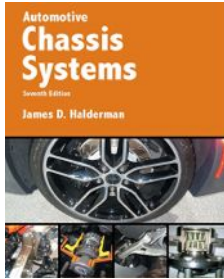


Automotive Chassis Systems



CHAPTER 22

Tire-Pressure Monitoring Systems

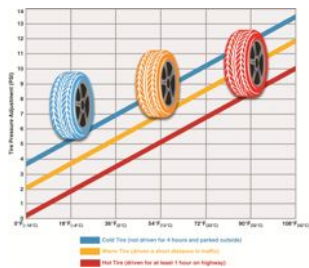
ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.1 The tire-pressure placard (sticker) on the driver's side door or door jamb indicates the specified tire pressure.



ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.2 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.



ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.3 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.

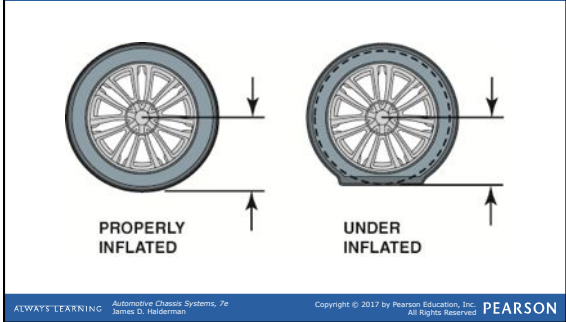


FIGURE 22.4 The speeds of the diagonally opposed wheels are added together and then compared to the other two wheels to check if one tire is rotating faster.

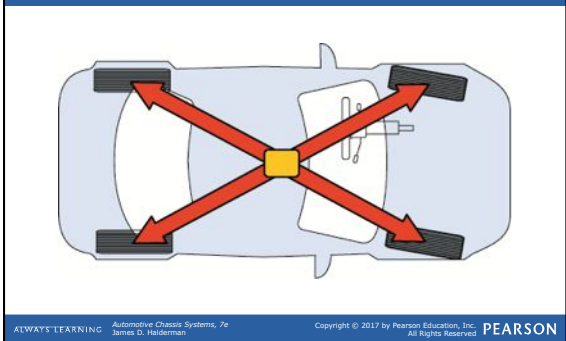


FIGURE 22.5 The indirect tire-pressure monitoring system has a reset switch that should be depressed after rotating or replacing tires.

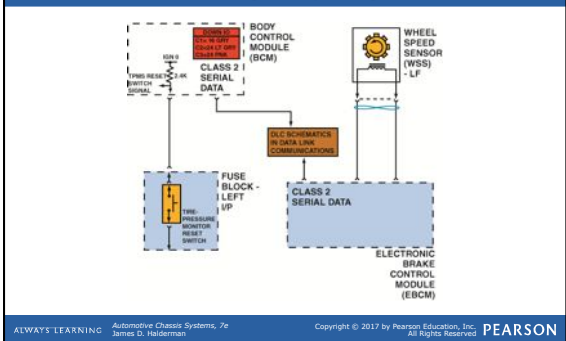


FIGURE 22.6 A clear plastic valve-stem tire-pressure monitoring sensor, showing the round battery on the right and the electronic sensor and transistor circuits on the left.



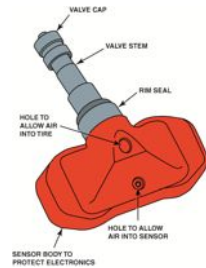
ALWAYS LEARNING Automotive Chassis Systems, 7e James D. Halderman Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.7 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.



ALWAYS LEARNING Automotive Chassis Systems, 7e James D. Halderman Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.8 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.



ALWAYS LEARNING Automotive Chassis Systems, 7e James D. Halderman Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.9 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).

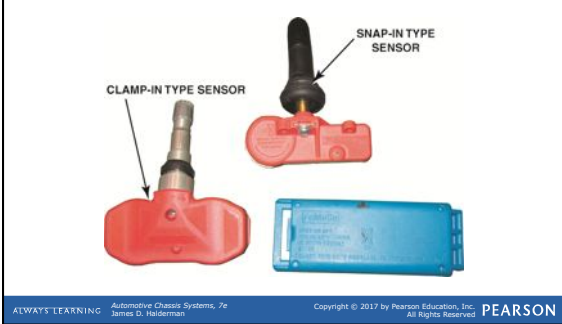


FIGURE 22.10 Some vehicles display the actual measured tire pressure for each tire on a driver information display.

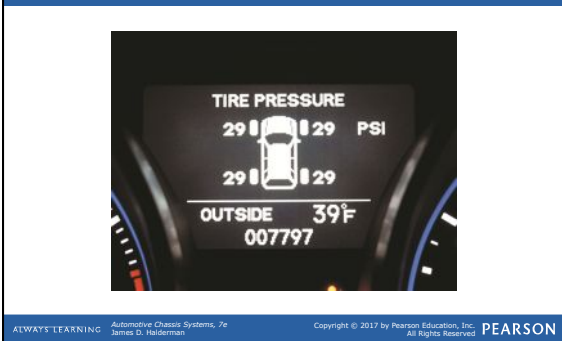


FIGURE 22.11 The TPMS warning lamp on this vehicle is a separate light from the tire icon light that warns of low tire pressure. In this case, both warning lights were on all of the time.

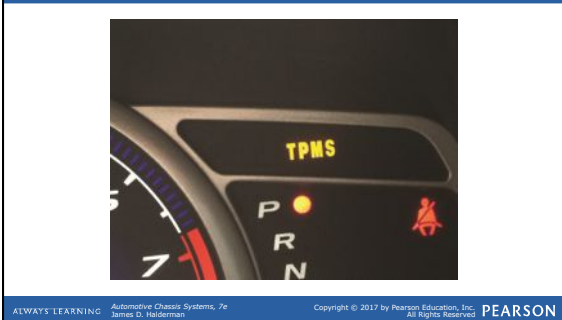
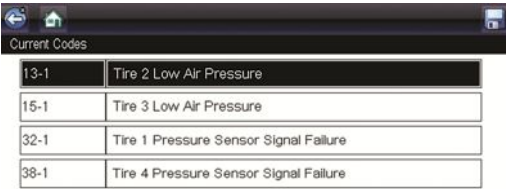


FIGURE 22.12 The codes set were for low pressure and sensor signal failure.



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

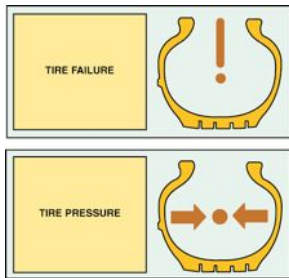
ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.13 A typical tire-pressure monitoring system tester.



ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.14 A tire-pressure warning light can vary depending on the vehicle, but includes a tire symbol.



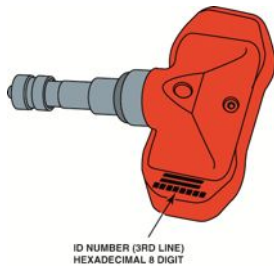
ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.15 A magnet is placed around the valve stem to reprogram some stem-mounted tire-pressure sensors.



ALWAYS LEARNING Automotive Chassis Systems, 7e James D. Halderman Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.16 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.



ALWAYS LEARNING Automotive Chassis Systems, 7e James D. Halderman Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.17 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.



ALWAYS LEARNING Automotive Chassis Systems, 7e James D. Halderman Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.18 Always use an accurate, known-good tire-pressure gauge. Digital gauges are usually more accurate than mechanical gauges.



ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.19 A clicker-type valve core tool ensures that the valve core is tightened to factory specifications.



ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON

FIGURE 22.20 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.



ALWAYS LEARNING Automotive Chassis Systems, 7e Copyright © 2017 by Pearson Education, Inc. All Rights Reserved. PEARSON
