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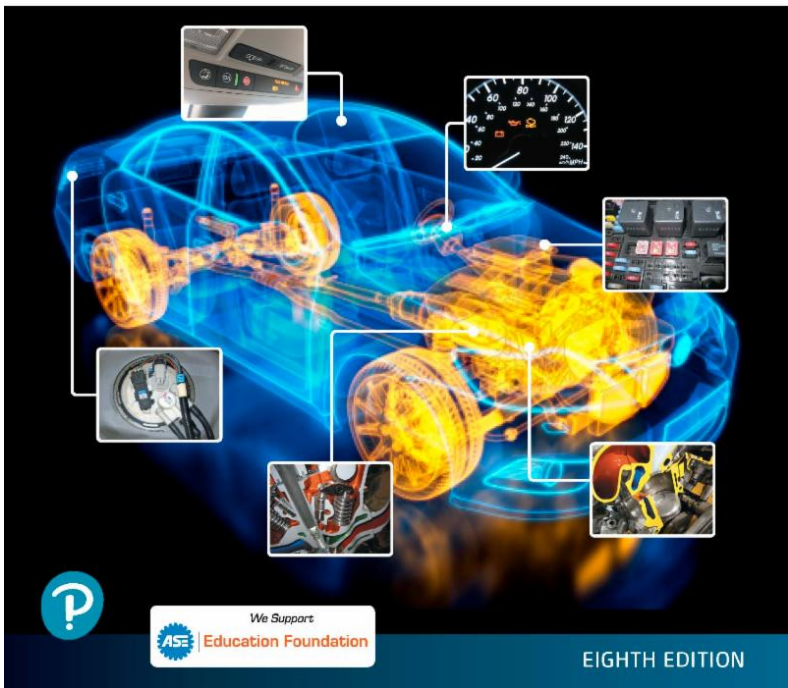
Halderman newsletter

March 2019

What's new with Jim?

# Automotive Electrical and Engine Performance

JAMES D. HALDERMAN



I am pleased to announce that the newest edition of one of my best-selling books covering both Automotive Electrical Systems (A6) plus Automotive Engine Performance (A8) will be available soon in time for fall semester classes. Update to the new eighth edition includes:

- Over 75 new full color line drawings and photos have been added to the new edition to help bring the subject to life.
- Updated throughout and correlated to the latest ASE tasks.
- The number of chapters has increased from 43 to 46 chapters by splitting up larger chapters and placing the content into shorter more concise chapters.
- A new chapter on Safety, Comfort and Convenience Accessories (Chapter 23) has been added.
- A new chapter called Air Management Systems (Chapter 24) has been added.

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## Where's Jim?

**March 1-3** - Vision Expo- Kansas City

**March 7-8** - ICAIA at SIU (Curt Ward and I will be presenting "Teaching Advanced Engine Performance")

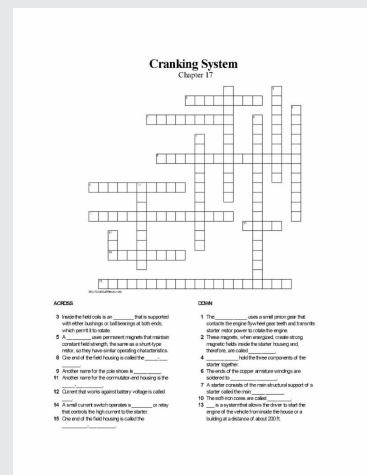
**March 14** - MATA at Lansing Community College

**March 22-24** - Attending the ATE event in Seattle

Keep up with me at:  
[www.jameshalderman.com](http://www.jameshalderman.com)  
Email Jim  
Facebook

## Puzzle of the month

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



- Immobilizer Systems (Chapter 25) has been added to the new edition.
- The ignition system chapter was split into two shorter chapters (Chapters 29 and 30) to make teaching and learning this topic easier.
- The new Tier 3 emission standards have been added (Chapter 41)

## Behind the Scenes

With each new edition is updated with new main headings, called H1 headings in publisher talk, and the subheadings, referred to as H2 headings. Using major and subheadings throughout a text helps the reader see exactly where to find what is needed without having to search through paragraphs of straight text to find what they need to know. When looking at textbooks to adopt for your classes, look for textbooks that use clearly marked H1 and H2 headings. The text as submitted looks like this:

### **/H1/MODULE COMMUNICATIONS AND NETWORKS**

#### **/H2/Need for Network**

Since the 1990s, vehicles have used modules to control the operation of most electrical components. A typical vehicle will have 10 or more modules and they communicate with each other over data lines or hard wiring, depending on the application.

#### **/H2/ Advantages**

Most modules are connected together in a network because of the following advantages:

- A decreased number of wires are needed, thereby saving weight and cost, as well as helping with installation at the factory and decreased complexity, making servicing easier.
- Common sensor data can be shared with those modules that may need the information, such as vehicle speed, outside air temperature, and engine coolant temperature.

## MODULE COMMUNICATIONS AND NETWORKS

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● **SEE FIGURE 14-1.**

## Auto Trivia



- This a \_\_\_\_\_
- a. 1956 Dodge
  - b. 1954 DeSoto
  - c. 1955 Chrysler
  - d. 1953 Plymouth

**Answer at the bottom of this page!**

## FAQ

### Why Is There a Ground Strap on My Exhaust System?

The ground strap is only there to dissipate static electricity. Static electricity is created when the flow of the exhaust gases travels through the system. Using a ground strap connected to the exhaust system helps prevent the static charge from building up which could cause a spark to jump to the body or frame of the vehicle. The exhaust is insulated electrically from the rest of the vehicle by rubber hangers and gaskets at the exhaust manifold thereby causing the entire exhaust system to be electrically isolated from chassis ground. If a vehicle is equipped with a ground strap, be sure that it is connected at both ends to help ensure long exhaust system life. If static electricity is allowed to discharge from the exhaust system to the body or frame of the vehicle, the resulting arcing points can cause rust or corrosion thereby shortening the life of the exhaust system. If a new exhaust system is installed, be sure to reattach the ground strap. Most vehicles also use a ground strap connected to the fuel filler tube for the same reason.

## Sample ASE certification-type question

### Question:

An alternator is producing lower than the specified charging voltage. Which is the least likely cause?

- a. The battery is weak or defective
- b. The engine speed is not high enough during testing
- c. The drive belt is loose or slipping
- d. Cold outside temperature

### Answer/ explanation

The correct answer is d. Cold outside temperature is unlikely to cause an alternator to produce a lower than specified charging voltage and is likely to cause the voltage to be higher due to the temperature compensation factor built into the electronic voltage regulator or PCM software. Answer a (defective battery) is not correct because it can cause a lower than normal charging voltage because the battery could be draining all of the output attempting to achieve a full-charge state. Answer b is not correct because a low engine speed could reduce the charging voltage. Answer c is not correct because a slipping or loose drive belt could decrease the charging voltage, especially at higher engine speeds.

## Tech Tip

### Check for Repainted Bumper

The ultrasonic sensors embedded in the bumper are sensitive to paint thickness because the paint covers the sensors. If the system does not seem to be responding to objects, and if the bumper has been repainted, measure the paint thickness using a nonferrous paint thickness gauge. The maximum allowable paint thickness is 6 mils (0.006 inch or 0.15 millimeter).



## Straight Talk

From the February 23 Wheels section of Dayton Daily News

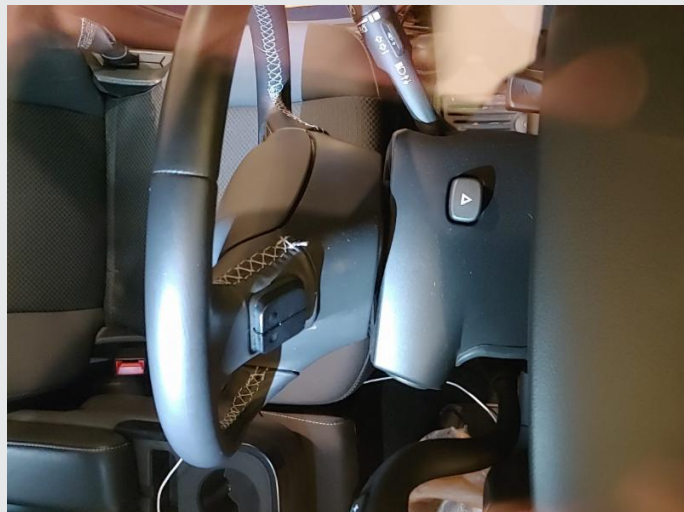
### Reader Asks About a "Crooked" Steering Wheel

Carl B. writes by email:

"I am leasing a 2015 Chevrolet Silverado pickup truck and I love it. Then last week a passenger noticed that my steering wheel appeared to be crooked. When looking at it, I realized that he was right and that the steering column appears to be angled toward the driver's door. I thought it was just the way the passenger was looking at it, but now I am truly convinced that it is indeed angled or crooked. If I look down at the front of the seat from above, the bottom of the steering wheel doesn't line up straight. Is this in the design, or do I need to get it back to the dealer and get it addressed? "

**Halderman:**

This is normal and you didn't notice it yourself until someone pointed it out to you. This has been used on Chevrolet and GMC pickup trucks for many years. It was designed this way to align the steering column with the steering gear. Being offset about 3 degrees also allows a little more room for a center passenger when the trucks were equipped with a bench seat. Most people, like you, do not notice this, but it has been corrected with the new for 2019 trucks from General Motors. When your lease is up, consider updating to the new truck and you will find that the steering wheel is now in the straight-ahead position like most other vehicles.



Have an automotive question? Please write to Jim with your questions at [jim@jameshalderman.com](mailto:jim@jameshalderman.com)

Trivia question answer: C.

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.*

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