SERVICE BULLETIN

MITSUBISHI MOTORS

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

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

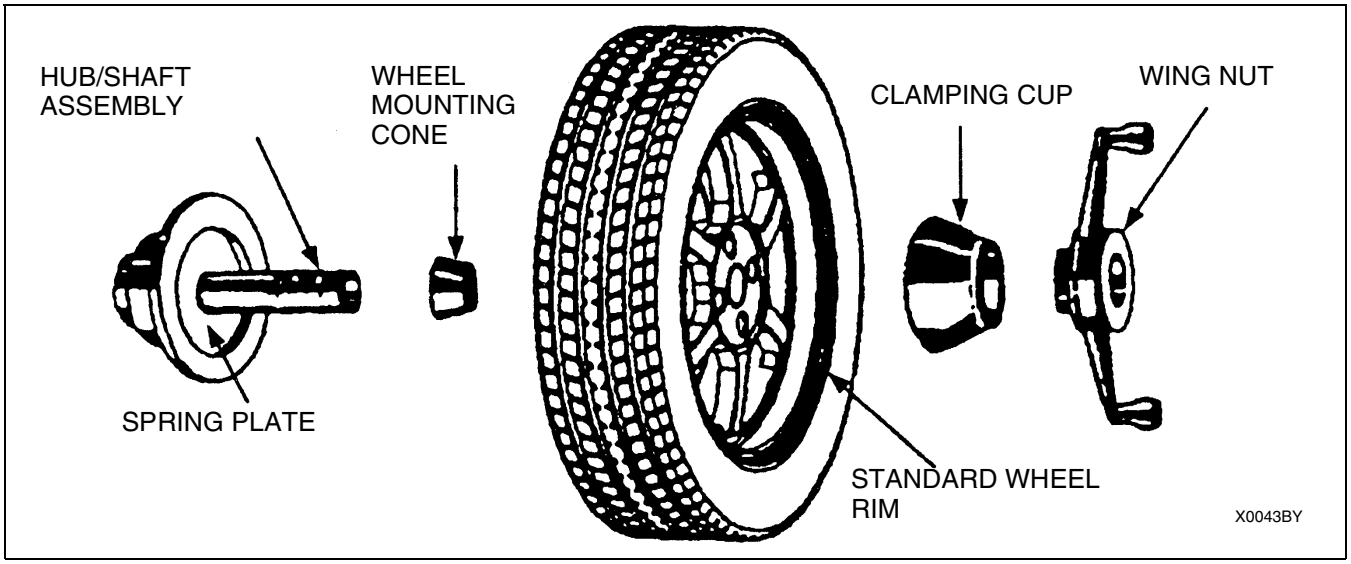
To solve the problems caused by steering or body vibrations, it is essential to balance the wheels and tires accurately. For this, the wheel and tire must be accurately centered with respect to the balancer shaft, and the balancer must also be calibrated accurately.

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 th 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 ϕ 67.0 mm (2.64 in) for passenger cars and ϕ 107.5 mm (4.23 in) 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 i 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 accurat centering of the wheel.**
4. When securing with back-mounted cone:

   Operate the balancer to measure the imbalance, an attach weight in accordance with the measurements.

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

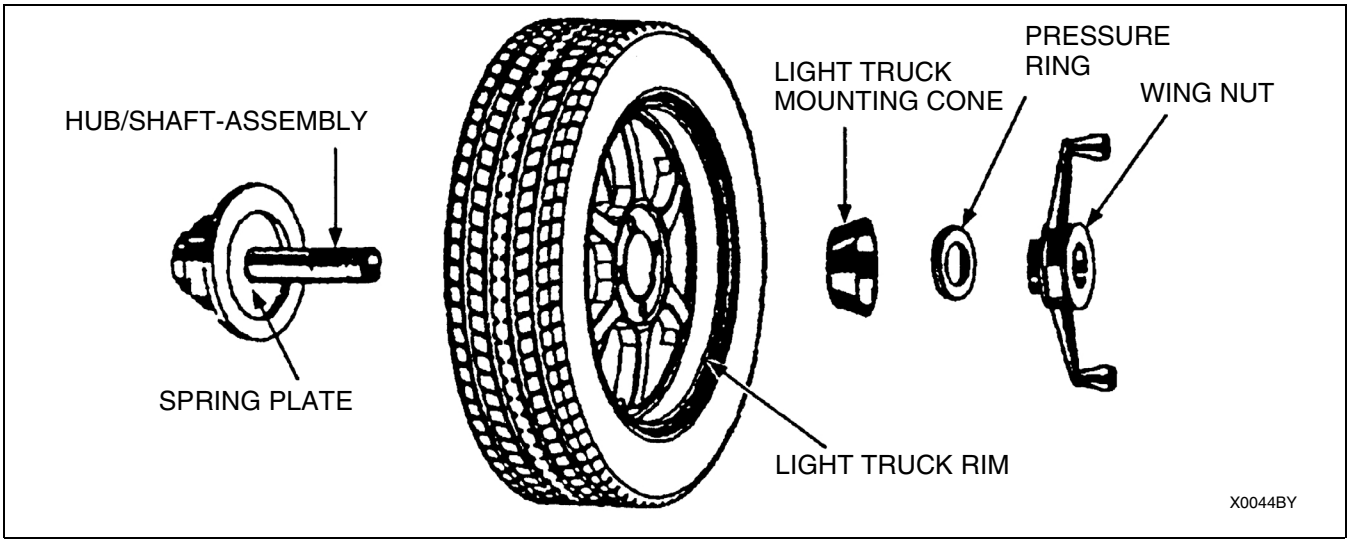


5. Loosen the wing nut, rotate the wheel half a turn (180°) and tighten the nut again. Then, perform the measurement again to confirm that the wheel is in balance. If not in balance, check if the balancer is correctly calibrated. Go to Step 11.

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. Futhermore, 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.)



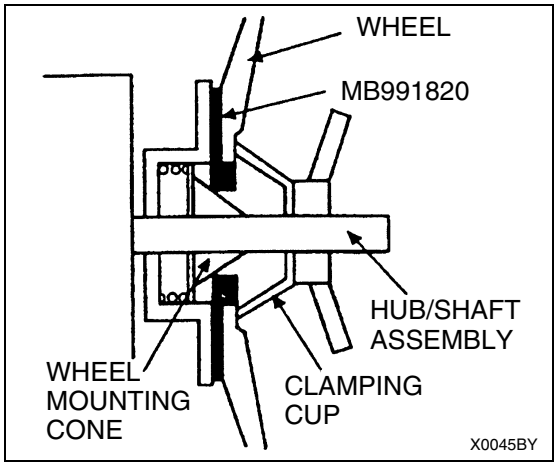
7. Loosen the wing nut, rotate the wheel half a turn (180°) and tighten the wing nut carefully again. Then, perform the measurement again.
8. Repeat the measurement three times in the same manner, and take either of the following measures according to the measurement again.

   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 th machine.
   b. If the weight difference among the three measurements is less than 0.5 oz and the thre 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 indicate positions are not within a range of less than 8 inch (30°), check if th 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 Ste 10.
10. Attach the adapter (MB991820) on the back side of th 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 contactin portions of the adapter, wheel and balancer are free from any dirt, corrosion and damage.**



11. Checking for calibration.

Check your balancer's calibration approximately every 100 balances. Your whee 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. Th 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 g to Step d to check the static balance.

   ii) If the imbalance is more than 5 grams, go to Step c.

c. Loosen th balancer wing nut, rotate the wheel ¼ turn (90°), and retighten the nut. Recheck th wheel balance

   i) If the imbalance is 5 grams or less, the wheel may not be centered on th 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 th 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, th balancer requires calibration, Contact th 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° to190° 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, th balancer requires calibration. Contact th 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. Th 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. Th balancer calibration checks are complete.

   ii) If the imbalance is out of specification, th balancer requires calibration. Contact th balancer manufacturer for calibration by their repair representative.

WHEEL BALANCER CALIBRATION CHECKS