


30 IGNITION SYSTEM

FIGURE 30.3 The firing order is cast or stamped on the intake manifold on most engines that have a distributor ignition.



PEARSON Introduction to Automotive Service
James Halderman, David Dwyer © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.4 A Ford V-6 engine that uses a waste-spark-type ignition system. Note that each of the three coils has two spark plug wires. Both the cylinders fire at the same time.



PEARSON Introduction to Automotive Service
James Halderman, David Dwyer © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.5 An overhead camshaft engine equipped with variable valve timing on both the intake and exhaust camshafts and the coil-on-plug ignition.



PEARSON Introduction to Automotive Service
James Halderman, David Dwyer © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.6 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.



PEARSON Introduction to Automotive Service
James Halderman, Darrell Duster

© 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.7 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.




PEARSON Introduction to Automotive Service
James Halderman, Darrell Duster

© 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.8 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.



PEARSON Introduction to Automotive Service
James Halderman, Darrell Duster

© 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.9 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).



PEARSON Introduction to Automotive Service
James Halderman, Darrell Dastler © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.10 Spark plug wire boot pliers are a handy addition to any tool box.



PEARSON Introduction to Automotive Service
James Halderman, Darrell Dastler © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.11 This spark plug boot on an overhead camshaft engine has been arcing to the valve cover causing a misfire to occur.



PEARSON Introduction to Automotive Service
James Halderman, Darrell Dastler © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

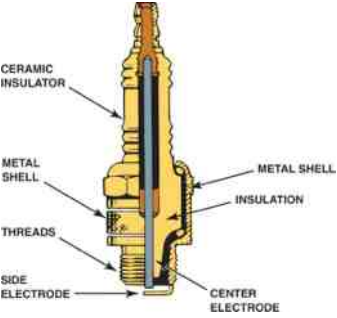
FIGURE 30.12 Measuring the resistance of a spark plug wire with a multimeter set to the ohms position. The reading of 16.03 kΩ (16,030 ohms) is okay because the wire is about 2-ft long. Maximum allowable resistance for a spark plug wire this long would be 20 kΩ (20,000 ohms).



PEARSON Introduction to Automotive Service
James Halderman, David Duster © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM


FIGURE 30.13 Parts of a spark plug.



PEARSON Introduction to Automotive Service
James Halderman, David Duster © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.14 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.



PEARSON Introduction to Automotive Service
James Halderman, David Duster © 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall - Upper Saddle River, NJ 07458

30 IGNITION SYSTEM

FIGURE 30.15 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.



PEARSON

Introduction to Automotive Service
James Hallmark, General Editor

© 2013 Pearson Higher Education, Inc.
Pearson Prentice Hall, Upper Saddle River, NJ 07458
