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Halderman newsletter

August 2017

What's new with Jim?

It seems as everyone is either thinking about or getting things ready for the start of classes in the next few weeks. Here is what I am doing to help:

- My webmaster has been busy making sure that all of the task sheets and other resources for all of the Pearson automotive textbooks are up-to-date and ready to go.
- My team has been updating the video links and replacing any of them have broken links so that instructors can have full access to the over 2,000 videos all sorted by chapter in Halderman books or by NATEF task.
- Animations have been created for most chapters including the new Light Vehicle Diesel Engine textbook due out early 2018.

Enjoy the rest of your summer vacation and best wishes to everyone for a great school year.

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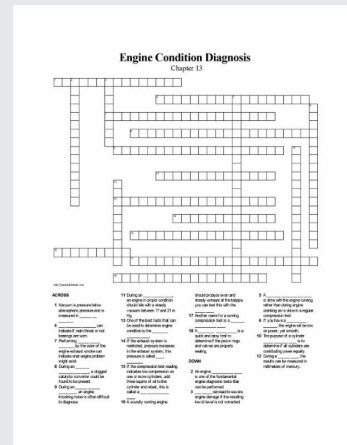
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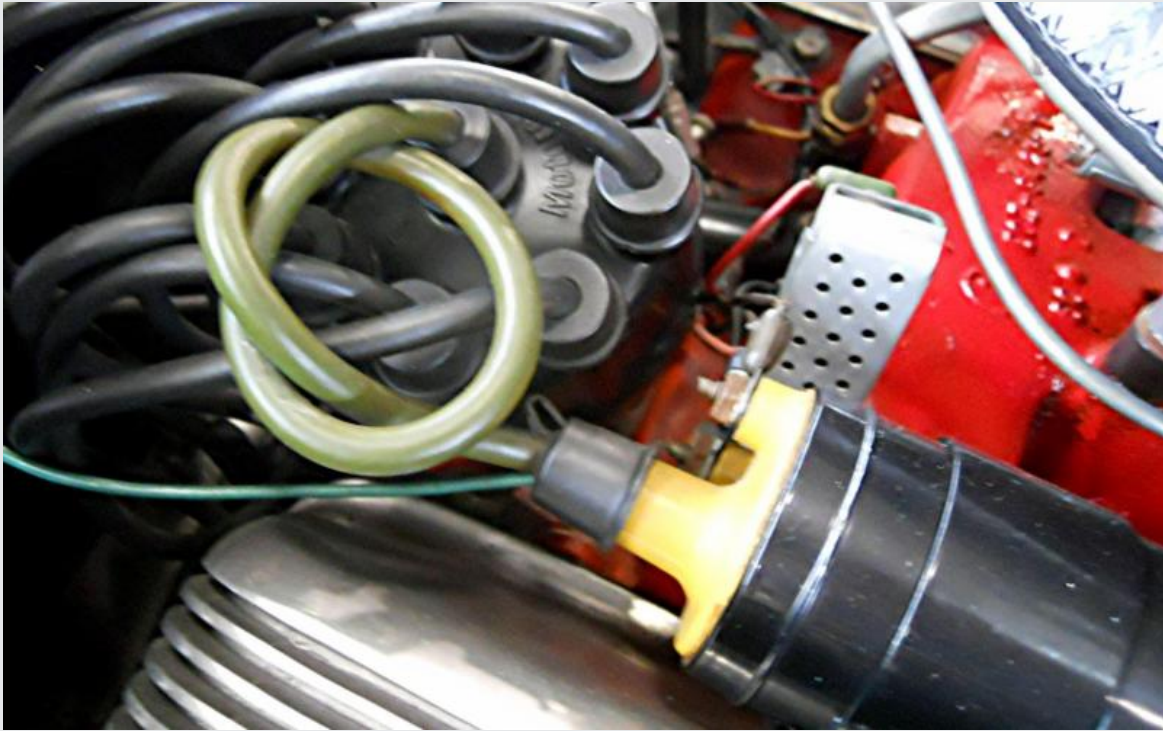
Puzzle of the month

Find this month's puzzle of the month at this [link](#) and test your students knowledge on engine performance (A8).



Auto Trivia

At car shows, some engines equipped with a distributor ignition can be seen with the solid core coil wire tied in a knot. Why?



- a. To reverse the polarity of the spark
- b. To reduce radio interference
- c. To reduce electrical resistance in the wire
- d. To reduce the secondary impedance

Answer at the bottom of this page!

FAQ

What are the various names used for Variable Valve Timing systems?

- * BMW-VANOS (Variable Nockenwellen Steuerung)
- * Ford-VVT (Variable Valve Timing)
- * GM-DCVCP (Double Continuous Variable Cam Phasing), if used for both intake and exhaust camshafts
- * Honda-VTEC (Variable valve Timing and lift Electronic Control)
- * Hyundai -MPI CVVT (Multiport Injection Continuously Variable Valve Timing)
- * Mazda- S-VT (Sequential Valve Timing)
- * Mitsubishi -MIVECC (Mitsubishi Innovative Valve timing Electronic Control system)
- * Nissan -N-VCTT (Nissan Variable Control Timing)
- * Nissan -VVL (Variable Valve Lift)
- * Porsche -Variocam (Variable camshaft timing)
- * Suzuki -VVT (Variable Valve Timing)
- * Subaru -AVCS (Active Valve Control System)
- * Toyota -VVT-i (Variable Valve Timing-intelligent)
- * Toyota -VVTL-i (Variable Valve Timing and Lift- intelligent)
- * Volkswagen -VVT (Variable Valve Timing)
- * Volvo -VVT (Variable Valve Timing)

Sample ASE certification-type question

Question:

Which is the least likely to cause a weak spark at the spark plug?

- a. A partially shorted primary winding in the ignition coil
- b. A 12.2-volt battery voltage
- c. A high resistance spark plug wire(s)

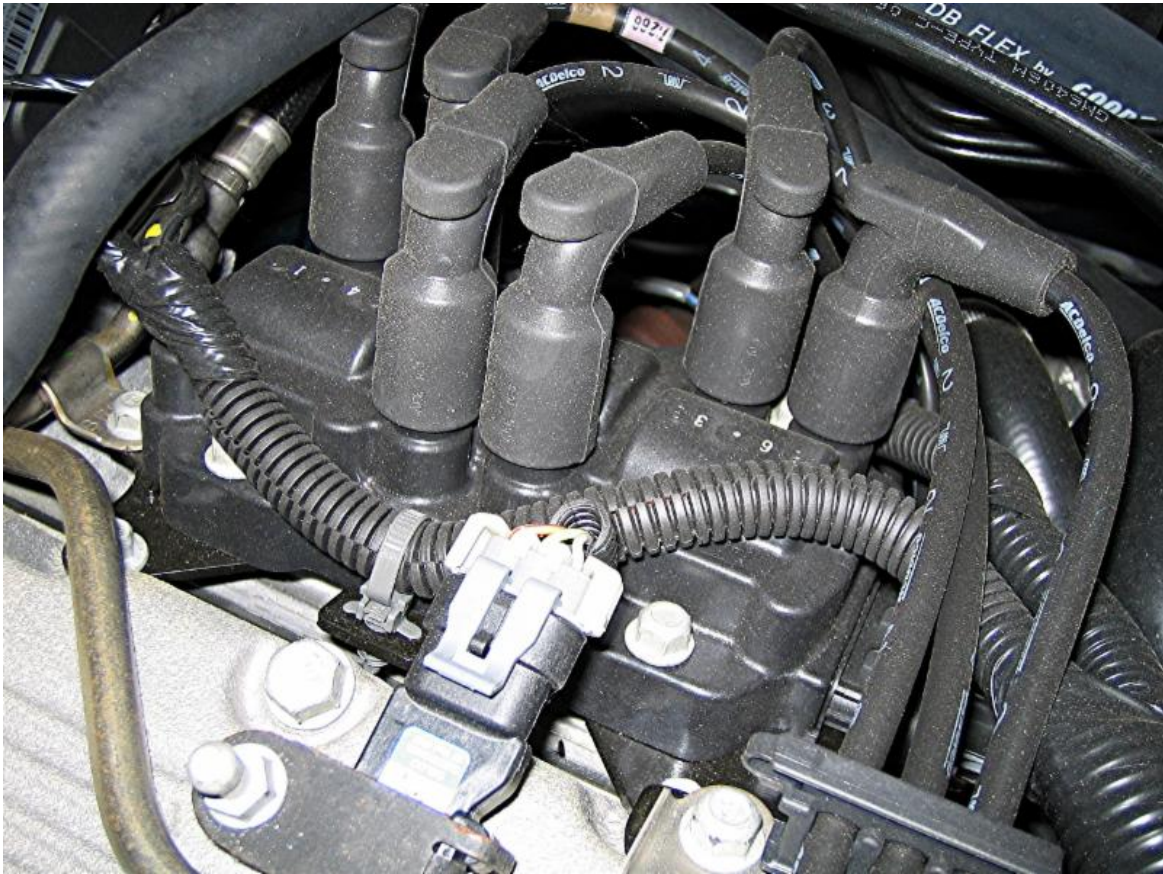
d. A voltage drop across the ignition switch

Answer/Explanation

The correct answer is b. The least likely cause of a weak spark is a battery voltage of 12.2 volts. Even though a battery voltage is less than normal, it could be enough to allow the ignition coil(s) to become fully saturated and provide the correct spark to the spark plugs. Answer a is not correct because a partially shorted primary winding of the ignition coil could cause a weak spark and the question asks for which is the least likely to cause a weak spark. Answer c is not correct because a spark plug wire with high resistance could cause a weak spark. Answer d is not correct because a voltage drop across the ignition switch would reduce the current flow to the coil which could cause a weak spark.

Tech Tip

Odds fire straight



Waste-spark ignition systems fire two spark plugs at the same time. Most vehicle manufacturers use a waste-spark system that fires the odd-numbered cylinders (1, 3, and 5) by straight polarity (current flow from the top of the spark plug through the gap and to the ground electrode). The even-numbered cylinders (2, 4, and 6) are fired reverse polarity, meaning that the spark jumps from the side electrode to the center electrode. Some vehicle manufacturers equip their vehicles with platinum plugs with the expansive platinum alloy only on one electrode as follows:

* On odd-numbered cylinders (1, 3, 5), the platinum is on the center electrode.

* On even-numbered cylinders (2, 4, 6), the platinum is on the ground electrode.

Replacement spark plugs use platinum on both electrodes (double platinum) and can, therefore, be placed in any cylinder location.

Straight Talk

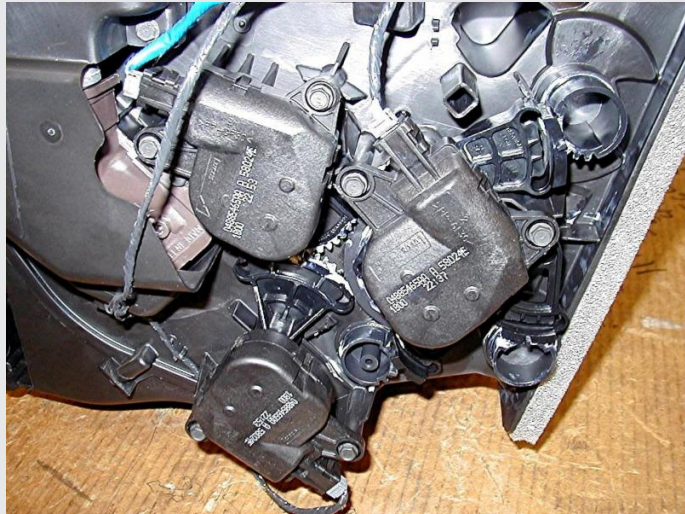
From the July 29, Wheels section of Dayton Daily News

The case of the hot air conditioner

Wheels:

Ken writes by email:

"I hope you can give me a hint as to what is wrong with my 2007 Buick LeSabre. Anytime I try to operate the heater, the air-conditioning compressor runs no matter what settings I use on the climate control system. A small amount of slightly warm air comes out of one of the under-dash outlets, and very cold air comes from the other. The passenger's control has no effect whatsoever. I disconnected the air-conditioning compressor, which results in very little change. Engine temperature is normal. I have heard that an electronic module controls this function. If this is true, I would like to know which one and where it is located."



Halderman:

From your description, I think that the blend door motor is no longer working. The door is stuck in one position. The control head could be the problem as well causing the door not being commanded to move. If it is an auto climate control, hooking a scan tool should show some codes or some data on the HVAC system. The air conditioning compressor typically runs all the time anyway if it is auto climate. When very cold outside, a sensor will keep the compressor from running until the engine gets to a certain temperature. If the air does not come out the right vents, then my guess would be a control head problem. Because this diagnosis and repair is complex, I suggest that you ask a professional service technician to check this for you to help avoid replacing unnecessary parts.

Have an automotive question? Please write to Jim with your questions at jim@jameshalderman.com

Trivia question answer: B.

Please let me know what you think of the newsletter. I would love to include any of your automotive news, trivia questions or any tech tips you might have. Send me your suggestions!

You can email me [here](#) or visit [my website](#). You can connect with me on Facebook, Twitter and LinkedIn too (links above).

Regards,

Jim Halderman

James D. Halderman writes automotive technology textbooks for [Pearson Education](#). He is an ASE-certified Master Technician with more than 20 years instructional experience.