

chapter 39
Ignition System

FIGURE 39.3 The firing order is cast or stamped on the intake manifold on most engines that have a distributor ignition.



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FIGURE 39.4 A Ford V-6 engine that uses a waste-sparktype ignition system. Note that each of the three coils has two spark plug wires. Both the cylinders fire at the same time.



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FIGURE 39.5 An overhead camshaft engine equipped with variable valve timing on both the intake and exhaust camshafts and the coil-on-plug ignition.



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FIGURE 39.6 This General Motors V-8 engine is equipped with a coil-near-plug ignition. Each cylinder has a coil and uses a short spark plug wire from the coil to the spark plug.



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FIGURE 39.7 A spark tester looks like a regular spark plug with an alligator clip attached to the shell. This tester has a specified gap that requires at least 25,000 volts (25 kV) to fire.



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FIGURE 39.8 A close-up showing the recessed center electrode on a spark tester. It is recessed 3/8 in. into the shell and the spark must then jump another 3/8 in. to the shell for a total gap of 3/4 in.



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FIGURE 39.9 Spark plug wires carry high-voltage pulses from the ignition coil or distributor to the spark plugs. Always take the time to install spark plug wires back into the original holding brackets (wiring combs).



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FIGURE 39.10 Spark plug wire boot pliers are a handy addition to any tool box.



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FIGURE 39.11 This spark plug boot on an overhead camshaft engine has been arcing to the valve cover causing a misfire to occur.



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FIGURE 39.12 Measuring the resistance of a spark plug wire with a multimeter set to the ohms position. The reading of 16.03 k Ω (16,030 ohms) is okay because the wire is about 2-ft long. Maximum allowable resistance for a spark plug wire this long would be 20 k Ω (20,000 ohms).



FIGURE 39.13 Parts of a spark plug.

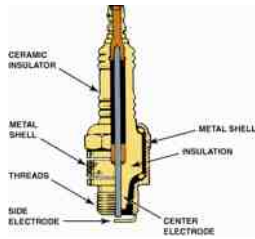


FIGURE 39.14 When removing spark plugs, it is wise to arrange them so that they can be compared and any problem can be identified with a particular cylinder.



FIGURE 39.15 A spark plug thread chaser is a low-cost tool that hopefully will not be used often, but is necessary in order to clean the threads before installing new spark plugs.