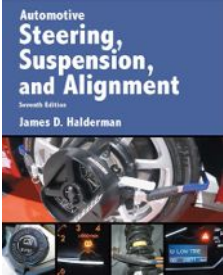


Automotive Steering, Suspension, and Alignment



CHAPTER 04

Tire-Pressure Monitoring Systems

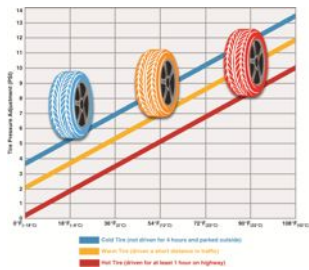
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FIGURE 4.1 The tire-pressure placard (sticker) on the driver's side door or door jamb indicates the specified tire pressure.



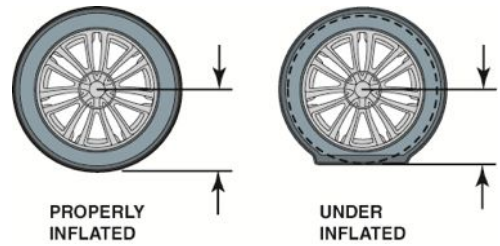
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FIGURE 4.2 Inflation pressure increases as the temperature increases. When checking or correcting inflation pressure when the tires are hot, add 2 to 4 PSI to the placard cold inflation pressure.



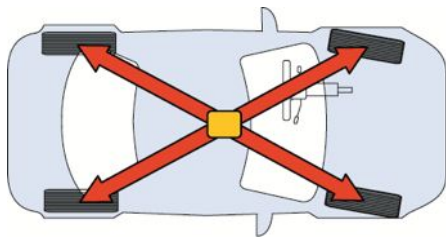
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FIGURE 4.3 A tire with low inflation will have a shorter distance (radius) between the center of the wheel and the road and will therefore rotate faster than a tire that is properly inflated.



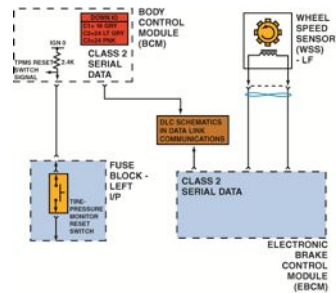
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FIGURE 4.4 The speeds of the diagonally opposed wheels are added together and then compared to the other two wheels to check if one tire is rotating faster.



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FIGURE 4.5 The indirect tire-pressure monitoring system has a reset switch that should be depressed after rotating or replacing tires.



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FIGURE 4.6 A clear plastic valve-stem tire-pressure monitoring sensor, showing the round battery on the right and the electronic sensor and transistor circuits on the left.



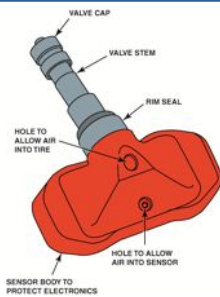
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FIGURE 4.7 A conventional valve stem is on the right compared with a rubber TPMS sensor stem on the left. Notice the tapered and larger brass stem.



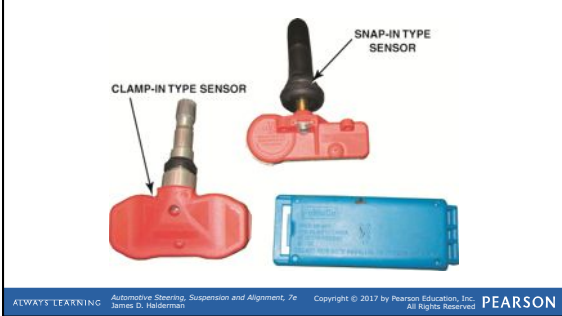
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FIGURE 4.8 The parts of a typical clamp-in TPMS sensor. Notice the small hole used to monitor the inflation pressure. The use of stop leak can easily clog this small hole.



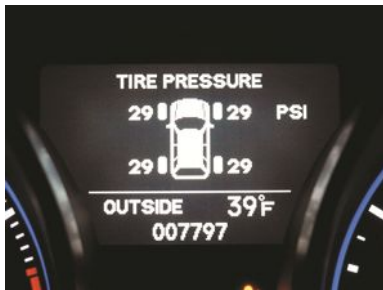
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FIGURE 4.9 The three types of TPMS sensors most commonly found include the two stem-mounted rubber (snap-in) and aluminum (clamp-in), left and top, and the banded sensors (right).



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FIGURE 4.10 Some vehicles display the actual measured tire pressure for each tire on a driver information display.



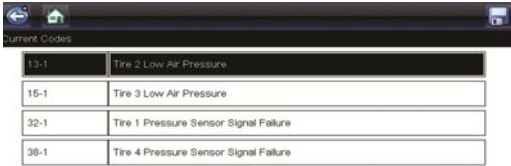
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FIGURE 4.11 The TPMS warning lamp on this vehicle is a separate light from the tire icon light that warns of low tire pressure. In this case, both warning lights were on all of the time.



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FIGURE 4.12 The codes set were for low pressure and sensor signal failure.



Current Codes	
13-1	Tire 2 Low Air Pressure
15-1	Tire 3 Low Air Pressure
32-1	Tire 1 Pressure Sensor Signal Failure
38-1	Tire 4 Pressure Sensor Signal Failure

FIGURE 4.13 A typical tire-pressure monitoring system tester.



FIGURE 4.14 A tire-pressure warning light can vary depending on the vehicle, but includes a tire symbol.

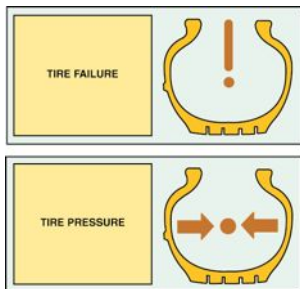
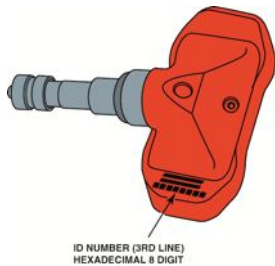


FIGURE 4.15 A magnet is placed around the valve stem to reprogram some stem-mounted tire-pressure sensors.



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FIGURE 4.16 When replacing a TPMS sensor, be sure to record the sensor ID because this needs to be entered into the system through the use of a tester or scan tool.



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FIGURE 4.17 The sensor relearn procedure is performed in the following order after the system has been placed in learn mode: LF, RF, RR, and then LR.



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FIGURE 4.18 Always use an accurate, known-good tire-pressure gauge. Digital gauges are usually more accurate than mechanical gauges.



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FIGURE 4.19 A clicker-type valve core tool ensures that the valve core is tightened to factory specifications.



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FIGURE 4.20 An assortment of service parts that include all of the parts needed to service a stem-mounted TPMS sensor being installed after removal for a tire replacement or repair.



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