

# Automotive Chassis Systems

## CHAPTER 18

### ABS Diagnosis and Service

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**FIGURE 18.1** On most vehicles equipped with ABS, the ABS and the BRAKE warning lamp should come on as a bulb check when the ignition is first switched on.

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**FIGURE 18.2** An amber ABS.

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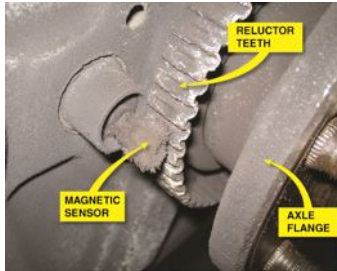
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**FIGURE 18.3** A visual inspection of the wheel speed sensor on this older vehicle showed metal "fuzz" had been attracted to the magnetic sensor.



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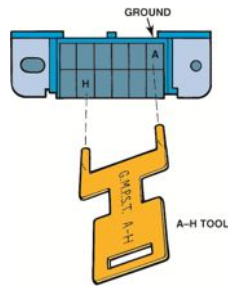
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**FIGURE 18.4** General Motors diagnostic connector. Flash codes are available by using a jumper wire to ground (terminal A) to terminal H.



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**FIGURE 18.5** A breakout box is being used to diagnose an ABS problem.



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**FIGURE 18.6** A Tech 2 scan tool being used to diagnose an ABS problem on a General Motors' vehicle.



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**FIGURE 18.7** A Bluetooth adapter that plugs into the DLC and transmits global OBD-II information to a smart phone that has a scan tool app installed.



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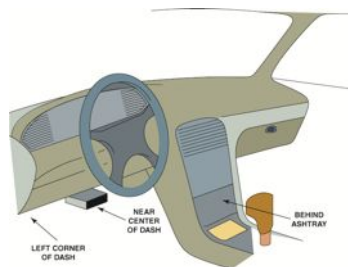
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**FIGURE 18.8** The data link connector (DLC) can be located in various locations.



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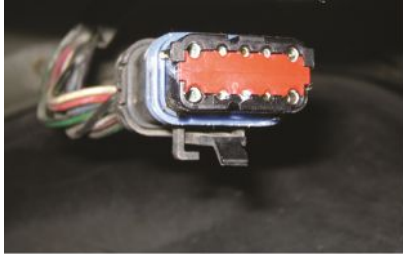
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**FIGURE 18.9A** This corroded electrical connector to the ABS hydraulic control module helped explain why there were many stored diagnostic trouble codes (DTCs).



(a)

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**FIGURE 18.9B** The male terminals also showed signs of corrosion inside this connector.



(b)

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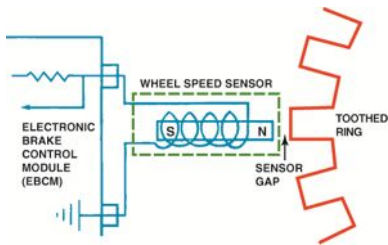
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**FIGURE 18.10** Typical wheel speed sensor. When a tooth on the sensor ring is close to the sensor, the strength of the magnetic field is stronger because the metal of the tooth conducts magnetic lines of force better than air.




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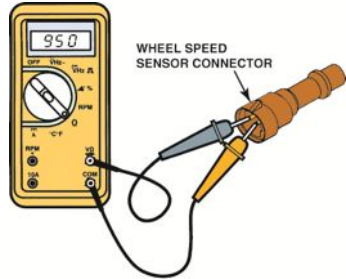
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**FIGURE 18.11** Measuring the resistance of a wheel speed sensor.



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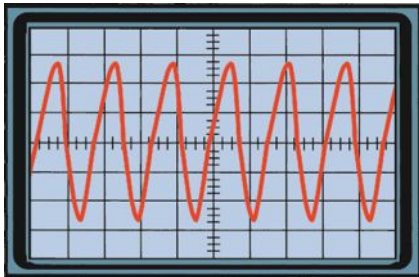
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**FIGURE 18.12** A scope can be used to check for proper operation of a wheel speed sensor.



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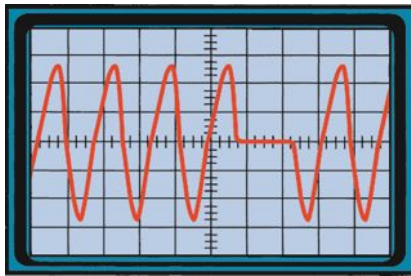
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**FIGURE 18.13** A broken tooth on a wheel speed sensor tone ring shows on the scope trace as a missing wave.



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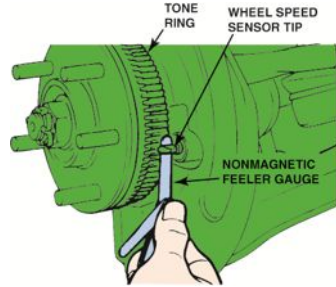
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**FIGURE 18.14** Use a nonmagnetic brass or plastic feeler gauge to check wheel speed sensor gap.



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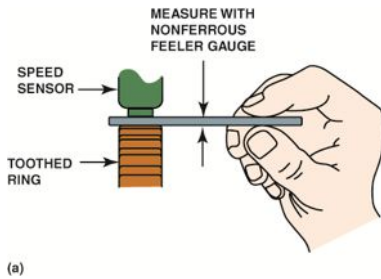
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**FIGURE 18.15A** Always use a nonferrous (brass or plastic) feeler (thickness) gauge when measuring the gap between the toothed ring and the wheel speed sensor.



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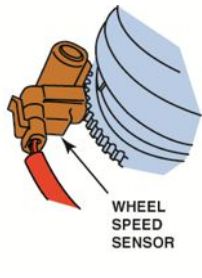
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**FIGURE 18.15B** Sometimes a sensor is equipped with a paper spacer that is the exact thickness of the spacing required between the toothed ring and the sensor.



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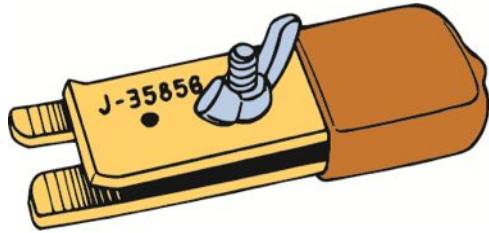
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**FIGURE 18.16** Special bleed valve tools are often required when bleeding some ABS units such as the Kelsey-Hayes 4WAL system.



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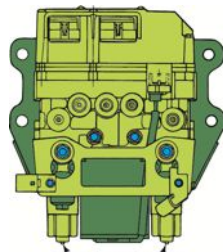
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**FIGURE 18.17** Two bleed valve tools are needed to bleed the Kelsey-Hayes 4WAL system, which attaches to the bleeder valves on the accumulator.



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