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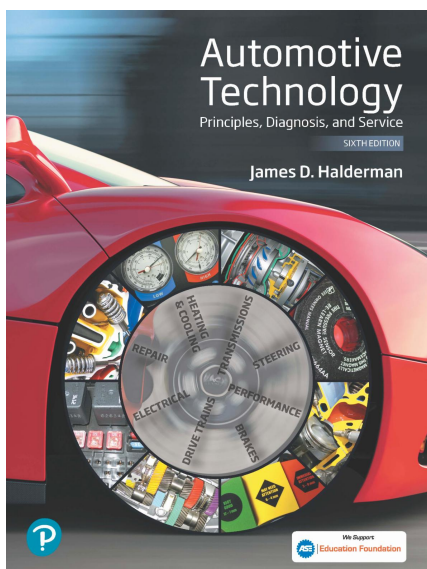
Halderman newsletter

March 2020

## What's new with Jim?

March is the time to start thinking about what textbooks to order for classes for summer or fall semester classes. Please consider the following new editions:

- Automotive Technology-6th (2020 Copyright) (covers all eight ASE contents areas A1-A8)-Order ISBN: 978-0-13-525727-2
- Automotive Electricity and Electronics-6th (2021 copyright)- Covers A6 content area). Order ISBN: 978-0-13-576442-8



Order ISBN: 978-0-13-576442-8

- Automotive Chassis Systems-8th (2021 copyright)- covers A4 (Steering and Suspension) and A5 (Brakes)- Order ISBN: 978-0-13-575857-1
- Automotive Steering, Suspension and Alignment-8th (2021 copyright)- Covers A4 ASE content area). Order ISBN: 978-0-13-567464-2

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## Where's Jim?

**March 5-8** - Attending the Vision Expo in Overland Park, KS

**March 19-20** - Presenting "Diagnosis from the Driver's Seat" at ICAIA-Rock Valley College, Rockford, IL

**March 27-29** - Attending ATE in Seattle, WA

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 light diesel.

**HALDERMAN**  
James D. Halderman

### Chapter 10

Air Induction and EGR Systems

**ACROSS**

- Includes the air filter, mass air flow/temperature sensor assembly and an air filter minder.
- Is a heat exchanger that is mounted between the turbocharger and the inlet side of the engine; sometimes referred to as the intercooler.
- Is a sensor that allows the powertrain control module (PCM) to monitor the air pressure in the intake manifold.

**DOWN**

- Is a gauge designed to show the difference between atmospheric pressure and the air pressure in the filter housing under maximum load and to alert the driver or service technician when the filter element needs to be serviced.
- Is a valve that meters the flow of non-combustible exhaust gases into the intake manifold.
- Is a condition where small dust and dirt particles enter the air induction system by bypassing the filter.



What type or types of ignition systems does this warning pertain to?

- a. Point-type
- b. Waste-Spark
- c. Electronic ignition (distributor)
- d. Any of the above

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

## FAQ

### Is torque ft-lb or lb-ft?

The definition of torque is a force (lb) applied to an object times the distance from that object (ft). Therefore, based on the definition of the term, torque should be:

- \* lb-ft (a force times a distance)
- \* newton-meter (N-m) (a force times a distance)

However, torque is commonly labeled, even on some torque wrenches, as ft-lb.

## Case Study

### The Case of the Tuner Program Gone Bad

The owner of a two-year-old Duramax complained to the dealer service department that the engine was not running smoothly and had a check engine light on. A check of the diagnostic trouble codes indicated a stored P0300 (random misfire code) DTC. The service technician verified that the engine had a noticeable misfire, plus noticed some engine noise. When one of the valve covers was removed to check for possible valve train-related issues, several bent pushrods were discovered. Because the engine was still under the factory warranty, the factory service rep was called in for help. The district rep discovered the following:

1. The PCM had been reflashed 5 times, yet the factory program was currently installed.
2. The engine had been operated up to 5,500 RPM, which is much higher than the factory programming allowed.

Based on these findings, the warranty was canceled on the engine. The customer was notified that while a hand-held tuner can be used to recalibrate the PCM to increase engine power, it does so by "taking the emissions out of compliance" and can often cause engine damage as in this case. The owner decided to have the engine repaired and left the programming of the PCM the same as when it left the factory.

Summary

\* Complaint - The owner complained of a rough running engine and the check engine light was on.

- \* Cause - The engine had been operated at a speed that was higher than it was designed to operate, which caused several pushrods to be bent.
- \* Correction - The bent pushrods were replaced, at the customer's expense, which corrected the rough running engine concern.

## Guest Expert

Does your program include instruction in the area of light duty diesel? Light duty diesel continues to be one of the fastest growing areas of the aftermarket repair industry. Students with light duty diesel skills tend to earn more than their counterparts when entering the full-time labor market. When replacing an injector on many late model light duty diesel vehicles you must program the injector code into the engine control module. Failure to complete this process may result in a rough running vehicle when the job is complete. If you would like to explore this subject further, review *Light Vehicle Diesel Engines* by James Halderman and Curt Ward (ISBN 9780134678726). Curt is a professor of Automotive Technology at Joliet Junior College. You can email Curt at [curt@curtward.net](mailto:curt@curtward.net)



**Curt Ward**  
*Automotive instructor/Author*

## Sample ASE certification-type question

### Question:

When checking the fuel of a light diesel vehicle, what color should the fuel be for diesel engines used for highway use?

- a. Purple
- b. Red
- c. Clear or amber
- d. Greenish/blue

### Answer/Explanation

*The correct answer is c.* Diesel fuel should be clear or amber in color if it is taxed for highway use. Answer a is not correct because if the fuel is dyed, this means that it is for off-highway use and purple is only used in Canada for gasoline designed for off-road use and not for diesel fuel. Answer b is not correct because if diesel fuel is dyed red, this means that it is non-taxed and should only be used for off-road. Answer d is not correct because if the fuel is dyed, this means that it is for off-highway use and while normal on-road diesel may appear to be greenish;/ blue, it is usually clear (no color) or amber in color for on highway use (taxed)



## Tech Tip

### The "Simple Green" Treatment

EGR passages and valves are often clogged with carbon on a diesel engine so that the entire assembly is often replaced instead of having a technician spend hours cleaning the part. Some shops have discovered that if the part is soaked in a container of concentrated Simple Green cleaner overnight, the part often looks like new.

According to the Safety Data Sheet (SDS), the only active ingredient is Butoxyethanol, a colorless organic liquid, which acts as the main cleaning solvent in Simple Green. The carbon is removed not by dissolving the carbon because no chemical is able to dissolve carbon. Instead, the active ingredient acts as a detergent and dispersant. A dispersant is able to break the bond that causes carbon particles to adhere to each other. There is natural tendency for "carbon to attract carbon." By causing the carbon particles to become separated, they simply become mixed with the Simple Green solution and can be disposed of down a sanitary sewer because there are no hazardous materials associated with this cleaning process.



## Reader Has a Good Option For Alcohol-Free Gasoline

### Wheels:

Kurt W, writes by email:

"I read your column on the alcohol-free gasoline for lawnmower storage. You are 100% correct. But there is another alternative ([www.pure-gas.com](http://www.pure-gas.com)), especially when the only alcohol-free gas station is 150 miles away. In the fall, I always buy 1 quart of TruFuel from my local hardware store. It comes in two types, one mixed with oil for 2-cylinder engines, and the one without oil for 4-cylinder engines. Yeah, it seems a little expensive at \$5.00 per quart, but I only need 1 quart to prep my small engines for winter storage, and it's quite convenient".

### Halderman:

Thanks for writing Kurt and you are right that this is an alternative alcohol-free gasoline, although expensive for use when storing seasonal power equipment. The Trufuel is more than just ethanol (ethyl alcohol)- free gasoline. It contains a stabilizer than helps improve the shelf-life so it can be stored or used in a snow blower or lawn mower for a year or more according to the product information. Gasoline typically has a shelf life of 90 days unless treated using a gas stabilizer.



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

Trivia question answer: d.

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.