



Author & Automotive Expert James D. Halderman



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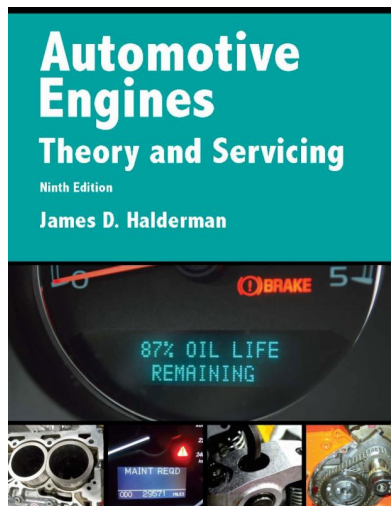
Halderman newsletter

November 2016

What's new with Jim?

I am happy to announce that the latest edition of Automotive Engines will soon be available.
Order ISBN:0-13-465400-5

- Over 165 new or greatly enhanced full-color line drawings and photos have been added to help bring the subject to life.
- All content is correlated to the latest NATEF/ASE tasks
- Case studies have been added to many chapters and all include the "Three C's" (complaint, cause and correction).
- Updated vehicle identification information and Tier 3 emission standards have been added to Chapter 9.
- New content on high pressure common rail (HPCR) diesel engines has been added to Chapter 11.
- Additional information on top tier gasoline has been added to Chapter 12.
- The latest oil ratings and specifications for gasoline and diesel engines have been added to Chapter 15.
- Oxides of nitrogen (NOx) controlled by variable valve timing (VVT) has been added to Chapter 19.
- Using a scan tool for engine condition diagnosis has been added to Chapter 22.
- "Torque paint" information has been added to Chapter 34.



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Find Jim online

www.jameshalderman.com
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Where's Jim?

Presenting at Triton College in Chicago on **November 4**.

Please continue to follow me on [LinkedIn](#), [Facebook](#) and [Twitter](#) for up-to-the-minute updates and for the fantastic interaction I receive from many of you.

Sincerely,
Jim

Auto Trivia

How many slots do most Jeeps have in their front grill?

- a. 5
- b. 6
- c. 7
- d. 9

Answer at the bottom of this page!

Did you know?

Did you know that service information is available on my website with FREE and open access? The content includes:

- Technical Service Bulletins (TSBs) for all vehicles
- Wiring diagrams for all vehicles
- Lug nut tightening torque chart for all vehicles
- TPMS sensor reset procedures
- Oil light reset procedures
- GM RPO codes
- Volumetric efficiency calculator

Plus there is a LOT more.

Visit www.jameshalderman.com and then click on "Jim's Stuff" and then select "favorites". Enjoy.



Sample ASE question

Question:

The airflow from the vents slows down after the vehicle has been driven for a while and the pressure gauges shown represent which most likely cause?

- a. Low on refrigerant
- b. Lack of airflow through the condenser
- c. Defective compressor
- d. Icing of the evaporator

The correct answer is d. An icing evaporator is the most likely cause to reduce the airflow and the heat load, which causes both low- and high-side pressures to be lower than normal. A fault in the temperature control is the most likely cause for the icing of the evaporator. Answer a is not correct because even though a low refrigerant level could cause both pressure gauges to read lower than normal, it would not cause the airflow to decrease after operating for a while. Answer b is not correct because even though a lack of airflow through the condenser would cause a lack of proper cooling, this condition would create an increase, rather than a decrease in high-pressure side and could not cause a decrease in airflow through the vents inside the vehicle. Answer c is not correct because even though a defective compressor could cause lower than normal pressure gauge readings, it could not cause a reduction in airflow through the vents.

FAQ

What is superheat?

Superheat is the amount of heat added to the refrigerant after it has changed from liquid to vapor. Superheat is usually measured as the actual temperature difference between the boiling point of the refrigerant at the inlet and at the outlet of the evaporator. Typical values for superheat in an evaporator are between 4°F and 16°F (3°C and 10°C). Superheat is important because it ensures that all (or almost all) of the refrigerant vaporizes before leaving the evaporator.

Tech Tip

Just because it fits, does not mean it's correct!

Many air-conditioning systems use orifice tubes that look similar if not identical. They are usually color coded for identification. Always use the recommended orifice tube for the vehicle you are servicing. Some examples of the various colors and sizes available include:

Make Color Orifice Size (Inches)

- Chrysler - Purple - 0.0605
- Ford - Red - 0.0605
- Ford - orange - 0.0560
- Ford - brown - 0.0470
- Ford - green - 0.0505
- GM - yellow - 0.0605



Straight Talk

From the October 29, Wheels section of Dayton Daily News

The case of the strange acting A/C control

Wheels: Ron writes by e-mail:

"I am having two problems with my wife's 2009 Chevy Malibu that has approximately 43,000 miles on it. I have made certain to change the oil and filter every 5,000 miles with 5W/30 oil and filter for her car. I made sure to rotate the tires every 5,000 miles, front end alignment and all, twice a year. In other words, everything the book says to do. The first problem is on the AC controls. We will turn the AC on and within a few minutes it flips over to outside air. We have to hold the AC button for about 5 minutes before it stays in AC. Even doing this, it still flips back to outside air, and then back to AC. Only when the car has been on and driving for 20 minutes or longer will it stay on AC.



Halderman: This sounds as if the AC system is low on charge. Once the temperature increases, the pressure in the system increases enough for the low pressure switch to close, thereby allowing the compressor to work. The A/C system uses a low pressure switch that will only allow the compressor to operate when there is enough refrigerant in the system to move the oil through the system. Refrigerant oil (R134a system) does not mix with the refrigerant, but instead uses the movement of the refrigerant through the system to lubricate the compressor.

Have an automotive question? Please write to Jim with your questions at 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.

