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# WHEEL AND TYRE

Click on the applicable bookmark to selected the required model year.

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# WHEEL AND TYRE

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## GENERAL INFORMATION

The wheels and tyres of the following specifications have been established.

## SPECIFICATIONS

| Items |                                   | 4D5, 4M4                          |                | 6G7            |
|-------|-----------------------------------|-----------------------------------|----------------|----------------|
|       |                                   | GL, GLX                           | GLS            |                |
| Wheel | Type                              | Steel type<br>Aluminium type*     | Aluminium type | Aluminium type |
|       | Size                              | 16 × 6JJ<br>16 × 7JJ*             | 16 × 7JJ       | 16 × 7JJ       |
|       | Amount of wheel offset mm         | 46                                | 46             | 46             |
|       | Pitch circle diameter (P.C.D.) mm | 139.7                             | 139.7          | 139.7          |
| Tyre  | Size                              | 235/80R16 109S<br>265/70R16 112S* | 265/70R16 112S | 265/70R16 112H |

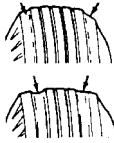
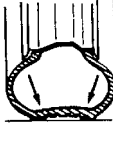
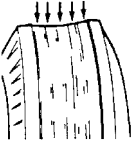
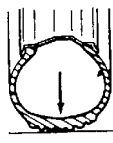

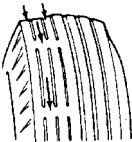
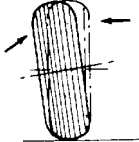
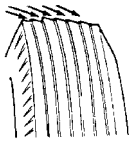
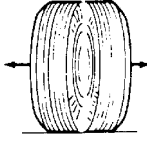
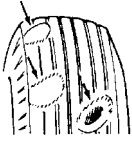
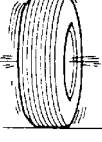
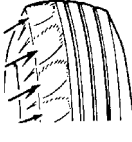
NOTE

\*: Optional items

## SERVICE SPECIFICATIONS

| Items                            |                 | Limit       |
|----------------------------------|-----------------|-------------|
| Tread depth of tyre mm           |                 | 1.6         |
| Wheel runout (Radial runout) mm  | Steel wheel     | 1.2 or less |
|                                  | Aluminium wheel | 1.0 or less |
| Wheel runout (Lateral runout) mm | Steel wheel     | 1.2 or less |
|                                  | Aluminium wheel | 1.0 or less |

## TROUBLESHOOTING

| Symptom                 |  | Probable cause   |  | Remedy   | Reference page                           |
|-------------------------|--|--|--|--|--|
| Rapid wear at shoulders | <br>11X0109   | Under-inflation or lack of rotation                              | <br>11X0116   | Adjust the tyre pressure.                                  | 31-7.                                    |
| Rapid wear at centre    | <br>11X0110   | Over-inflation or lack of rotation                               | <br>11X0117   |  |  |
| Cracked treads          | <br>11X0111   | Under-inflation  |  | Adjust the tyre pressure.                                  | 31-7.                                    |
| Wear on one side        | <br>11X0112 | Excessive camber   | <br>11X0118 | Inspect the camber.  | Refer to GROUP 33A - On-vehicle Service. |
| Feathered edge          | <br>11X0113 | Incorrect toe-in   | <br>11X0119 | Adjust the toe-in.   |  |
| Bald spots              | <br>11X0114 | Unbalanced wheel   | <br>11X0120 | Adjust the imbalanced wheels.                              | 31-4.                                    |
| Scalloped wear          | <br>11X0115 | Lack of rotation of tyres or worn or out-of-alignment suspension |  | Rotate the tyres and check the front suspension alignment. | Refer to GROUP 33A - On-vehicle Service. |

## WHEEL BALANCE ACCURACY

### PURPOSE

This section contains tips and procedures for achieving accurate wheel balance. Steering wheel vibration and /or body shake can result if any of these procedures are not carefully observed.

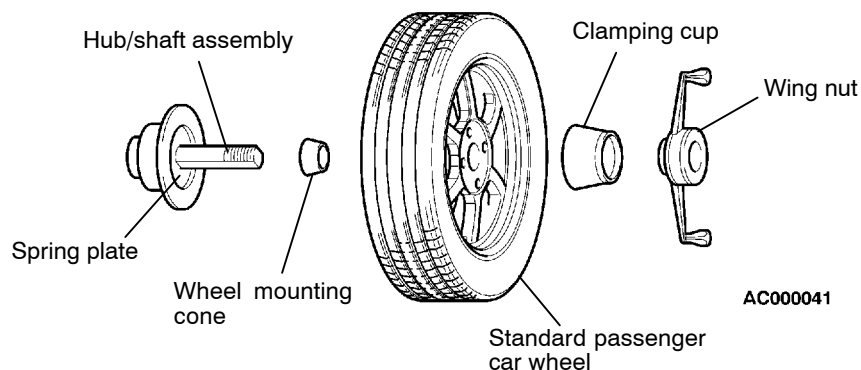
1. Wheels and tires must be properly mounted on a balancer in order to achieve correct balance. Centering the wheel on the shaft of the balancer is essential for proper mounting.
2. Off-the-car wheel balancers must be calibrated periodically to ensure good balancing results. An inaccurately calibrated balancer could cause unnecessary replacement of tires, shocks, suspension components, or steering components.

Check your balancer's calibration approximately every 100 balances. Your wheel balancer's instruction manual should include calibration procedures. If the calibration procedures specifically for your balancer are missing, use the generic steps in this section for zero calibration, static balance, and dynamic balance checks. The wheel balancer calibration checks are also described in the flowchart. (Refer to P.31-6)

### PROCEDURE

#### Balancing Tips

1. Confirm that the balancer's cone and the wheel mounting cone are undamaged and free of dirt and rust.
2. On this vehicle the wheel's center hole on the hub side has a chamfered edge. Use a back-mounting cone on your wheel balancer to center the wheel on the balancer shaft.
3. Install a wheel mounting cone. The appropriate size cone for this vehicle is 67.0 mm.
4. Before balancing the wheel, remove any wheel weights from both sides. Also check both sides for any damage.
5. When installing wheel weights, hammer them at a straight (not diagonal) angle.



#### Confirming Proper Balance

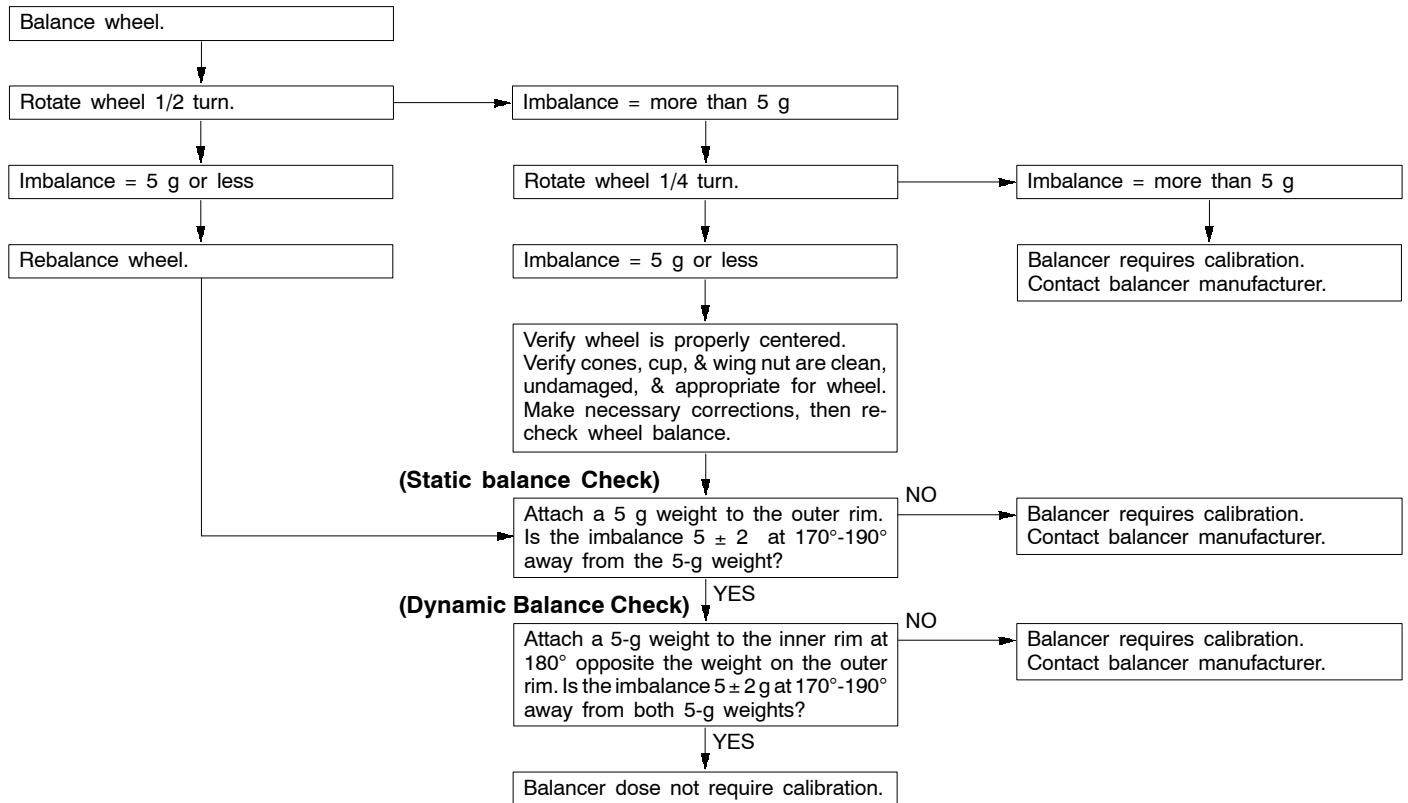
1. After balancing the wheel, loosen the wing nut and turn the wheel 180° against the balancer's hub. Then retighten the wing nut and check the balance again. Repeat wheel balance if necessary.
2. Turn the wheel again 180° against the balancer's hub. If the wheel becomes out-of-balance each time it is turned against the balancer's hub, the wheel balancer may require calibration.

#### Wheel Balancer Calibration Checks

1. Mount an undamaged original-equipment alloy rim and tire assembly (wheel) onto your off-the-car wheel balancer. Balance the wheel.
2. <<Zero Calibration Check>>  
Loosen the balancer wing nut, rotate the wheel a half turn (180°), and retighten the nut. Recheck the balance.

- If the imbalance is 5 g or less, the zero calibration is OK. Rebalance the wheel, then go to Step 4 to check static balance.
  - If the imbalance is more than 5 g, go to Step 3.
3. Loosen the balancer wing nut, rotate the wheel 1/4 turn (90°), and retighten the nut. Recheck the wheel balance.
- If the imbalance is 5 g or less, the wheel may not be centered on the balancer, or the balancing cones, the cup, and/or wing nut are damaged, dirty, or inappropriate for the wheel. You may need to refer to the balancer manufacturer's instructions to verify the correct attachments. After making the necessary corrections, recheck the wheel balance. If OK, then go to Step 4.
  - If the imbalance is more than 5 g, the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.
4. <Static Balance Check>  
Attach a 5-g weight to the outer rim. Recheck the balancer. The balancer should detect  $5 \pm 2$  g of imbalance 170° to 190° away from both the inner and outer 5-g weights.
- If the imbalance is within specification, the static balance calibration is correct. Go to Step 5 to check the dynamic balance.
  - If the imbalance is out of specification, the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.
5. <Dynamic Balance Check>  
Attach a 5-g weight to the inner rim at 180° opposite the 5-g weight that was added in step 4. Recheck the balance. The balancer should detect  $5 \pm 2$  g of imbalance 170° to 190° away from both the inner and outer 5-g weights.
- If the imbalance is within specification, the dynamic balance calibration is correct. The balancer calibration checks are complete.
  - If the imbalance is out of specification, the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.

## WHEEL BALANCER CALIBRATION CHECKING FLOW CHART



## ON-VEHICLE SERVICE

### TYRE INFLATION PRESSURE CHECK

#### NOTE

For information on tyre inflation pressure, refer to the label attached near the driver's side door striker.

### TYRE WEAR CHECK

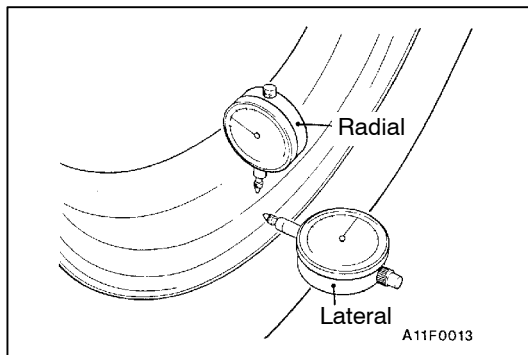
Measure the tread depth of tyres.

**Limit: 1.6 mm**

If the remaining tread depth is less than the limit, replace the tyre.

#### NOTE

When the tread depth of tyres is reduced to 1.6 mm or less, wear indicators will appear.



### WHEEL RUNOUT CHECK

Jack up the vehicle so that the wheels are clear of the floor. While slowly turning the wheel, measure wheel runout with a dial indicator.

**Limit:**

| Item              | Steel wheel | Aluminium wheel |
|-------------------|-------------|-----------------|
| Radial runout mm  | 1.2         | 1.0             |
| Lateral runout mm | 1.2         | 1.0             |

If wheel runout exceeds the limit, replace the wheel.

## WHEEL AND TYRE

### INSTALLATION SERVICE POINT

Tighten the wheel nut to the specified torque.

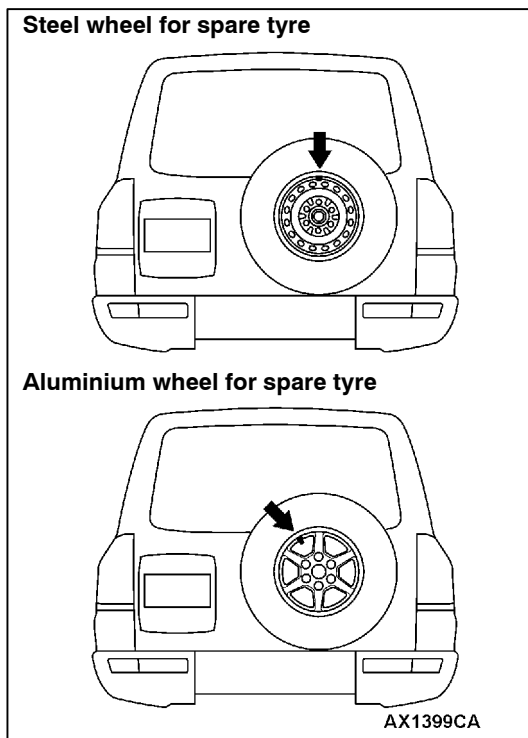
**Tightening torque: 108 ± 10 N·m**

When installing the spare tyre to the back door, position the valve as shown, and then tighten the lock cylinder and bolt to the specified torque.

#### NOTE

If the valve is positioned at the bottom, rain water may leak into the valve, causing the valve corrosion.

**Tightening torque: 46 ± 8 N·m**





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**NOTES**

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# Service Bulletins


Click on the applicable bookmark to select the Service Bulletin.

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# SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS  
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

|   |   |  |             |
|---|---|--|-------------|
| <b>SERVICE BULLETIN</b>                     |   | No.: MSB-00E31-001   |             |
|   |   | Date: 2000-07-15   | <Model>     |
| Subject: WHEEL BALANCE ADJUSTMENT PROCEDURE |   | ALL MODELS   | <M/Y> 00-00 |
| Group: WHEEL & TIRES                        | Draft No.: 99AL121708                           |  |             |
| INFORMATION/<br>CORRECTION                  | INTERNATIONAL<br>CAR<br>ADMINISTRATIO<br>OFFICE | <br>T.NITTA - PROJECT LEADER<br>AFTER SALES SERVICE & CS PROMOTION |             |

## 1. Description:

There have been cases where the troubles failed to be removed completely because of incorrect balancer machine handling or use of an inaccurately calibrated balancer machine. This Service Bulletin informs you of the cautions to be taken when handling a balancer machine and the balance check procedures to prevent such a case from recurring in a dealer.

## 2. Details:

To solve the problems caused by steering or body vibrations, it is essential to balance the wheels and tires accurately. For this, the wheel and tire must be accurately centered with respect to the balancer shaft, and the balancer must also be calibrated accurately.

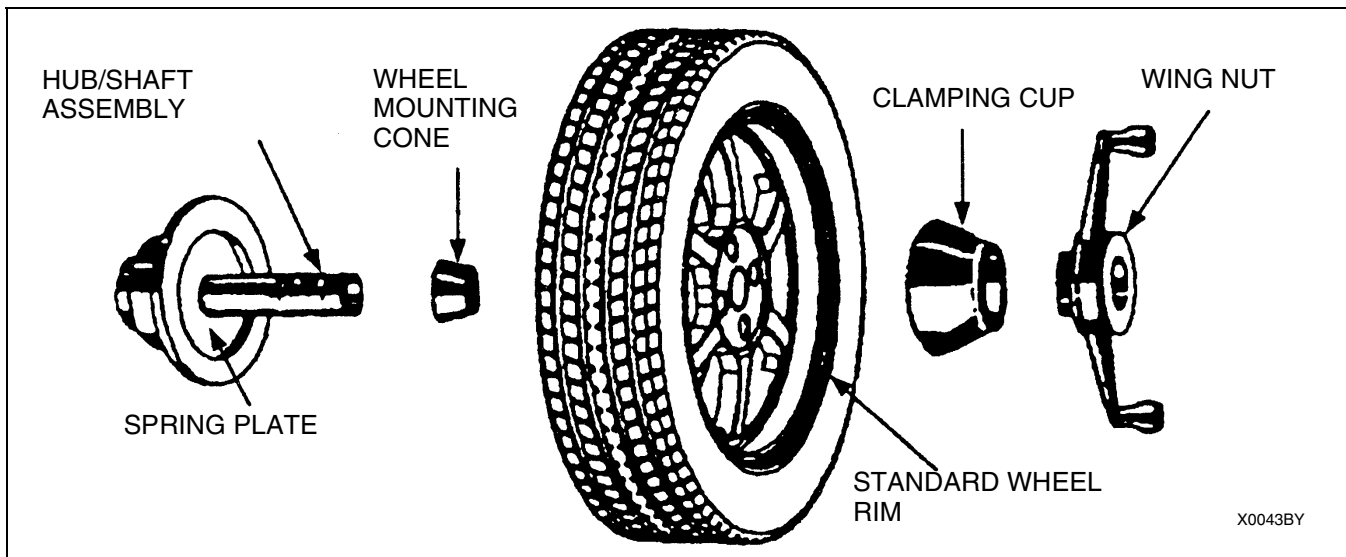
## Procedures

1. Check to ensure that the balancer cone and the cone-contacting portion of the wheel are free from any dirt, corrosion and damage.
2. Remove all balance weights attached, stones caught in the tire grooves and mud adhered from the wheel and tire.
3. Install the wheel and tire to the balancer in the following procedure:

**Caution:**

- The socket diameter of a Mitsubishi genuine wheel is  $\phi$  67.0 mm (2.64 in) for passenger cars and  $\phi$  107.5 mm (4.23 in) for the other types of vehicle. Be sure to use the balancer cone matching the socket diameter.
  - Use the black-mounted cone to secure the wheel to the balancer if possible. If installable by this method, go to Step 4.
  - If the socket diameter of the wheel is too large to secure it with the back-mounted cone, secure the wheel to the balancer with the front mounting cone. If the wheel is to be secured in this way, go to Step 6.
  - Do not use the log nut hole mounting method because it does not allow the accurate centering of the wheel.
4. When securing with back-mounted cone:  
Operate the balancer to measure the imbalance, and attach weight in accordance with the measurements.

**Caution:** Be sure to drive the weight straight in the wheel.



5. Loosen the wing nut, rotate the wheel half a turn (180°) and tighten the nut again. Then, perform the measurement again to confirm that the wheel is in balance. If not in balance, check if the balancer is correctly calibrated. Go to Step 11.

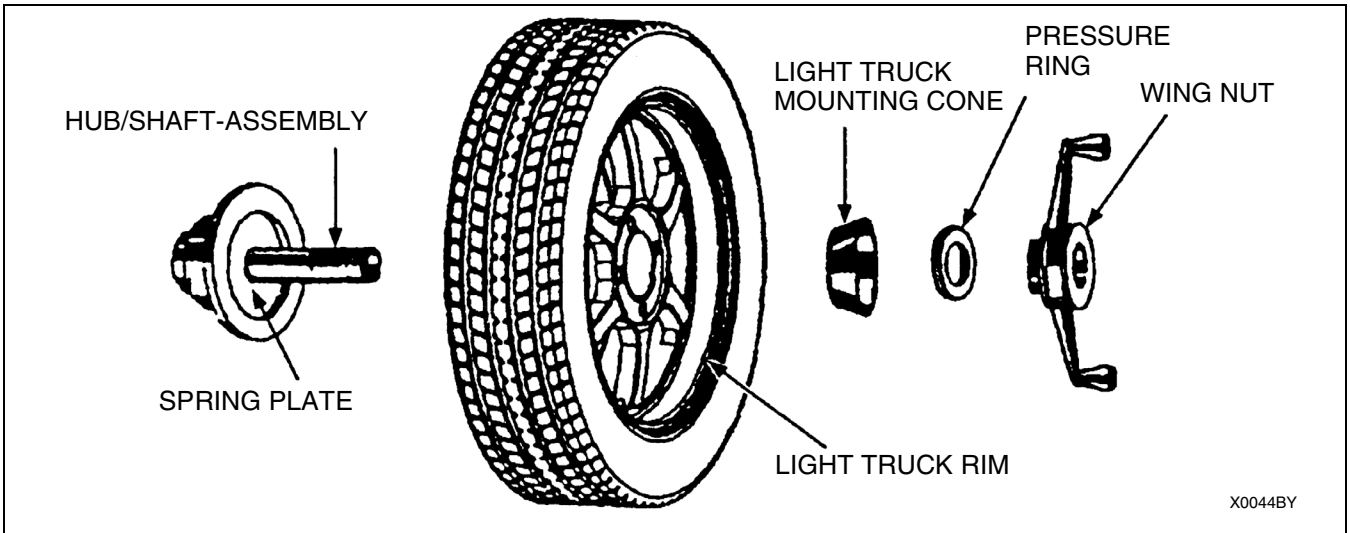
6. When securing with front-mounted cone:

**Caution:**

- When pressing in the cone by tightening the wing nut slowly, hold the tire by hand such that the wheel may contact the spring plate of the balancer evenly.
- If this work is not performed with care, the wheel would fail to be centered correctly. Furthermore, the cone-contacting area of the wheel would deform, preventing subsequent wheel balancing from being performed accurately.

Operate the balancer to measure the imbalance. Mark the point attributable to the imbalance with a piece of chalk.

(Do not attach any balance weight.)



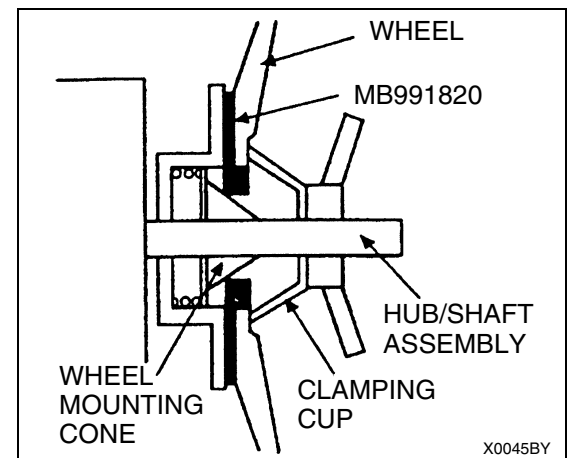
7. Loosen the wing nut, rotate the wheel half a turn (180°) and tighten the wing nut carefully again. Then, perform the measurement again.
8. Repeat the measurement three times in the same manner, and take either of the following measures according to the measurement again.

**Caution: Be sure to drive the weight straight in the wheel.**

- a. If the results are the same in all measurements, attach a weight according to the indication on the machine.
- b. If the weight difference among the three measurements is less than 0.5 oz and the three indicated points are all within a range of less than 8 inch (30°), attach a weight having the average weight at the mean position.
- c. If the weight difference among the three measurements is 0.5 oz or more or if the indicated positions are not within a range of less than 8 inch (30°), check if the balancer is correctly calibrated. Go to step 11.

9. Reinstall the tire to the vehicle, and perform a driving test. If the tire still generates vibration, perform the Step 10.
10. Attach the adapter (MB991820) on the back side of the wheel, and install the wheel onto the machine using the back-mounted cone. Then, perform the balance adjustment again. For the procedure, refer to Steps 4 and 5

**Caution** Check to ensure that the contact portions of the adapter, wheel and balancer are free from any dirt, corrosion and damage.



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## 11. Checking for calibration.

Check your balancer's calibration approximately every 100 balances. Your wheel balancer's instruction manual should include calibration procedures. If the calibration procedures specifically for your balancer are missing, use following steps for zero calibration, static balance, and dynamic balance checks. The wheel balancer calibration checks are also described in the flowchart on next page.

- a. Mount an undamaged original-equipment alloy rim and tire assembly (wheel) onto your off-the-car wheel balancer. Balance the wheel.
- b. **Zero Calibration Check.** Loosen the balancer wing nut, rotate the wheel a half-turn (180°), and retighten the nut. Recheck the balance.
  - i) If the imbalance is 5 grams or less, the zero calibration is OK. Rebalance the wheel, then go to Step d to check the static balance.
  - ii) If the imbalance is more than 5 grams, go to Step c.
- c. Loosen the balancer wing nut, rotate the wheel ¼ turn (90°), and retighten the nut. Recheck the wheel balance.
  - i) If the imbalance is 5 grams or less, the wheel may not be centered on the balancer, or the balancing cones, the cup, and/or wing nut are damaged, dirty, or inappropriate for the wheel. You may need to refer to the balancer manufacturer's instructions to verify the correct attachments. After making the necessary correction, recheck the wheel balance. If OK, then go to Step d.
  - ii) If the imbalance is more than 5 grams, the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.
- d. **Static Balance Check.** Attach a 5-gram weight to the outer rim. Recheck the balancer. The balancer should detect 5±2 grams of imbalance 170° to 190° away from the 5-gram weight.
  - i) If the imbalance is within specification, the static balance calibration is correct. Go to Step e to check the dynamic balance.
  - ii) If the imbalance is out of specification, the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.
- e. **Dynamic Balance Check.** Attach a 5-gram weight to the inner rim at 180° opposite the 5-gram weight that was added in Step d. Recheck the balance. The balancer should detect 5±2 grams of imbalance 170° to 190° away from both the inner and outer 5-gram weights.
  - i) If the imbalance is within specification, the dynamic balance calibration is correct. The balancer calibration checks are complete.
  - ii) If the imbalance is out of specification, the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.

## WHEEL BALANCER CALIBRATION CHECKS

