



HYUNDAI Technical Service Bulletin

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| Group | CHASSIS |
| Number | 06-50-013 |
| Date | DECEMBER, 2006 |
| Model | ALL |

Subject
TIRE AND WHEEL VIBRATION AND RADIAL FORCE VARIATION

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| CIRCULATE TO: | <input type="checkbox"/> GENERAL MANAGER | <input checked="" type="checkbox"/> PARTS MANAGER | <input checked="" type="checkbox"/> TECHNICIAN |
| <input checked="" type="checkbox"/> SERVICE ADVISOR | <input checked="" type="checkbox"/> SERVICE MANAGER | <input checked="" type="checkbox"/> WARRANTY MGR | <input type="checkbox"/> SALES MANAGER |

THIS BULLETIN SUPERSEDES TSB# 01-50-008 TO INCLUDE ADDITIONAL INFORMATION.

NOTE: Each wheel and tire assembly is precision balanced and force match mounted before the vehicle leaves the assembly line. Dealers should not alter the dynamic balance of any wheel unless a customer describes experiencing a tire/wheel vibration condition.

DESCRIPTION:

A customer may describe a steering wheel vibration or "shimmy" condition in the vehicle. Sources of vibration/shimmy may be from the following conditions:

1. Wheel and tire assembly out of balance
2. Wheel out of round
3. Tire assembly stiffness variation (Radial Force Variation or RFV)

RFV (Radial Force Variation) may be defined as the amount of change in stiffness of the sidewall and footprint when a load is placed against a tire.

Wheel and tire assembly imbalance should be addressed first because it is the most common cause of vibration. A well maintained off-vehicle, two-plane dynamic wheel balancer can accurately correct this condition.

If a vibration or shimmy is still present after an imbalance condition is corrected, any out-of-round condition of the wheel and force variation of the tire must be addressed.

NOTE: All of the above conditions may be addressed at the same time if equipment is available such as the Hunter GSP 9700, which is a two-plane wheel balancer.

For proper diagnosis, it is important that the wheel and tire assembly first be confirmed and corrected for wheel run-out and tire assembly stiffness variations that may cause vibrations before replacing any component(s) on the vehicle.

COMMENT:

To correct vehicle vibrations caused by wheel out-of-round and tire stiffness variations, access to a **Hunter GSP 9700** or equivalent wheel balancing machine is necessary. If you do not have access to such equipment, it may be located through the Hunter website (**www.gsp9700.com**).

For information about the purchase of a **Hunter GSP 9700** and Hyundai's special pricing, please visit website (**http://spx.com**).



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The screenshot shows the Hunter GSP9700 website in a Microsoft Internet Explorer browser window. The address bar shows <http://www.gsp9700.com/>. The website header includes the **GSP9700.com** logo and navigation links: [INTRODUCTION](#), [HOW IT WORKS](#), [LOCATE A GSP9700](#) (highlighted with a yellow oval), [HOME](#), [FEATURES](#), [NEWS & TECHNICAL INFO](#), [FIND A REP](#), [GET A QUOTE](#), and [CONTACT US](#). The main content area features a large banner with the text "VIBRATION PROBLEMS? Wheel Balance Is Only Part of the Solution. click here to see why". Below this is a yellow starburst graphic that says "Find a GSP9700 Near You! (click here)". To the left, there is an image of a technician operating a Hunter GSP9700 machine. Below that, a "NEW" starburst introduces the "StraightTrak LFM" system. On the right, there are two menu items: "ABOUT HUNTER ENGINEERING" (Company Overview, Organization, History) and "OTHER HUNTER PRODUCTS" (Wheel Alignment Systems, Wheel Balancers, Brake Lathes, Tire Changers, Brake Testers). At the bottom, there is a "View the Demo!" link with a starburst icon and the text "Click here to see an animated demonstration of the GSP9700".

Follow the machine manufacturer's procedure to measure and correct wheel and tire assembly RFV related vehicle vibrations.

The following assembly RFV may be used as guide:

- P-Metric passenger vehicle wheel and tire assemblies = 18 ~20 lbs or less
- P-Metric SUV and Van wheel and tire assemblies = 24 ~27 lbs or less

NOTE: This information is a guideline, and the RFV range accounts for machine variability.

If force match mounting the wheel and tire assembly to the above guideline cannot be achieved, it may be necessary to replace a wheel or tire or both to correct the vibration condition (**see note below before replacing any part**). Since tires can sometimes become temporarily flat-spotted, **the RFV should be measured immediately after the vehicle is driven at least 10 miles.** (If the RFV cannot be measured immediately after the vehicle has been driven at least 10 miles, elevate the vehicle on a hoist to stop the tires from flat-spotting). Tire pressure must also be adjusted to the recommended pressure shown on the driver's door or B-Pillar.

NOTE: If the vehicle vibration condition cannot be improved to an acceptable level using the above procedure or a tire or wheel is required to be replaced to correct this condition, contact the Hyundai Technical Assistance line at (800) 325-6604.

REQUEST TO CALLING TECHNICIAN:

The dealer technician must provide the following information to the Technical Assistance Line:

1. Condition or customer description
2. VIN
3. Mileage
4. Tire size
5. Tire manufacturer
6. Tire condition
7. Wheel - alloy or steel
8. Imbalance values (inside and outside)
9. 1st and 2nd order RFV values in lbs
10. Wheel run-out values (radial and axial)
11. Location of the wheel on vehicle (RF, LF, RR, LR)

NOTE: Printed copy of any of the above information will be appreciated.