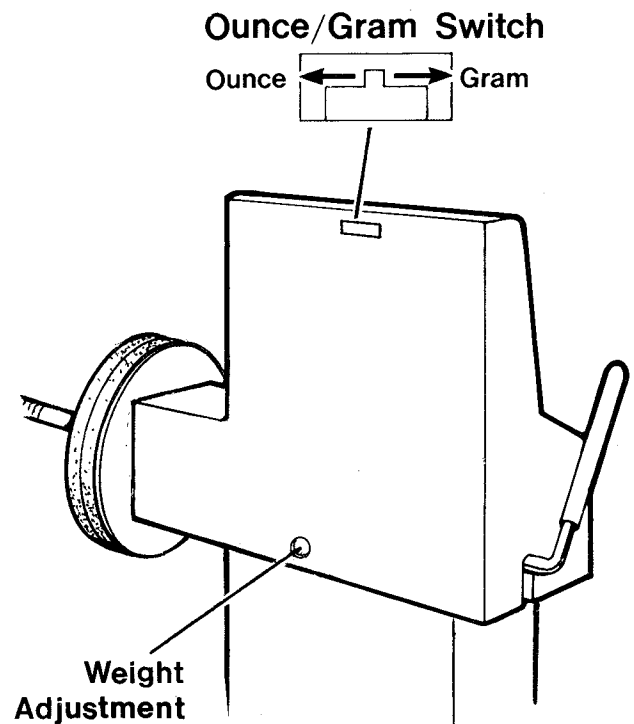
Replacing Spindle (WB1400)

Follow instruction E on Page 3.

Ounce/Gram Switch

The WBM200 Computerized Motorcycle 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 weights being used.

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



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