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Overview

Changing tires equipped with a TPMS sensor

This bulletin instructs the tire-changing technician how to properly mount and dismount a tire that has a TPMS sensor.

Types of Tire Pressure Monitoring Systems

Indirect System (does not use a TPMS sensor):

This system uses the ABS wheel speed sensors to monitor the rolling radius of the wheel and tire assemblies. Rather than directly monitoring tire pressure, the ABS measures the rotational speed of each tire. If one tire starts to spin faster than the others, the ABS determines that a tire has become smaller and has likely lost air pressure.

Direct Systems:

All 2007 and later vehicles are equipped with a TPMS Direct System.



This system monitors the air pressure in the tires with a wheel-mounted sensor. The direct type of TPMS can detect actual pressure levels and transmit the information to the driver more quickly. Tires are monitored individually by sensors attached to a special tire valve or strapped to the drop center of each wheel. Each sensor monitors and transmits tire pressure to the ECU. On some models, the temperature is also monitored to compensate for cold and warm pressure variations.

Con't next column

Location of TPMS sensors:

To avoid damaging sensors when mounting and demounting tires, it is beneficial to know where the sensors are located. Sensor assemblies are commonly attached to the valve stem, with the valve stem acting as an antenna to assist with transmitting RF signals. They may also be strapped to the drop center of the wheel. If this is the case, the sensor assembly should be located in line with the valve stem.

Technicians Note:

Many of latest GM models use a TPMS sensor with a rubber valve stem. This may cause one to think the vehicle does not have TPMS, with could lead to sensor damage during tire replacement. Be sure to confirm the presence of TPMS sensors before demounting a tire.



Repair Procedure

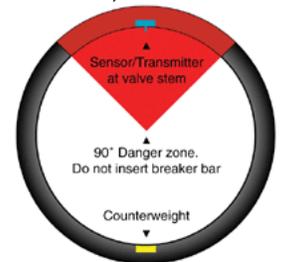
Removal and Installation

To avoid damaging sensors when demounting tires, do not break the bead within 45° of either side of the sensor assembly location. Also, be careful not to damage the sensor when mounting a tire.

Con't next column

Removal and Installation (Con't.)

Sensors are not repairable and require replacement if damaged or when their battery is completely drained. When reinstalling the sensor, it is suggested that the locknut, gasket and valve stem be replaced and torqued to the proper specification. It is also necessary to use the proper valve cap, as well as a special valve stem core, as they are an integral part of the system.



Reprogramming

It may be necessary to reprogram the TPMS when the tires are rotated, when a new sensor is installed, or after the vehicle loses power. Many vehicles on the road now require the use of a small handheld tool (available in the aftermarket) to reprogram the TPMS sensors. Some late-model makes such as GM reprogram by releasing air from each tire in a sequence and listening for the vehicle horn to sound while in the reprogram mode. Some vehicles require that they be driven at 20 mph or more for several minutes for the sensors and TPMS module to sync. Refer to the vehicle service manual to properly reprogram the TPMS.

