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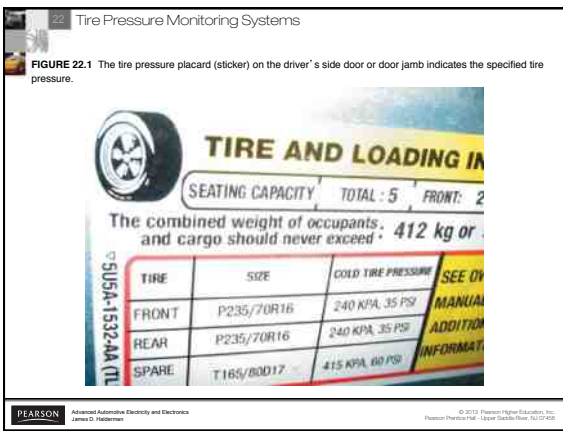
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**FIGURE 22.1** The tire pressure placard (sticker) on the driver's side door or door jamb indicates the specified tire pressure.

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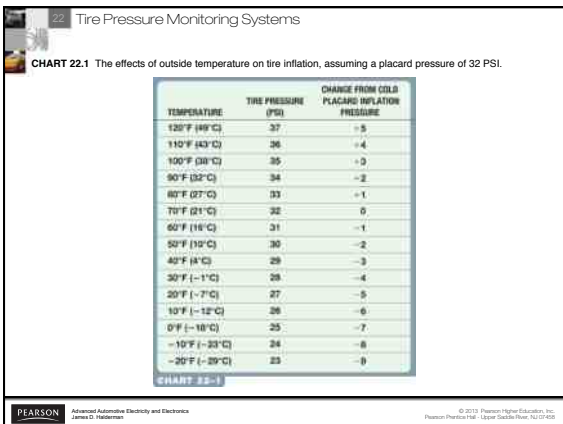
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**CHART 22.1** The effects of outside temperature on tire inflation, assuming a placard pressure of 32 PSI.

TEMPERATURE	TIRE PRESSURE (PSI)	CHANGE FROM COLD PLACARD INFLATION PRESSURE
120°F (49°C)	37	+5
110°F (43°C)	36	+4
100°F (38°C)	35	+3
90°F (32°C)	34	+2
80°F (27°C)	33	+1
70°F (21°C)	32	0
60°F (16°C)	31	-1
50°F (10°C)	30	-2
40°F (4°C)	29	-3
30°F (-1°C)	28	-4
20°F (-7°C)	27	-5
10°F (-12°C)	26	-6
0°F (-18°C)	25	-7
-10°F (-23°C)	24	-8
-20°F (-29°C)	23	-9

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22 Tire Pressure Monitoring Systems

**TECH TIP**

**Use TPMS-Friendly Replacement Tires**

Some replacement tires use steel body plies and could therefore block the low-level radio frequency signal sent from the tire-pressure sensor. Before installing replacement tires, check that the tires are safe and recommended for use on vehicles equipped with a direct-type tire-pressure monitoring system.

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22 Tire Pressure Monitoring Systems

**TECH TIP**

**Check the TPMS Sensors Before and After Service**

It is wise to check that all of the tire-pressure monitoring system sensors are working before beginning service work. For example, if the tires need to be rotated, the sensors will have to be reprogrammed for their new location. If a tire-pressure monitoring sensor is defective, the procedure cannot be performed. Use an aftermarket or original equipment tire-pressure monitoring sensor tester, as shown in **FIGURE 22-8**. Then the tire-pressure sensors should be checked again after the service to make sure that they are working correctly before returning the vehicle to the customer.

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22 Tire Pressure Monitoring Systems

**FIGURE 22.8** A typical tire-pressure monitoring system tester. The unit should be held near the tire and opposite the valve stem if equipped with a wheel-mounted sensor, and near the valve stem if equipped with a valve-stem-type sensor.



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22 Tire Pressure Monitoring Systems

**FREQUENTLY ASKED QUESTION**

**Does a TPMS Sensor Work before Being Installed?**

No. New tire-pressure warning sensors (transmitters) are shipped in **storage mode**. This mode prevents the battery from becoming discharged while in storage. When the transmitter is installed in a wheel/tire assembly and the tire is inflated to more than 14 PSI (97 kPa), the transmitter automatically cancels storage mode. Once a transmitter has canceled storage mode, it cannot enter this mode again. Therefore, once a sensor has been installed and the tire inflated above 14 PSI, the clock is ticking on battery life.

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22 Tire Pressure Monitoring Systems

**FIGURE 22.9** Some vehicles display the actual measured tire pressure for each tire on a driver information display.

The image shows a digital display with the text 'TIRE PRESSURE' at the top. Below it, a car icon is centered, with '29 PSI' on either side. Underneath the car icon, '29' is shown for each of the four tire positions. At the bottom of the display, it reads 'OUTSIDE 39°F' and '007797'.

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22 Tire Pressure Monitoring Systems

**TECH TIP**

**Check the Spare Tire**

Many vehicles equipped with a full-size spare tire also have a TPMS sensor. If the inflation pressure decreases enough, the system will trigger the TPMS warning light. This is confusing to many vehicle owners who have checked all four tires and found them to be properly inflated. This fault often occurs during cold weather when the tire inflation pressure drops due to the temperature change. Most 2008 and newer vehicles equipped with a full size spare tire will come equipped with a TPMS sensor in the spare.

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22 Tire Pressure Monitoring Systems

**NOTE:** Some systems will trigger the TPMS warning light if a tire is overinflated. An overinflated tire is also a safety-related problem.

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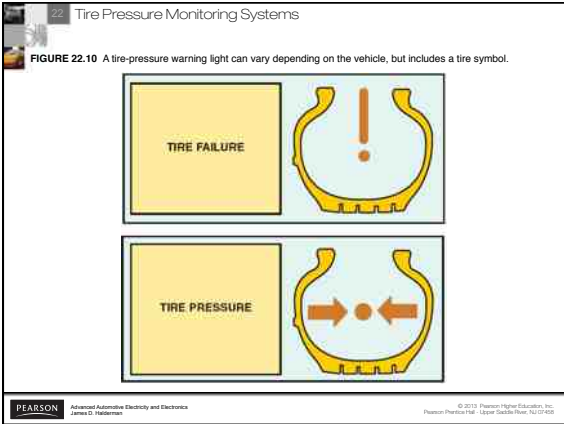
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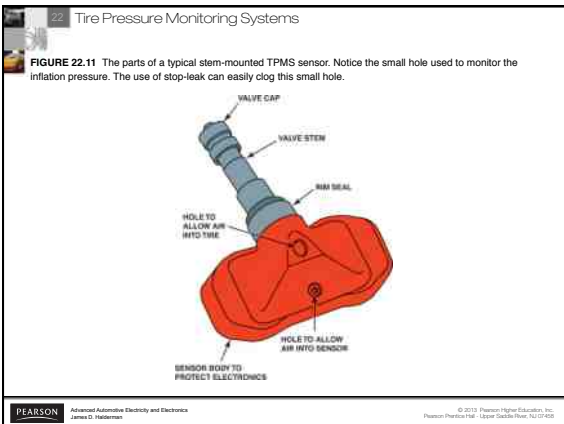
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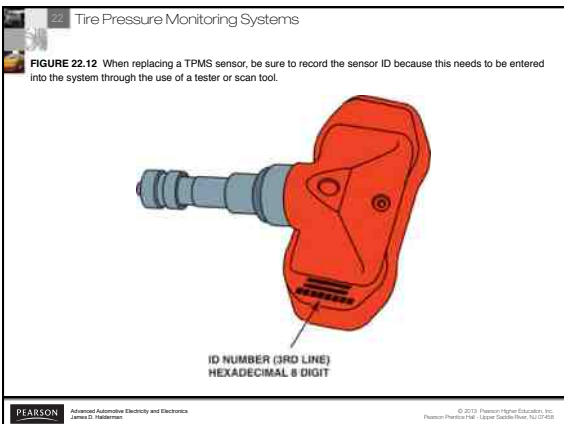
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22 Tire Pressure Monitoring Systems

**FIGURE 22.15** A clicker-type valve core tool ensures that the valve core is tightened to factory specifications.



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22 Tire Pressure Monitoring Systems

**TECH TIP**

**All TPMS Sensors Will Fail**

All TPMS pressure sensors will fail because they contain a battery that has a service life of 7 to 10 years. What does this mean to the service technician? This means that if new tires are being installed on a 5- or 6-year-old vehicle equipped with tire-pressure sensors, then the customer should be notified that the TPMS sensors could fail almost anytime.

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22 Tire Pressure Monitoring Systems

**FREQUENTLY ASKED QUESTION**

**Can TPMS sensors be switched to new wheels?**

Maybe. It depends on the style of the new or replacement wheels as to whether the sensors will fit or not. Some vehicles are designed to allow for a second set of sensors such as for winter tires. Many Lexus vehicles can be programmed to use set #1 or set #2. It is best to check before purchasing new wheels. Another set of TPMS sensors could be a major added expense.

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22 Tire Pressure Monitoring Systems

**FIGURE 22.16** 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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